



National Institutes of Health, National Cancer Institute Laboratory of Pathology, Histology Laboratory

Procedure	Grossing Procedures	Volume 2
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1. PURPOSE:

This procedure is meant to supplement and centralize the relevant information included in the following:

- Laboratory of Pathology procedures under Surgical Pathology Rotation
- Histology procedure “Specimen Requirements, Handling, and Incident Management”
- Histology procedure “VIP 5 Tissue Processor”

It describes the procedures for the grossing of surgical specimens and the suggested tissue sampling for commonly received surgical specimens. This will standardize procedures for gross examination in the Laboratory of Pathology.

2. PRINCIPLE:

All acceptable tissue samples received with CRIS orders (see Specimen Requirements and Handling SOP) are processed through the Histology laboratory so as to produce slides that are appropriate for microscopic examination by a pathologist. On occasion, foreign bodies, teeth, ribs and similar samples are received for which submitting cassettes for histology is impractical. These are handled as “gross only”; no material is processed through Histology and no microscopic examination is possible.

Grossing of tissues for histopathologic evaluation is carried out by the pathology resident or Pathologists’ Assistant (PA). The major functions at the grossing rotation are:

- Fresh tissue is procured, when required, for other studies (such as microbiology, flow cytometry, molecular studies, and research protocols) and placed in solutions appropriate to each of these studies.
- Fresh tissue for routine histopathologic evaluation is placed in adequate volume of fixative (usually 10% buffered neutral formalin) as soon as possible. This means checking the refrigerator in the gross room frequently.
- Ensure that the tissue sample(s) are acceptable for submission to Histology (bone marrow, ocular, radioactive samples, etc. are not acceptable unless specifically approved by the attending pathologist).
- Confirm that the sample is properly labeled with at least 2 patient identifiers (including patient name, MRN, date of birth) and the surgical pathology number. Confirm that patient identifiers match on every specimen container and all associated paperwork. This is to ensure a double check on sample identification that has been earlier performed by the person accessioning the specimen.
- Check that the full pathology number (SI or SB), that links to the original patient identifiers, is labeled on each specimen container and corresponding tissue cassette(s). If applicable, verify that the subpart designations are on each container and corresponding tissue cassettes. The paperwork, specimen labeling and the cassette are therefore repeatedly reconciled prior to actual grossing.
- Grossing, inking, photo-documentation and dictation, as applicable to each specimen.

- If there is any tissue that has undergone frozen section evaluation for a particular large specimen, the remaining tissue in the “FS” cassettes is to be submitted for processing the same evening.
- Small biopsies (SB-cases) are grossed as a first priority to make sure they are submitted for processing the same evening.
- Large specimen (SI-cases) are grossed after small biopsies. The cassettes for the large specimens are held for 24 hours in formalin before submitting for processing (unless the tissue is already well-fixed).
- Submit appropriately sampled tissue cassettes on all tissue cases received. The only exceptions are sternal bone, ribs, teeth, etc. that may be handled as “gross only” at the direction of the attending.
- Manage decalcification of tissues, when required.
- At the end of the day, ensure that all specimens have been accessioned and examined. If any specimen is missing a CRIS orders, contact the relevant clinician for the CRIS order.

3. RESPONSIBILITIES:

- 3.1 The In-House Resident is responsible for gross examination of both large specimens and biopsies. The pathology resident does this with the help of the senior “hot-seat” resident and/or the attending pathologist.
- 3.2 A pathologist’s assistant who must qualify as high-complexity-testing personnel under Clinical Laboratory Improvement Amendments (CLIA) regulations may perform tissue processing and grossing (as defined by the College of American Pathologists (CAP)) as follows:
 - Biopsy cases such as needle, core and skin biopsies may be dictated and placed in cassettes for histology without direct supervision. Such cases do not require any tissue manipulation other than measuring, bisection (punch biopsies), wrapping and or filtering, and placement in tissue cassettes.
 - Larger specimens submitted for benign conditions may be done with indirect supervision.
 - Specimens for malignancies and those that require orientation should be done in consultation with the in-house resident or attending pathologist.

The PA will not perform the following duties:

- Cutting prostate glands for which the slicing mold is used.

Whole-mount prostates: When cutting whole prostates, a non-pathologist may be present at the time of grossing. The non-pathologist may help orient the specimen in the mold, but cannot work at the grossing station without the pathologist or resident being present, and cannot; dissect; select representative sections; or submit cassettes for histology. Thus, the grossing of radical prostatectomies for whole-mount histology is never performed without direct supervision of a resident or pathologist.

4. MATERIALS:

- 10% buffered formalin (Scientific Supplies and Solutions # EKI-4499-20L or equivalent)
- Disposable #22 scalpel with handle (Scientific Supplies, CA-9422 or similar product)
- Accu Edge knife handles (VWR, #25608-996)
- Accu edge blades for handles (VWR, #25608-994)
- Lens paper
- Mesh biopsy bags, Small , medium , and large
- Autopsy knives, 8 inch (Scientific Supplies, MII-5000)
- Paddle forceps (Mopec, AB042) sterilized from Central Hospital Supply
- Forceps, rulers, scissors sterilized from Central Hospital Supply
- Cork panels (Benjamin Office Supply, QRT-101)
- Capped pins for cork boards (ThermoScientific, DB3000)
- Embedding cassettes with disposable lids, various colors
- Cassette Printer, StatLab pens (StatLab,# SMP-BK) or pencils
- Marking dyes, various colors
- Decalcification solution
- Bouin's fixative
- Specimen containers, various sizes (example: Cardinal Health #ES3704, 64 oz)
- Certified grossing hood
- Calibrated scale
- Formalin waste stream containers
- Glove liners, all sizes (example: VWR, #32935-483, medium)
- Personal Protective Equipment such as gloves, apron and protective eyewear.

5. LABORATORY INFORMATION SYSTEMS:

- All acceptable tissue samples received with CRIS orders
- The specimen is then accessioned into SoftPath creating a Case ID number that will match on all paperwork and tissue cassettes for the case.
- The In-House Resident or PA will then dictate the case reading the patients first and last name, the medical record number and the tissue type off of the container. This information should be dictated into the report.
- A gross description must be dictated for all surgical pathology reports. To start the dictation, press accession, then name, then work-type is 16. Make sure the microphone is turned on.
- Following dictation, press 5 for work order number. If following with another case, press 16 for "describe work-type."
- The case will be transcribed into SoftPath for review by the pathologist and resident the next day.

6. QUALITY ASSURANCE

6.1 Specimen Requirements for Adequate Fixation and Processing

- Successful fixation is highly dependant upon the size of the specimen sections submitted and the amount of ambient fixation prior to placing in the processors. Formalin takes about 24 hours (ambient, room temperature) to penetrate 4 mm slices of moderately dense tissue. It is critical, therefore, to review the specimen requirements (see below) and adhere to them when creating specimen sections for processing. Note: fixation is one process that happens in the tissue processors, infiltration with paraffin is the other. Even if fixation is complete, the specimen sections must still be cut thin and small.
- Biopsies: In general, biopsies (no larger than 1.0 cm in any dimension and no thicker than 3 mm) are received already in formalin and can be processed the same day as taken from the patient. If the biopsy was not received in formalin, it may still be processed the same day at the discretion of the resident/pathologist.
- Routine surgical specimens: These must be placed in a volume of fixative that is at least 2 times that of the specimen and preferably 10 times that of the specimen. If the original container is not big enough, transfer the specimen and labels to a larger one. These specimens must be sectioned/dissected and, if possible, blocked as quickly as practical to facilitate fixation. **Single sections in one cassette should be no larger than 2.0 cm x 1.5 cm and cut no thicker than 3 mm. Any structure surrounded by a capsule or fat must be breadloaved to facilitate reagent infiltration. Excess fat should be removed or processed in a separate cassette.** Two sections can be placed side by side in one cassette as long as neither is larger than 1.5 x 1.0 cm. Longer tissue is acceptable as long as it is thin in both width and thickness. Fix these in ambient 10% formalin overnight before submitting for the next processing run. On Fridays, these samples can be placed on a processor programmed with a weekend delay because they will sit ambient in formalin (Station #1) until the start of the processing program Sunday evening. Make sure, however, that the processor is really set for a delay and not for an earlier STAT run.
- **Special Procedures for BREAST or any specimen requiring HER2 testing:**

Since these specimens may require Her2 testing, their fixation must be no less than 6 hours and no more than 48 hours whenever possible (CAP #ANP.22998). See the Appendix at the back of this SOP for a chart of fixation times. This chart takes into account the time in fixative once the samples are placed in the tissue processors. Samples that are received at the end of the week require special attention because the histology lab is not routinely staffed over the weekend.

Note: the tissue processor fixes in formalin a total of 1.5 hours after start (Routine schedule, no delay). The processors delay on a formalin schedule, so consult with a histotechnologist to make sure the actual time is formalin is between 6 and 48 hours.

1. If a breast case is received fresh, label it with the date and time it was placed in formalin.
2. Specimens received M-W: block and submit for routine processing as usual. For large breast specimens, this means cutting in the cassettes and placing in the hold container of formalin to fix overnight. Submit these for processing the next day. Biopsies in formalin after 2 PM (14:00) must be held to process the next day.
3. Thursday biopsies: submit for processing as usual as long as the total fixation time is at least 6 hours (in fixative by 2 PM (14:00))
4. Thursday larger specimen: Block if possible or block Friday morning. These will have to be processed to come out Saturday. Notify the histology supervisor or on-call histotechnologist so that a technician is available on Saturday.
5. Friday biopsies: submit for Saturday if fixation has been longer than 4.5 hours (the processor fixes another 1.5 hours plus any delay that might be programmed on the processor).
6. Friday late biopsies and larger samples: block and submit for routine weekend processing. These will be in fixative a total of approximately 48 hours.

- **Special Procedures for BRAIN SPECIMEN:**

The following is for any brain specimen larger than a biopsy (> 1.0 cm). The purpose for the above is that formalin penetrates and fixes slowly. In brain, it has been shown to take at least 24 hours to adequately penetrate 4 mm slices. Since brain is so soft anyway, maximum fixation is needed prior to processing. Since surgeons often want results on day 3, the procedure below is needed to optimize fixation without increasing turn-around-time.

It is expected to get a CRIS order along with the sample. When that does not happen, page the neurosurgeon or the Neurosurgery Fellow for a CRIS order. If that does not work, contact Dr. Quezado.

1. Day of surgery:
 - Mon-Thurs, have CRIS: Block specimen. Cut no thicker than 3mm. Place cassettes in “Hold” vat filled with 10% formalin.
 - Friday, have CRIS: Block specimen as above. Place in “Routine” vat. Tell a histotech to make sure the case is placed on a processor set for a weekend delay (not a program to come out Saturday).
 - No CRIS*: Block specimen; place tissue in cassettes labeled with patient name (Note: do NOT do this for any other tissue type). Write notes for later dictation. Place cassettes in “Hold” vat until CRIS is received.
2. Day after surgery: Transfer cassettes from “Hold” vat to “Routine” vat.

- **Special Procedures for LYMPH NODE (in patients with suspected lymphoproliferative disorders):**

Most of these specimens are first handled at the Hematopathology Laboratory and grossed by the hematopathology fellow. If not, at the direction of the hematopathologist, cut the larger nodes into cassettes and allow to fix overnight before submitting for processing. If the case came in Friday, submit for processing on a schedule set for a

weekend delay. Consult with a histotechnologist to make sure the processor is set appropriately.

- Whole prostate glands, breast, large nodes: The whole gland is usually inked, cut and procured on the day of the surgery. The specimen is usually further grossed the following day in customized molds. Once it is grossed, it is usually allowed to fix another day before being placed in a tissue processor. The lymph node packets come in separate containers and are processed with the whole prostate gland in order to adequately fix and infiltrate the fat. See the Whole Mount prostate SOP for details.
- Stat thyroid and other stat surgical specimens: If these cannot be allowed to fix overnight, they can be rushed by modifying the Routine program as follows: Station 1 formalin= 2 hours, station 2 formalin= 5 hours. The rest of the program can remain unchanged, so the tissue still needs to be cut thin just like routine surgical specimens.

6.2 Patient Verification

- Verify the patient name, date of birth and medical record number matches on the specimen container and all paperwork (CRIS, SoftPath, and procurement note).
- Note that the large specimen labels that print from SoftPath contain two patient identifiers (patient name and MRN) and the S-pathology number. The pathology number becomes the unique identifier for that patient, sample, and date of procedure. It must be placed on all paperwork, specimen containers and tissue cassettes. If a discrepancy is found, consult with the accessionist or requesting physician (per the CRIS order) and hold the case until resolved.
- Check all tissue cassettes against the SoftPath generated Case ID number to ensure they all match. The case ID number must be placed on all paperwork, specimen containers and tissue cassettes. If a discrepancy is found, consult with the accessionist or requesting physician (per the CRIS order) and hold the case until resolved

6.3 Specimen and CRIS Problems

Problems include: no CRIS requisition received; specimen container with no label; mismatching demographics; mismatching specimen source between the CRIS and one or more specimen containers; no tissue identified; etc. In general, anatomic pathology specimens are not rejected for testing because they are irreplaceable and/or cannot be easily recollected. However, any problems must be documented and corrected as the grossing resident, attending pathologist, and/or the Director of Clinical Operations see appropriate. 6.4 Missing CRIS orders Verbal test orders are not accepted and it is not possible to accession cases until the CRIS number is received. Therefore missing CRIS orders should be handled as follows:

- The grossing resident and Histology staff will work together to identify cases with missing CRIS orders. The resident must page the appropriate staff to get missing CRIS orders as follows.
- Note: make sure the responsible staff entering the CRIS know to designate the order for **Surgical Pathology**.

- OR samples: page the Fellow listed on the OR schedule or page the On Call Surgery Fellow
- TIL samples: page the On Call Immunotherapy Fellow
- Urology (UOB) samples: page Dr. Pinto, or the On Call UOB Fellow.
- Neurosurgery: page the Neurosurgeon on the Surgery schedule or the Neurosurgery Fellow
- Heme/Onc samples: page the hematopathologist or her staff so they can contact the relevant parties.
- Clinic specimen: these are dropped off to the Histopathology lab by Escort Services and they cannot help with CRIS problems. Look up the patient in CRIS via the MRN. Contact the primary physician listed.
- If the physicians cannot be reached or they do not generate a CRIS order, the resident must notify the Director of Clinical Operations and the relevant Attending Pathologist. Histopathology cannot discard a specimen once it is in the laboratory unless approved by the Director, but the specimen can be returned to the clinic/OR if repeated attempts to get a CRIS fail.
- When the CRIS is received, the Histology staff will accession as usual, but the delayed CRIS problem will be documented in SoftPath as specified in the SoftPath procedures.

6.4 Mislabeled or unlabeled specimens:

No specimen source: For practical considerations, if a case consists of one specimen container, and it is otherwise complete except for the anatomic source on the specimen container, the case is not held for verification. The Histology staff will accession using the specimen source listed on the CRIS and flag the labeling problem in SoftPath. The grossing resident should include in the dictation that the specimen container was labeled with the patient's name, but not with an anatomic source. If there is more than one unlabeled specimen for the same patient, follow the instructions below.

All other labeling problems should be handled as follows:

1. The Histology staff will hold the specimen (s) aside without accessioning it and notify the grossing resident and/or attending pathologist immediately. Keep unfixed samples refrigerated.
2. The grossing resident must contact the service that generated the sample. Use the same contact list as for a missing CRIS orders (see above). Most problems like left side/right side discrepancies will require that the surgeon, clinic physician, or designee come down to the Histology lab to fix the error and initial the correction. Specimens with the wrong or missing patient label must be corrected with new patient labels supplied by the service that generated the sample.
3. If the physician cannot be reached or they do not correct the problem, the resident must notify the Director of Clinical Operations. If the specimen is not fixed, the Director may opt to place in 10% formalin, even if it is unclear what testing was intended.
4. When the labeling is rectified and reconciled, the Histology staff will accession as usual and flag the problem in SoftPath as specified in the SoftPath procedures.

6.5 Quality Problems:

Such problems include inappropriate fixation; delayed fixation; delayed delivery; leaking container; desiccation; no tissue seen in the specimen container; badly damaged blocks; shattered slides; etc. Receipt of such specimen does not necessarily preclude its histologic examination, but may limit its suitability for ancillary studies and diminish its clinical utility. Such problems should be handled as follows:

1. The Histology staff will notify the grossing resident and/or attending pathologist immediately. Keep unfixed samples refrigerated.
2. The pathologist, together with the attending and /or Director of Clinical Operations will be responsible for determining how the specimen should be further processed. In all cases, the requesting physician should be notified of the problem. If applicable, Escort Services (301-496-9295) must be contacted and educated so as to avoid repeat errors.
3. If the pathologist wants to proceed with case, the Histology staff will accession as usual and flag the problem in SoftPath as specified in the SoftPath procedures.
4. The resident must document the specimen condition as it was received and what corrective action was taken. This should also be dictated with the case so as to become part of the medical record. If no tissue is present in the specimen container, the specimen is dictated as “no tissue received in the container.”

6.6 Unclear test orders:

The Histology staff will notify the grossing resident and/or attending pathologist immediately. The pathologist will be responsible for clarifying any unclear orders, including contacting the service that generated the sample, if needed. The resident must document the corrective action taken and may include this in the case dictation. Use the same contact list as for a missing CRIS orders (see above).

7. GENERAL GROSSING PROCEDURES

1. NEVER have more than one specimen container open at a time.
2. NEVER work on more than one case at a time. This practice makes sure that the identity of every specimen is maintained at all times and samples are not switched.
3. Cassettes must be labeled by the cassette printer. It is programmed to write the full S-pathology number with room to include a subpart designation. The cutting protocol may also be printed if there is room. For example: Part 2 of a *5 protocol is labeled: Sx13-0001#2*5.
4. If the labeler is not available, handwriting is acceptable. Use a StatLab pen or soft pencil ONLY. Any other marking device will wash off in the processor solutions. Make sure cassettes are snapped closed.
5. Subpart designations: Multiple specimen containers are numbered, i.e. 1, 2, 3. Multiple cassettes made from a single container are lettered, i.e. 1FS1, 1FS2, 1A, 1B, 2 A-Z, 3A-ZZ. Note: the letters O and I are used in subpart designations.
6. Cassette color coding:
 - Orange: for the AM Hotseat. These are small biopsies and FS blocks

- White: for routine surgicals. These are usually SI cases.
 - Yellow: autopsy
 - Green: additional blocks on an SI case
 - Tan: for alcohol fixed tissue that should not go to formalin
 - Large Orange: for research
7. Transfer frozen section (FS) tissue that is received from the FS room to labeled orange cassettes. Transfer so that the surface that was cut on the cryostat is face down.
 8. All samples are fixed in 10% NBF except those submitted in HistoChoice. HistoChoice samples must be placed in tan cassettes and left in the HistoChoice until placed on a formalin-free processing run.
 9. **CHECK THE REFRIGERATOR FOR TISSUE THAT NEEDS FORMALIN.** Make sure all procurements are done then place in 10% formalin ASAP. Specimens should be opened/breadloaved and completely covered in a volume of fixative about 2 to 10 times the volume of the specimen. Transfer to a larger container if needed. Label with a formalin sticker.
 10. Use Bouins fixative to fix marking ink.
 11. Decalcification: place bony cores and similar small pieces of bony material in gentle decal/fixative. Check to see if soft after 20 minutes. Larger pieces of bone must fix in 10% formalin first for at least 24 hours, before placing in fast decal. Check for complete decal every evening and change the solution. Do NOT let samples stay overnight or over weekends in full-strength decal solution. Rinse decal tissue in water before placing in formalin for processing.
 12. Cut sections thin...about 3 mm (two nickel's thickness) maximum. Maximum size for a single section: 2.0 cm x 1.5 cm. Maximum size for two separate sections being placed in the same cassette: 1.5 x 1.0 cm each. Bivalve capsulated structures. Remove excess fat.
 13. Wrap biopsies and friable tissue to avoid tissue loss and cross contamination: use lens paper for delicate tissues such as brain and nylon or tea bags for tissues like skin and GI.
 14. Note special orientation on the cassette side, ex.: "90 deg", "on edge", "embed ink up". Use a StatMark pen or pencil to do this.
 15. Dictate a cassette key when different tissue types are found in the same specimen container. See the Dictation Templates for examples.
 16. Place SB and fixed SI cases in the formalin vat marked "routine". SB brain biopsies and SI cases that are not adequately fixed must be placed in the formalin vat marked "hold" to fix longer. Remember to move these to the routine vat to be processed the next working day.
 17. There are a few "gross only" specimens. These are dictated, but no tissue is submitted for permanents. These include: sternal bone and ribs, teeth, and foreign bodies.
 18. Photograph cases of interest using the PathStation camera, especially if not procured.
 19. Remove sutures, staples and other foreign bodies before submitting tissue to be processed.
 20. **SAVE ALL SPECIMEN CONTAINERS. SAVE ALL ACCESSIONED CRIS AND ASSOCIATED PAPERWORK.**

8. GUIDELINES FOR DISSECTION:

Submit appropriately sampled tissue cassettes on all tissue cases received. The only exceptions are sternal bone, ribs, teeth, etc. that may be handled as “gross only” at the direction of the attending. The following texts are available at the grossing station and contain anatomic drawings to assist with specimen orientation and sectioning. Always consult with the attending for help with anything that is not clear.

1. Lester, *Manual of Surgical Pathology*
2. Hruban, Westra, Philips & Isacson, *Surgical Pathology dissection, an illustrated guide*

8.1 Specimen Orientation

Anatomic orientation is best appreciated before dissection. Often times a surgeon will use sutures to designate important structures or margins. If there are any questions with orientation consult the surgeon before proceeding with the gross examination.

8.2 Handling of Tissues

All tissues are to be handled cautiously and gently but small specimens in particular must be treated with care. Small tissue fragments may be crushed while transferring to a cassette or lost during processing.

Steps for handling small specimens:

1. Small specimens should never be squeezed between the ends of forceps or the tips of the fingers. Small specimens should be gently lifted from the specimen container using the end of a wooden applicator or pickups. To avoid this, small specimens may be filtered directly into a tissue bag.
2. Small specimens should be quickly placed in fixative. If special studies or a frozen section is required the specimen should be kept damp with saline.
3. For extremely small specimens, it is helpful to mark the fragments with eosin for the histotechnologist. The specimen should be placed in the center of a piece of lens paper. Draw a circle around the specimen with a StatMark pen and carefully fold the lens paper around the specimen. It can then be placed into the cassette.
- 4.

8.3 Inking the Specimen

Ink is used to easily identify surgical margins on histologic examination. Apply ink before sectioning a specimen if possible. Dry the specimen before applying ink. Apply Bouin’s fixative and allow to dry before cutting into the specimen.

8.4 Opening and Sectioning

If possible localize the lesion before opening a specimen. Open the specimen in a way that shows the relationship of the lesion to surrounding structures. Specimens should be cut in a plane that shows the greatest surface area of the tumor. Tubular structures (ie. colon, esophagus, etc) should generally be opened along the side opposite the lesion and not

through the lesion. Be sure to examine the entire specimen so as to fully understand the extent of the lesion and discover any unexpected pathology.

8.5 Gross Description

The gross description serves as a descriptive, permanent report of a specimen's macroscopic features. It allows the pathologist to correlate the slide to the location on the specimen. The description should start with what specimen is received and move methodically from one component of the specimen to the next. The gross description should record characteristics of the specimen to include: size, weight, color, shape, consistency, and any specific lesions. A description that jumps from one specimen component to another makes an incoherent and incomprehensible report.

8.6 Specimen Sampling

1. Tumor sampling-Most sections of tumor should be submitted from the periphery. The periphery is often more viable while the centers are frequently necrotic. Peripheral sections of the tumor can also demonstrate the interface of the tumor with adjacent normal tissue. Be sure to sample all areas of the tumor that appear grossly different. In general, the rule for sampling a tumor is one section per cm of tumor in its greatest dimension.

2. Margin sampling-Always sample the specimen margins even if the specimen is thought to be benign. Perpendicular sections of the margin show the relationship of the lesion to the margin and are especially helpful when the tumor closely approaches the surgical margin. Parallel (en face) sections of the margin allow a larger surface area to be evaluated in a single section. This is best for evaluating tubular structures when the tumor appears far away from the margin.

3. Lymph Node sampling for staging-Lymph nodes are easiest to find in unfixed tissue where they can be more easily palpated. Submit the soft tissue margin before conducting a lymph node search. Palpate the adipose tissue to identify lymph nodes. Lymph nodes larger than 5 mm should be serially sectioned and submitted in the same cassette.

4. Normal Tissue sampling-Always submit at least one section of each normal structure received to document that the specimen was removed and examined.

8.7 Specimen Containers

1. For containers that do not have remnant tissue, decant the formalin into a formalin waste container.
2. Cap the container and place in the burn box that is marked for specimen containers. These boxes will be labeled with the resident's name and the discard date. The discard date is one month after the end of the resident's rotation.
3. For containers that contain remnant tissue, make sure the lid is on and leave on the shelves in the grossing area for this purpose. These tissues will stay in the grossing area until the completion of the resident's rotation. Then they will go to autopsy to remain for at least another month. The intent is to retain remnant tissue for at least 2 weeks after the final reports are signed and results reported to the referring physician.

8.8 Dictation Templates

** To start dictation, press accession, then name, then work-type is 16. Make sure the microphone is turned on.

This is _____ dictating for case# _____, patient name _____, MRN _____, and date of birth _____.

Gross Description for Single specimen: (Don't forget to mention Orientation, Pictures, Inking, Bisecting, Weight, decalcification as applicable)

Received is a single formalin filled container labeled with the patient's name, medical record, and "specimen description on container." The specimen consists of _____ that measures _____ cm and weighs _____ grams. The specimen is

*filtered into a tea bag
wrapped in lens paper
bisected
sectioned
placed in decal*

Melanoma-No Black Ink ?Infectious/Lymphoma- No Ink necessary

and *entirely* submitted in an *orange, white* cassette labeled _____ for permanent processing. Dictate a cassette key for cases that have significant landmarks or different tissue types that were same container, for example: "Cassettes A thru C contain representative sections from the largest mass measuring 1.0 cm in greatest dimension. Cassette D contains the surgical margin inked blue that lies 0.5 cm from the largest mass." For example, a total thyroidectomy dictation will include the following elements:

"Received fresh in a specimen container labeled with the patient's name, medical record number, and further specified as "left thyroid and isthmus" is an oriented left thyroid and isthmus, 4 x 3.5 x 1.4 cm and 6.7 grams. Dr. ____ states that the suture denotes the left superior pole. The left thyroid is 3.1 x 1.5 x 1.1 cm. The isthmus is 3.1 x 2.5 x 1.4 cm. Within the isthmus is a nodule, 2 x 1.5 x 1.4 cm that abuts the capsular surface. Gross photographs are taken. The nodule has a tan-brown gelatinous cut surface with firm tan-white foci that is within 1 mm of the posterior surface. The posterior surface is inked red. The remainder of the specimen is inked black. Approximately 20% of tissue from the isthmus nodule is procured for research by Dr. ____ in the OR with half given to Dr. ____ Lab. The left thyroid lobe is incised by Dr. ____ revealing a maroon-red fleshy cut surface. Approximately 0.5 x 0.5 x 0.5 cm of tissue from the left lobe is procured for Dr. ____ Lab in the OR. The remainder of the specimen is placed into formalin and submitted to Pathology for permanent. The procurement was documented by ____ on 03/23/11 at 9:45 a.m. Also received, yet entirely submitted for research, labeled with the patient's name, medical record number, and "fat" is a 1 x 1 x 1-cm normal-appearing adipose tissue fragment; entirely procured for ____ Lab. A scalloped section of the isthmus nodule from which procurement took place is placed into a white cassette labeled S111-case #1A. The isthmus is serially sectioned from left to right and put into consecutive cassettes labeled 1B-1F, with 1B representing the left and 1F representing the right. The isthmus is serially sectioned from inferior to superior and placed in white cassettes labeled 1H-1K.

Gross Description for Multiple specimens:

Received are *two/three/four* formalin-filled containers labeled with the patient's name, medical record number, and further described as follows:

1. "specimen description" The specimen consists of _____ that measures _____ cm. The specimen is *bisected/sectioned/filtered into a tea bag/wrapped in lens paper* and entirely submitted in an orange cassette labeled _____ for permanent processing.
2. "specimen description" The specimen consists of _____ that measures _____ cm. The specimen is *bisected/sectioned/filtered into a tea bag/wrapped in lens paper* and entirely submitted in an orange cassette labeled _____ for permanent processing.
3. *and so on*

Dictation for Specimens That Have Undergone Frozen Sections:

Transcriptionist, please start with the intraoperative consultation.

Impression: 1FS diagnosis: " _____ "

And so on for all FS serials.

Transcriptionist, please go to the Gross Description section:

Read out the gross description given at the time of Frozen Section. Then continue as follows:

In surgical pathology the sample was received in a single formalin-filled container labeled with the patient's name, medical record number, and " _____." The specimen consists of a cassette(s) labeled " _____." Additional tissue is absent/present (*describe the additional tissue, if any*). The specimen in the cassette is transferred to orange cassette labeled _____ for permanent processing. The remaining tissue is *bisected/sectioned/filtered into a tea bag/wrapped in lens paper* and entirely submitted in an orange cassette labeled _____ for permanent processing.

Following dictation, press 5 for work order number, and then press 16 for "describe work-type."

For individual specimen sampling and dictation see Appendices A-P.

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Tidiane, E. (n.d.). *Surgical pathology grossing manual abq health partners pathology*. Retrieved from <http://www.pathabqhp.com/files/55810223.pdf>

Qu, Z., Anders-DiPonio, M., Ghorbani, R., & Le, M. (2013). *E-manual for specimen gross examination in surgical pathology*. (3 ed.). NuoNuo Medical Informatics, LLC. Retrieved from <http://www.essentialpathology.info/>

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All images copied from:

Westra, W., Hruban, R., Phelps, T., & Isacson, C. (2003). *Surgical pathology dissection an illustrated guide*. (2 ed.). New York: Springer-Verlag.

Verbeke, Caroline S. (2012). *Hepatobiliary and pancreas- long course*. Department of Laboratory Medicine, Karolinska Institute, Karolinska University Hospital, Stockholm, Sweden

APPENDIX A: SMALL BIOPSIES

Core Biopsies (prostate, lymph node, liver, kidney, lung, etc)

- Note the color.
- Measure the length of all if less than 3. If more than 3 give a range in length.
- Filter through a biopsy or tea bag and entirely submit in 1 cassette unless the diagnosis is lymphoma. Then separate into 2 cassettes.
- For liver cores, determine if the biopsy should be medical, infectious, or HepB. Advise Histology accordingly so the cassette is appropriately labeled.
- **Note: Remember to dictate time in formalin for breast cores.**

Sample Dictation:

“Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is/are __#__ (color) thread-like tissue cores measuring ___ cm in length which is/are filtered through a biopsy bag and entirely submitted in orange cassette SB_____.”

ECC: (endocervical curettage)

- An endocervical brush is usually received.
- Scrape the tissue from the brush into the formalin container.
- Filter through a tea bag capturing all the tissue.
- Measure in aggregate and describe. Typically tan or grey mucoid tissue.
- Entirely submit.

Sample Dictation

Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” are multiple grey-white mucoid tissue fragments measuring __x__x__ cm in aggregate dimensions. The specimen is filtered through a tea bag and entirely submitted in orange cassette SB_____.

Cervical Biopsy:

- Describe color and number of tissue fragments. If more than 4 you can say multiple.
- Measure in aggregate dimensions or give a range in size.
- Filter through a biopsy bag and entirely submit.

Sample Dictation:

1 fragment: “Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a single pink-tan soft tissue fragment measuring __X__X__ cm which is filtered through a biopsy bag and entirely submitted in orange cassette SB_____.”

Multiple fragments: “Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” are multiple pink-tan soft tissue fragments ranging from ___ to ___ in greatest dimension and measuring __x__x__ cm in aggregate dimension. The fragments are filtered through a biopsy bag and entirely submitted in orange cassette SB _____.”

Endometrial Biopsy:

- Describe tissue including color, consistency, and measure in aggregate dimensions.
- Filter through a tea bag and entirely submit.

Sample Dictation:

“Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” are multiple red-brown soft tissue fragments measuring __x__x__ cm in aggregate. The specimen is filtered through a tea bag/wrapped in lens paper and entirely submitted in orange cassette SB _____.”

Laminectomy:

- Describe the color, shape and consistency.
- Give an aggregate 3 dimensional measurement.
- Filter into tea/biopsy bag.
- Submit entirely if less than 3 cassettes.

Miscellaneous small biopsies:

- Describe tissue including color and number. Can say multiple if more than 4.
- Measure in aggregate or give a range in size.
- Filter through a biopsy bag and entirely submit.

Sinus Content

- Describe the tissue including color and consistency. Note the presence of any bone.
- Give an aggregate 3 dimensional measurement.
- Entirely submit soft tissue, especially if polyps are seen.
- Decal bone if necessary and submit 1 representative cassette.

APPENDIX B: SKIN

Punch Biopsy:

- Measure in 3 dimensions (or measure diameter & depth).
- Describe the skin surface and any lesions identified (for example: color, texture).
- Bisect if greater than 4 mm in diameter.
- Bisect perpendicular to the skin surface.
- Submit entirely.
- Some punch biopsies will be received previously bisected. One half has already been procured for research. Describe and measure the half received and entirely submit. Do not further section these specimens.

Sample dictation:

Punch Biopsy: (If less than 0.4 submit un-cut. If 0.4 cm or greater bisect.)

“Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a __ x __ cm apparent punch biopsy of (color) skin excised to a depth of __ cm. The specimen is bisected and entirely submitted in orange cassette SB_____.”

Procured: (If the specimen has been previously cut, do not dissect further)

“Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a semi-circular fragment of (color) skin excised to a depth of __ cm. The specimen is entirely submitted in orange cassette SB_____.”

Shave Biopsy: (If 0.4 cm or greater, bisect or section accordingly.)

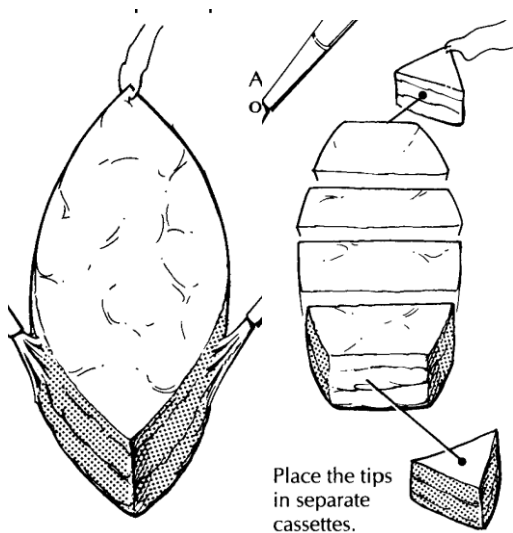
- Measure in 3 dimensions or measure the surface area and thickness.
- Describe the skin surface and any lesions identified.
- Ink the deep aspect blue.
- If greater than 4 mm, bisect or section accordingly into 2-3 mm sections.
- Submit entirely.

Sample Dictation:

“Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a shave biopsy of (color) skin measuring ___x___x___ cm. The surgical margin is inked blue. The specimen is bisected/trisected and entirely submitted in orange cassette SB_____.”

Skin Ellipse:

- Measure in 3 dimensions.
- Describe the skin surface and any lesions identified.
- If unoriented ink the surgical margin blue.
- If oriented ink the 12-3-6 o’clock side one color, the 6-9-12 o’clock side another color and the deep aspect blue.
- Serially section from tip to tip perpendicular to the skin surface.
- Submit the specimen sequentially. Place each tip individually in separate cassettes. The remaining cassettes can hold 2-3 sections each.



Sample Dictation:

Un-oriented: “Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a ___ x ___ x ___ cm ellipse of (color) (hairbearing) skin and subcutaneous soft tissue. A ___ cm (uniformly, irregularity pigmented (color)(macule,papule) with (smooth, uniform, irregular) borders is present in the center of the skin surface. The lesion is ___ cm from the skin margin grossly. The surgical margin is inked blue. The specimen is serially sectioned and entirely submitted in orange cassettes SB_____.”

Oriented: “Received is a single formalin filled container labeled with the patient’s name, medical record number and “Tissue type from container” is a ___ x ___ x ___ cm ellipse of (color) (hairbearing) skin and subcutaneous soft tissue. A ___ cm (uniformly, irregularity pigmented (color)(macule,papule) with (smooth, uniform, irregular) borders is present in the center of the skin surface. The lesion is ___ cm from the skin margin grossly. A suture marks the _____ position. The 12-3-6 o’clock margin is inked (color). The 6-9-12 o’clock position is inked (2nd color) and the deep margin is inked blue. The specimen is serially sectioned and entirely submitted in orange cassettes SB_____ with the 12 o’clock tip in cassette _____ and the 6 o’clock tip in cassette _____.”

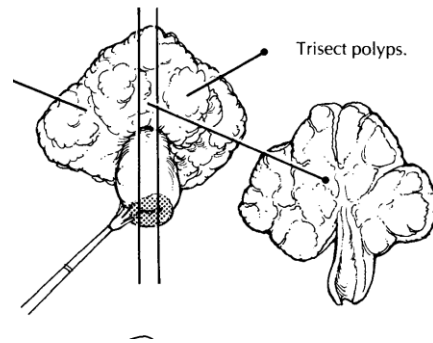
APPENDIX C: GI BIOPSIES AND POLYPS

GI Biopsies:

- Describe color and number of tissue fragments. If more than 4 you can say multiple.
- Measure in aggregate dimensions or give a range in size.
- Filter through a biopsy bag and entirely submit.

GI Biopsy with polyp:

- Describe shape and color of the tissue and measure in 3 dimensions.
- Identify the stalk or surgical resection margin if possible and ink black.
- Serially section into 0.2 cm sections (if greater than 0.4 cm) showing the relationship of the stalk to the head of the polyp and entirely submit.



Sample Dictation: Colon Biopsy:

1 fragment: "Received is a single formalin filled container labeled with the patient's name, medical record number and "Tissue type from container" is a single fragment of pink-tan soft tissue measuring ___X___X___ cm which is filtered through a biopsy bag and entirely submitted in orange cassette SB _____."

Multiple fragments: "Received is a single formalin filled container labeled with the patient's name, medical record number and "Tissue type from container" are (# or multiple) fragments of pink-tan soft tissue ranging from ___ to ___ in greatest dimension and measuring ___x___x___ cm in aggregate dimension. The fragments are filtered through a biopsy bag and entirely submitted in orange cassette SB _____."

GI Biopsy with polyp: (Section if greater than 0.4 cm). "Received is a single formalin filled container labeled with the patient's name, medical record number and "Tissue type from container" is a (color) polypoid soft tissue fragment measuring ___x___x___ cm. The surgical margin/stalk (if identified) is inked black. The specimen is bisected/serially sectioned and submitted in orange cassette/cassettes SB _____."

APPENDIX D: BONE AND JOINT

Bone Biopsy

- Count the number of fragments. If more than four can say multiple.
- Give a range in size from smallest to largest and a 3 dimensional aggregate measurement.
- Describe the fragments in terms of shape, color and consistency
- If any soft tissue is present describe and place into separate cassettes.
- Decal bone if necessary. Be careful not to over decalcify tissue.
- Submit entirely.

Sample dictation: "Received fresh/in formalin labeled with the patient's name, medical record number and "tissue type from container" are __# of/multiple (color/shape) of bone and soft tissue fragments ranging from __ to __ in greatest dimension and measuring __x__x__ cm in aggregate. The soft tissue is entirely submitted in cassette ____ and the boney fragments are entirely submitted in cassette ____for decal."

Femoral Head:

- Usually removed because of osteoarthritis or a hip fracture. It is important to evaluate and sample the articular surface and any fracture site.
- Measure in 3 dimensions.
- Describe the articular cartilage and the presence of any osteophyte formation.
- Measure the thickness of the cartilage.
- Look for hemorrhage, necrosis, or tumors.
- For osteoarthritis submit a section to show articular cartilage and underlying bone.
- For fracture submit a section of the fracture site.
- Submit a section of the resection margin and any attached soft tissue.

Sample dictation: "Received fresh/in formalin labeled with the patient's name, medical record number and "tissue type from container" (an ovoid, a spherical, an oblong, a flattened) femoral head which measures __ x __ x __ cm and includes a __ cm segment of femoral neck. Soft tissue is/is not attached. The articular surface is (glistening and smooth, markedly roughened, with focal/diffuse thinning of the cartilage and eburnation of the underlying bone. Sectioning reveals describe cut. Representative sections are submitted in cassettes __ and __ for decalcification: (submit 2 sections of articular surfaces and underlying changes, resection margin and include any soft tissue fragments)"

Knee Joints:

- Measure the fragments in aggregate 3 dimensions.
- Describe the articular surface of the bone fragments and note the presence of identifiable bone (tibial plateau, femoral condyles, patella).
- Note the presence of osteophyte formation.
- Measure and describe any attached soft tissue.
- Submit one section to show articular surface and underlying bone.

Sample dictation: "Received fresh/in formalin labeled with the patient's name, medical record number and "tissue type from container" are multiple irregular fragments of bone which include recognizable portions of the tibial plateau, femoral condyles, and the patella. A small amount of soft tissue is attached. The tibial plateau measures ___ x ___ cm and is ___ cm thick. The articular surfaces, are (glistening and smooth, markedly roughened, with focal/diffuse thinning of the cartilage and eburnation of the underlying bone). Osteophyte formation is seen. Representative sections are submitted in cassette ___ for decalcification. (If any soft tissue is present submit it separately)."

Digits:

- Measure length and diameter.
- Describe the skin to include any lesions.
- Describe the resection margin.
- Section and evaluate the bone describing any areas of softening or hemorrhage.
- Submit a section of the resection margin, any skin lesions and section of bone to include any abnormal areas.

Sample dictation: "Received fresh/in formalin labeled with the patient's name, medical record number and "tissue type from container" is a (finger/toe) that measures ___ cm in length x ___ cm in maximum diameter that has been amputated through the middle phalange bone. The skin resection margin is ___ cm distal from the bone and soft tissue margins. All resection margins are smooth and grossly unremarkable. There is a ___ x ___ cm ulcer on the skin surface on the dorsal aspect of the specimen. The lesion is ___ cm from the proximal resection margin. The ulcer bed is gray-green with firm necrotic tissue. The nail and nailbed are grossly intact and unremarkable. Sectioning through the skin ulcer reveals a gray-green discoloration cut surface with possible necrosis of the underlying soft tissue, which grossly appears to extend to the underlying bone. The finger is bisected longitudinally and the phalangeal bone is appears grossly unremarkable with a thin layer of cortical bone and central red trabecular medullary bone."

APPENDIX E: BREAST

Breast

An excisional biopsy is typically the complete removal of a lesion, intended for primary diagnosis of a breast lesion. If there was a prior diagnosis of malignancy by needle core biopsy or another means, the purpose of the procedure is to obtain wide margins. All breast excisions should be inked in order to evaluate margins. Fragmented biopsies are inked as well because the lesion may be located in only one of the fragments. Breast specimens may require Her2 testing, so their fixation must be no less than 6 hours and no more than 48 hours whenever possible (CAP #ANP.22998). See Appendix 6 for a chart of fixation times. This chart takes into account the time in fixative once the samples are placed in the tissue processors. Samples that are received at the end of the week require special attention because the histology lab is not routinely staffed over the weekend.

Special Procedures for BREAST or any specimen requiring HER2 testing:

Since these specimens may require Her2 testing, their fixation must be no less than 6 hours and no more than 48 hours whenever possible (CAP #ANP.22998). See the Appendix at the back of this SOP for a chart of fixation times. This chart takes into account the time in fixative once the samples are placed in the tissue processors. Samples that are received at the end of the week require special attention because the histology lab is not routinely staffed over the weekend.

Note: the tissue processor fixes in formalin a total of 1.5 hours after start (Routine schedule, no delay). The processors delay on a formalin schedule, so consult with a histotechnologist to make sure the actual time is formalin is between 6 and 48 hours.

1. If a breast case is received fresh, label it with the date and time it was placed in formalin.
2. Specimens received M-W: block and submit for routine processing as usual. For large breast specimens, this means cutting in the cassettes and placing in the hold container of formalin to fix overnight. Submit these for processing the next day. Biopsies in formalin after 2 PM (14:00) must be held to process the next day.
3. Thursday biopsies: submit for processing as usual as long as the total fixation time is at least 6 hours (in fixative by 2 PM (14:00))
4. Thursday larger specimen: Block if possible or block Friday morning. These will have to be processed to come out Saturday. Notify the histology supervisor or on-call histotechnologist so that a technician is available on Saturday.
5. Friday biopsies: submit for Saturday if fixation has been longer than 4.5 hours (the processor fixes another 1.5 hours plus any delay that might be programmed on the processor).
6. Friday late biopsies and larger samples: block and submit for routine weekend processing. These will be in fixative a total of approximately 48 hours.

Excision for Palpable Mass:

Processing the specimen:

1. Write on the container the time the specimen was placed in formalin.
2. Orient the specimen if possible. Weigh and measure in three dimensions.
3. Record the presence of skin, muscle, or fascia if present. Describe and Measure each structure.
4. If oriented, ink in six colors: Recommended ink code: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. Apply Bouin's and allow to dry. Ink entirely black if unoriented.
5. Serially section perpendicular to the long axis keeping the slices in order.
6. Describe and measure any lesions including size, color, consistency, shape and noting the distance of the lesion from each margin.
7. Look for any additional smaller lesions, hemorrhage or necrosis. If multiple lesions are seen, note their relationship to each other.
8. Describe the remainder of the cut surface.
9. Section rounded end pieces perpendicular to the inked surface.
10. Submit 1-2 perpendicular sections from each margin including tumor if possible and skin if present. Submit at least one section per cm of tumor. If the specimen is less than 4 cm in greatest dimension submit in its entirety. For larger specimens, submit 1-2 perpendicular sections from each of the six margins and one section per cm of tumor (but at least 2-5 sections).
11. If the lesion appears benign, submit entirely if it can be done in less than 10 cassettes. For larger specimens, submit 10 sections of the fibrous tissue including perpendicular sections of the margins and the border of the lesion with surrounding breast tissue. Submit any abnormal appearing areas including areas of hemorrhage or necrosis.
12. If the entire specimen is not submitted estimate the percentage of tissue examined.
13. Document the total fixation time in the pathology report.

Sample Dictation

“The specimen is received fresh and consists of a __X__X__ cm portion of fibroadipose tissue with two attached sutures. The long suture marks the lateral aspect and the short suture marks the superior aspect. The specimen is inked as follows: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. The specimen is serially sectioned revealing a __x__x__ cm hard, white stellate mass that is comes within ___cm of the medial resection margin. The mass is __ cm from the superior margin, ___ cm from the inferior margin, __ cm from the lateral margin, __ cm from the posterior margin, and __ cm from the anterior margin. The remainder of the breast tissue consists of approximately ___% unremarkable adipose tissue and ___% grey white fibrous tissue. The entire tumor and ___% of the entire specimen are submitted for histologic examination. The specimen has been in formalin for ___hours. Cassette summary

Breast Excision with Needle Localization Wire/Microcalcifications

The specimen is usually received with a specimen radiograph. If one is not received, request the x-ray from radiology before proceeding. If a lesion is seen grossly, the specimen can be processed like an excision for palpable mass. If a lesion is not seen grossly, the radiograph is extremely beneficial for sampling purposes.

Processing the Specimen:

1. Write on the container the time the specimen was placed in formalin.
2. Orient the specimen if possible. Weigh and measure in three dimensions.
3. Record the presence of skin, muscle, or fascia if present. Describe and measure each structure.
4. If oriented, ink in six colors: Recommended ink code: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. Apply Bouin's and allow to dry. Ink entirely black if unoriented.
5. Serially section perpendicular to the needle localization wire keeping the slices in order.
6. Describe and measure any lesions including size, color, consistency, shape and noting the distance of the lesion from each margin.
7. Look for any additional smaller lesions, hemorrhage or necrosis. If multiple lesions are seen, note their relationship to each other.
8. If a lesion is not seen it is often helpful to x-ray the slices. The x-ray can be used to identify small densities or areas of microcalcifications.
9. Describe the remainder of the cut surface.
10. Section rounded end pieces perpendicular to the inked surface.
11. For identifiable lesions, submit 1-2 perpendicular sections from each margin including tumor if possible and skin if present. Submit at least one section per cm of tumor. If the specimen is less than 4 cm in greatest dimension submit in its entirety. For larger specimens, submit 1-2 perpendicular sections from each of the six margins and one section per cm of tumor (but at least 2-5 sections).
12. If a lesion is not identified, submit any densities seen by x-ray and/or any slices containing microcalcifications along with the slices immediately adjacent. In addition, submit all fibrous areas and representative sections of the margins.
13. If the entire specimen is not submitted, estimate the percentage of tissue examined.
14. Document the total fixation time in the pathology report.

Sample Dictation

"The specimen is received fresh and consists of a __X __X __ cm portion of fibroadipose tissue with two attached sutures and a specimen radiograph. The long suture marks the lateral aspect and the short suture marks the superior aspect. A localizing wire enters the ____ aspect of the specimen. The specimen is inked as follows: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. The specimen is serially sectioned revealing a __x __x__ cm hard, white stellate

mass at the tip of the localizing wire that is located in slice __. The lesion comes within ___cm of the medial resection margin. The mass is __ cm from the superior margin, ___ cm from the inferior margin, __ cm from the lateral margin, __ cm from the posterior margin, and __ cm from the anterior margin. The remainder of the breast tissue consists of approximately ___% unremarkable adipose tissue and ___% grey white fibrous tissue. The entire tumor and ___% of the entire specimen are submitted for histologic examination. The specimen has been in formalin for ___hours. Cassette summary

Sample Dictation (no mass)

“The specimen is received fresh and consists of a __X__X__ cm portion of fibroadipose tissue with two attached sutures and a specimen radiograph. The long suture marks the lateral aspect and the short suture marks the superior aspect. A localizing wire enters the ___ aspect of the specimen. The specimen is inked as follows: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. The specimen is serially sectioned. The cut surface consists of dense white fibrous tissue but a distinct lesion is not seen grossly. The x-ray shows microcalcifications (in slices ____). The remainder of the breast tissue consists of approximately ___% unremarkable adipose tissue and ___% grey white fibrous tissue. The slices containing microcalcifications and the slices adjacent are entirely submitted. The specimen has been in formalin for ___hours. Cassette summary

Re-Excision:

A re-excision is performed with malignancy is found at the margins of a previous biopsy. The specimen almost always includes an ellipse of skin and scar from the previous biopsy. Nipple is usually not present. The biopsy site should be identified and described. This area should not be described as tumor because biopsy site changes make identification of tumor difficult.

Processing the Specimen:

1. Write on the container the time the specimen was placed in formalin.
2. Orient the specimen if possible. Weigh and measure in three dimensions.
3. Record the presence of skin and describe the biopsy scar.
4. If oriented, ink in six colors: Recommended ink code: Superior-blue,
5. inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. Apply Bouin’s and allow to dry. Ink entirely black if unoriented.
6. Serially section without cutting through the skin surface.
7. Measure the biopsy cavity and describe the wall (thickness of the wall and any hemorrhage, necrosis, etc around the periphery). Look for any residual tumor.
8. Measure the distance of the biopsy cavity from each of the margins.
9. Describe the remainder of the cut surface.
10. Section rounded end pieces perpendicular to the inked surface.
11. Submit 1-2 perpendicular sections from each margin including biopsy cavity if possible.
12. Submit at least one section per cm of biopsy from areas most suspicious for residual tumor.
13. Submit a section of skin from area of the scar.
14. Submit up to 3 representative sections of tissue from fibrous areas.
15. If the entire specimen is not submitted estimate the percentage of tissue examined.

16. Document the total fixation time in the pathology report.

Sample Dictation

“The specimen is received fresh and consists of a __X__X__ cm portion of fibroadipose tissue consistent with re-excision specimen. The specimen is partially covered by an ellipse of (color) skin that measures __x__ cm. There is a well healed scar on the skin surface that measures __cm in length. Attached to the specimen are two sutures. The long suture marks the lateral aspect and the short suture marks the superior aspect. The specimen is inked as follows: Superior-blue, inferior-green, medial-yellow, lateral-orange, anterior-red, posterior-black. The specimen is serially sectioned. On sectioning, a cystic cavity is revealed that measures __x__x__cm. The cyst wall is ____ and measures __ in thickness. The periphery is surrounded by (dense fibrous tissue/yellow possible necrosis/etc). The biopsy cavity comes within __ of the closest deep margin, __ cm from the superior margin, __ cm from the inferior margin, __ cm from the lateral margin, __ cm from the medial margin, and __ cm from the anterior margin. No residual tumor is seen/possible residual tumor is seen (describe). The remainder of the breast tissue consists of approximately __% unremarkable adipose tissue and __% grey white fibrous tissue. The specimen has been in formalin for ____hours. Cassette summary

Lumpectomy image

Mastectomy:

The specimen received may be a simple mastectomy (without an axillary tail), a modified radical mastectomy (includes axillary tail) or a radical mastectomy (includes axillary tail and pectoralis muscle). A lesion can often be palpated. However if a lesion is not identified it is beneficial to x-ray the specimen to help identify calcifications or radiograph clips.

Processing the Specimen:

1. Weigh and measure the breast and the axillary tail.
2. Describe the attached skin ellipse including the size, color, presence of skin retraction, presence of ulceration over tumors, and any skin lesions that are seen.
3. Measure the size of the nipple. Describe any areas of retraction, inversion, or crusted surface which could represent Paget's disease.
4. Note the presence of any scars. Measure the size and note the condition of the scar (well-healed, sutured) and the quadrant of the incision.
5. Ink the deep margin black. The superior and inferior margins should be inked different colors.
6. If an axillary tail is present it should be separated and set aside for a lymph node dissection.
7. Serially section the breast into 5 mm intervals but do not cut through the skin.
8. Palpate each slice to identify lesions. Identify previous biopsy site and residual tumor. Note the size of the tumor, location (quadrant), and the distance from the margins (superior, inferior, deep, and skin). Describe the color, borders (infiltrating, well-circumscribed, poorly circumscribed), consistency and relationship to the biopsy cavity. Describe and measure the biopsy cavity.
9. If more than one lesion is seen measure the distance between the lesions and submit a cassette of tissue between the two lesions.
10. Take perpendicular sections of the deep margin closest to lesion.
11. Describe the remainder of the cut surface. Approximate the percentage of fibrous breast tissue and the percentage of adipose tissue present.
12. Amputate the nipple in the plane of the skin. Take one deeper section in the same plane to demonstrate the major nipple ducts and submit in one cassette. Serially section the more superficial section perpendicular to the skin. Submit all these sections in one cassette.
13. Submit one section of skin to include any scars or skin lesions.
14. Submit representative perpendicular sections of the tumor with relationship to the margins (superior, inferior, deep, and skin), at least one section per cm but no less than 4 sections.
15. Submit representative sections of fibrous tissue from each of the four quadrants (upper outer, upper inner, lower outer, lower inner).
16. Section through the axillary tail and look for lymph nodes. Give a range in measurement. Submit all lymph nodes identified.
17. Document total fixation time in the pathology report.

Sample Dictation:

“The specimen is received fresh and consists of a left modified radical mastectomy specimen that measures ___ x ___ x ___ cm. The specimen is partially covered by an elliptical portion of (color) skin that measures ___x___cm. There is a ___cm in diameter (unremarkable/inverted) nipple located in ___quadrant/in the center of the skin surface. _____ to the nipple in the ___quadrant is a ___ cm scar. The specimen is marked with sutures. The long suture marks the lateral aspect and a short suture marks the superior aspect. Attached at the lateral aspect is an axillary tail that measures ___x___cm. The deep margin is inked black. The superior margin is inked blue and the inferior margin is inked green. The specimen is serially sectioned from medial to lateral. Sectioning reveals a (color)(well-circumscribed, stellate) lesion within the ___quadrant that comes within___ cm of the closest ___margin. The lesion is ___ cm from the nipple, ___ cm from the superior margin, ___ cm from the inferior margin, ___ cm from the lateral margin, ___ cm from the posterior margin, ___cm from the medial margin and ___ cm from the anterior margin. The remaining breast parenchyma consists of ___% yellow adipose tissue and ___% grey-white firm fibrous tissue. No other lesions are seen/cystic areas are seen within the fibrous tissue. Sectioning through the axillary tail reveals (#) possible lymph nodes ranging from ___ to ___cm in greatest dimension. Sectioning through the largest nodule reveals (pink tan, hard white-grey) cut surface. Cassette summary.

Mastectomy image

APPENDIX E1:

Fixation Time for Breast and Breast Mets for HER2/ER/PR

Note:

- The specimen is placed in formalin at the time of receipt.
- These fixation times must be recorded and dictated in the report.
- The formalin volume must be 10 times that of the specimen.
- **Decalcification solutions with strong acids should be avoided!**
- These times are based on the Routine processing schedule which fixes in formalin for 1.5 hours and comes out of fixative at 20:00 hours (8 PM), Monday through Thursday.
- The processing schedule can be placed on a delay, which means the tissue sits in ambient formalin before the programmed 1.5 hours begins. Delays are used for weekends and holidays, so check with a histotechnician if either of these situations may occur... **processor set on delay will add to the time in fixative.**

Time in Fixative DAY1	TOTAL HOURS in FORMALIN		
	Placed in Processor DAY1	Placed in Processor DAY2 (same as 1 day mid- week holiday)	Placed in Processor DAY3 (same as 2-day weekend)
8:00	12	36	60
9:00	11	35	59
10:00	10	34	58
11:00	9	33	57
12:00	8	32	56
13:00	7	31	55
14:00	6	30	54
15:00	5	29	53
16:00	4	28	52
17:00	3	27	51
18:00 (6 PM)	2	26	50
19:00	1	25	49
20:00	0	24	48
21:00		23	47
22:00		22	46
23:00		21	45

RED font denotes fixation times that should be avoided for optimum HER2/Er/Pr results.

Note:

- Biopsies must be placed in formalin by 2PM (14:00) in order to process the same night for cutting the next day.
- Large tissue placed in formalin Thursday, and Friday biopsies, will need to be processed to come out of the processors Saturday. Co-ordinate this with the supervisor. The processors can be

delayed so as to accommodate the Saturday technician, so check the final fixation time with the supervisor.

- Large tissues generated on Friday must be grossed that day or over the weekend. Fixation times longer than 48 hours may be unavoidable.

APPENDIX F: ENDOCRINE

Parathyroid:

1. Measure the specimen. If not procured, weigh the specimen to the nearest milligram.
2. Describe the external surface including color and shape.
3. If not procured, ink the external surface. Do not ink if the specimen has been previously cut.
4. Serially section and describe the cut surface.
5. If tumor is present document the size and if it extends beyond the capsule or invades into adjacent soft tissues.
6. Entirely submit.

Sample Dictation:

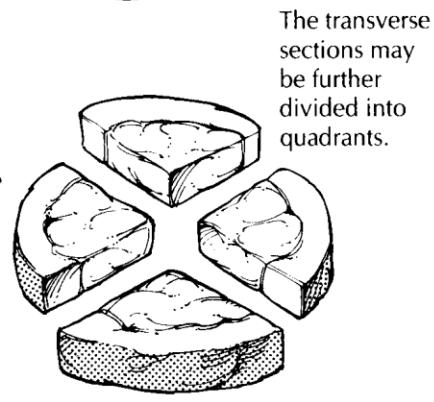
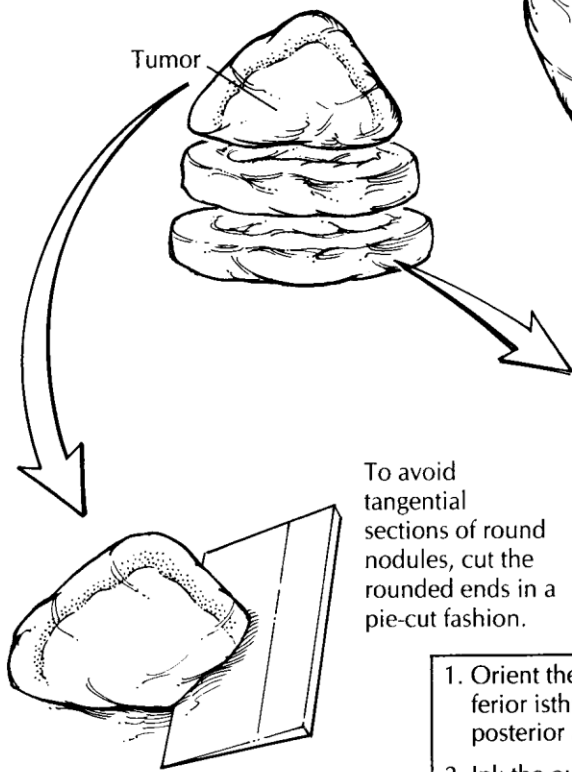
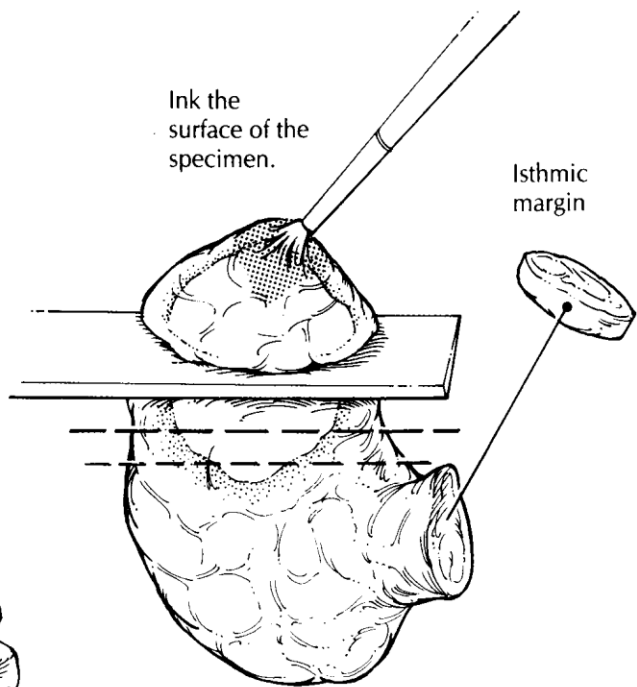
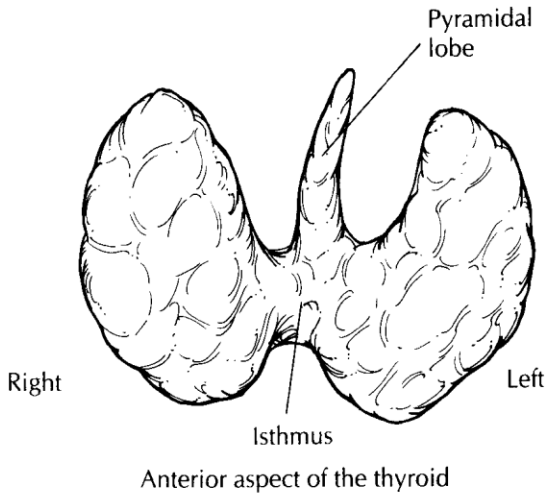
“Received fresh is a (shape), soft, (color) tissue fragment that weighs ___gm and measures ___x___x___cm. The external surface is inked black. The specimen is serially sectioned. The cut surface is _____. The specimen is entirely submitted.”

Thyroid:

1. Orient the specimen.
2. Weigh the total specimen and give the overall dimensions of the gland and the measurement of each individual structure (Right lobe, left lobe, isthmus, and pyramidal lobe if present).
3. Look for attached parathyroid glands and note location.
4. Ink the anterior surface one color and the posterior surface another color.
5. For hemi-thyroidectomies remove the isthmus margin as a thin shave.
6. Serially section the lobes at 2-3 mm intervals from superior to inferior.
7. Describe the cut surface including description and measurement of all lesions (encapsulated/solid/cystic/etc). Describe the lesion’s relationship to the capsule and whether invasion of the capsule has occurred.
8. Submit sections of tumor with adjacent normal parenchyma and tumor with capsule. For an encapsulated neoplasm submit the tumor with capsule in its entirety to assess capsular invasion.
9. Submit sections to show all components of the lesions (cystic, solid, etc). For non-tumor conditions, submit 5 blocks from each lobe and one from isthmus.
10. Submit 2 sections of normal thyroid parenchyma from uninvolved thyroid, all identifiable lymph nodes and any parathyroid glands present.
11. General rules: Submit the entire lesion if less than 3 cm. Submit the entire gland if less than 25 grams.

Sample Dictation

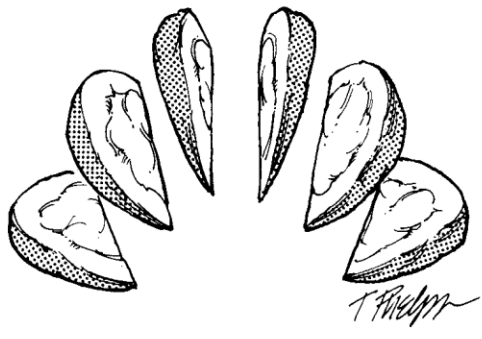
The specimen is received fresh and consists of a total thyroidectomy which measures ___ x ___ x ___ cm and weighs ___ g. The capsule is (intact, disrupted, marked with adhesions). The right lobe is distorted by multiple nodules. The posterior surface is inked black and the anterior surface is inked blue. The specimen is serially sectioned from superior to inferior. There are multiple yellow-brown nodules throughout the right lobe that range from ___ to ___ in greatest dimension. The nodules are surrounded by a thin fibrous capsule. The closest comes within ___ cm of the inked capsule. The remainder of the parenchyma is red-brown beefy and homogenous. No parathyroid glands are identified. Cassette summary.



To avoid tangential sections of round nodules, cut the rounded ends in a pie-cut fashion.

Thyroidectomy

1. Orient the gland by identifying the inferior isthmus and the concavity of the posterior aspect of lateral lobes.
2. Ink the outer surfaces.
3. In hemithyroidectomies, shave the isthmus margin.
4. Serially section the lobes transversely.
5. Submit sections to demonstrate the normal parenchyma, any identifiable lymph nodes, parathyroid glands, the interface of the tumor and adjacent parenchyma, and the interface of the tumor and capsule. For an encapsulated thyroid neoplasm, submit the tumor capsule in its entirety to show the interface of the tumor with the surrounding thyroid parenchyma.



Adrenal Gland:

1. Weigh and measure the specimen.
2. Ink the external surface black.
3. Serially section at 2-3 mm intervals perpendicular to the long axis.
4. Describe and measure any lesions. Note extension of any lesion into adjacent soft tissues. Try to determine if the lesions arises from the cortex or medulla.
5. Measure the thickness of the cortex and medulla and describe the uninvolved cut surface.
6. Search the attached soft tissue for lymph nodes.
7. Submit sections to show tumor with relationship to capsule, normal adrenal and adjacent soft tissues. Submit lesion entirely if less than 3 cm. Submit a section of uninvolved adrenal gland and lymph nodes if present.
8. If no lesion is seen submit representative sections from the head, body and tail.

Sample Dictation:

“Received fresh is a __gm adrenal gland and attached adipose tissue that measures __x__x__cm. The external surface is inked black. The specimen is serially sectioned. On sectioning a (color/shape) nodule is seen that measures __x__x__cm. The nodule appears to arise from the cortex/medulla and does not appear to invade into the adipose tissue. The normal appearing adrenal gland has a tan brown medulla that measures __cm, surrounded by a yellow orange cortex that measures __cm. No lymph nodes are identified.”

APPENDIX G: FEMALE REPRODUCTIVE

Cervical Cone/LEEP:

Most LEEP/Cone biopsies are performed for high-grade cervical dysplasia. The wider end is the ectocervix and the smaller, tapered end is the endocervical margin. Margins are important and need to be evaluated. Ideally, cones will be oriented usually at the 12 or 3 o'clock positions.

Processing the Specimen:

1. Measure the length of the specimen and the diameter at the ectocervical margin and the endocervical margin. If fragmented give a 3 dimensional measurement of each piece.
2. The specimen will usually be oriented like a clock face and tagged with a suture at the 12 o'clock position. Orient the biopsy as if viewed *in situ*.
3. Ink the stromal/ectocervical margin one color and the endocervical margin another color.
4. Open the specimen through the outer stroma to the inner canal at the 3 o'clock position and expose the inner mucosal surface.
5. Pin the specimen with the mucosa facing up to a cork board and fix.
6. Examine the mucosa for lesions.
7. Serially section along the axis of the cervical canal from the endocervix to the ectocervix. Try to include the cervical os in each section. If fragmented, section perpendicular to the mucosal surface.
8. Submit the sections sequentially and designate the position of each section using the clock face orientation.

Sample Dictation:

The specimen is received fresh and consists of a conical portion of pink tan rubbery tissue that measures ___cm in length and ___x___cm in diameter. The ___ position is marked with a suture. The ectocervix is (color, texture). The ectocervical margin is inked black and the endocervix is inked yellow. The specimen is serially sectioned in a clockwise fashion from the 12 o'clock position. The cut surface is (describe). The specimen is submitted sequentially in cassettes.

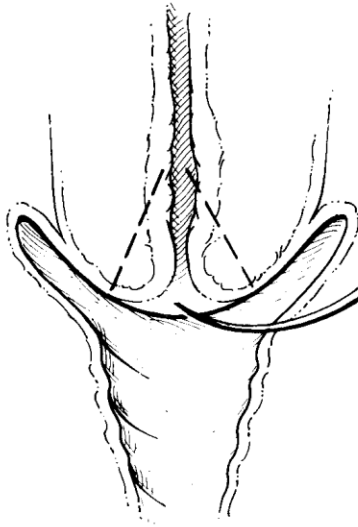
#___to ___-12 to 3 o'clock

#___to ___-3 to 6 o'clock

#___to ___-6 to 9 o'clock

#___to ___-9 to 12 o'clock

Coronal view of the cervix and upper vagina



Ink the endocervical margin.

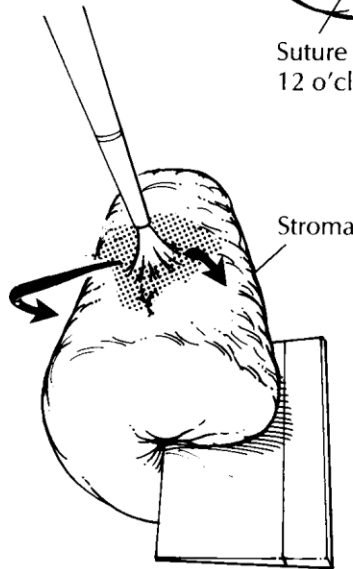


Suture at 12 o'clock.

Ectocervical margin

Cone Biopsy

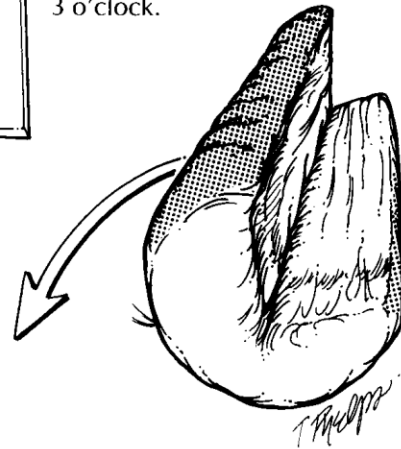
1. Orient the specimen with the stitch at 12 o'clock.
2. Ink the endocervical margin and the stromal/ectocervical margins with separate colors.
3. Open at 3 o'clock, pin on a wax or cork board, and fix.
4. After fixation, take serial, 2- to 3-mm-thick sections as shown.
5. Submit the entire specimen sequentially. For example, block A = two sections from 12 to 3 o'clock; block B = two sections from 3 to 6 o'clock, etc.



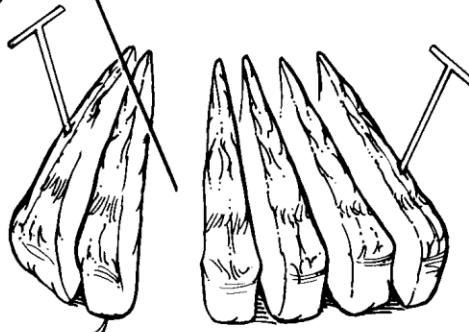
Incise at 3 o'clock.

Open to expose the cervical canal.

Transformation zone



Section demonstrating a continuous line from the ectocervix to the endocervix



Place pins through the stroma, avoiding the mucosal surface.

Maintain the clock-face orientation.

Leiomyoma:

1. Weigh the specimen in aggregate.
2. Measure in 3 dimensions or give a range in size if multiple.
3. Describe the specimen. Usually tan-white, well-circumscribed and rubbery.
4. Serially section. Describe the cut surface. The cut surface is typically tan-white with a whorled appearance.
5. Describe any softened areas, discolored grey or yellow areas or any areas of hemorrhage.
6. Submit representative sections from each leiomyoma including any areas of hemorrhage or necrosis. More than one section can be placed into a cassette.

Products of Conception (POC)

1. Before formalin is added, determine if special studies are requested. Chorionic villi for cytogenetics should be collected before the addition of formalin.
2. Measure the tissue in aggregate dimensions.
3. Describe the tissue present (membranes, blood clot, placenta, fetal)
4. Try to identify and submit chorionic villi or fetal tissue.
5. Submit 1-3 cassettes including chorionic villi or fetal tissue.

Fallopian Tube:

1. Identify the fimbriated end. Measure length and diameter and note the color.
2. Measure any cysts or lesions seen on the external surface.
3. Serially section transversely into 5 mm intervals.
4. Describe the cut surface including whether a lumen is seen. If a tumor is seen measure the size and document the location.
5. Submit a section from the fimbriated end, the middle, and the cornual end.
If a cyst is seen include a section of the cyst with one of the transverse sections.
6. If a tumor is seen, submit one section per cm of tumor including tumor to the external surface, relationship to the ovary if present, and the proximal and distal margins. Submit a section of uninvolved tube.

Sample Dictation:

The specimen is received fresh consists of a tubular tan-pink glistening fragment of tissue that measures ___cm in length and ___ cm in diameter. The fimbriated end is identified. There is a cyst attached to the serosa that measures ___ cm in greatest dimension, has smooth, thin walls and is filled with clear fluid. The specimen is serially sectioned. The cut surface is tan and a pinpoint lumen is identified. No masses are seen. Representative sections are submitted.

Ovary:

Ovaries may be accompanied by an attached fallopian tube. They are usually removed to evaluate a mass. The masses usually fall into three categories: A simple cyst, a complex cyst, or solid tumors.

Processing the Specimen: benign/cystic

1. Weigh, measure and describe the external surface including color and the presence of cysts, lesions or adhesions.
2. Bivalve the ovary and describe the cut surface. Include color and presence of corpus luteum and the corpora albicantia. If cysts are seen record the number, whether they are uni or multilocular, the contents (fluid, hair, keratinaceous material, teeth, hemorrhagic material, etc) and the thickness and lining of the cyst wall.
3. An unremarkable ovary that has only small, simple cysts can be sampled by taking one section.
4. Submit the entire ovary and fallopian tube if there is a family history of ovarian carcinoma.
5. If the ovary is largely replaced by cyst an effort is made to submit a section of the residual ovary by submitting any areas of wall thickening.
6. Document any areas suspicious for malignancy, such as mucinous cysts, complex cysts, papillary projections, or solid areas. Additional sections must be taken of these areas.
7. Submit one section per cm of the cyst. More than one section can be placed into a cassette. If the cyst is thin-walled it can be rolled into a "jelly roll" and transverse sections of the roll submitted.

Sample Dictation:

The specimen is received fresh and consists of an ovoid ovary (with attached fallopian tube). The ovary weighs ___gms and measures ___ x ___ x ___cm (and the fallopian tube with attached fimbria is ___ cm in length and averages ___cm in diameter). The ovarian surface is (cerebriform, smooth, distorted by cysts, focally covered by adhesions). Cut surface reveals (multiple smooth walled cysts, hemorrhagic corpus luteum, corpus luteum, corpora albicantia, a single large cyst filled with clear fluid/hemorrhagic fluid/thick oily yellow fluid and hair). Representative sections are submitted as follows:

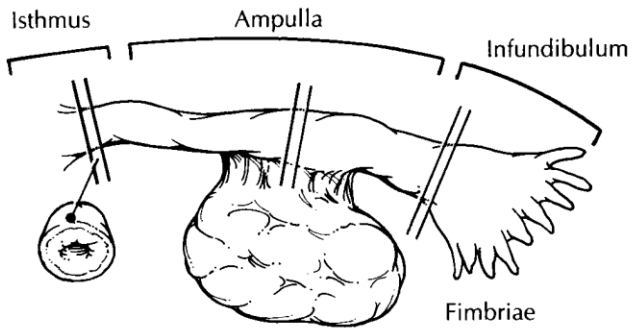
Processing the Specimen: tumor

1. Weigh and measure the ovary and describe the external surface including color and presence of cysts, lesions, or adhesions.
2. Ink the external surface black.
3. Serially section the ovary and describe the size, color and cut surface of the tumor. Describe the relationship to external surface and adjacent ovary (i.e., margins) and the presence of a cystic component.
4. Submit one cassette per centimeter of the largest dimension of the tumor. Include at least one section that demonstrates the relationship of the tumor to the adjacent ovary and external surface, as well as any areas of gross invasion and a section of the residual ovary.
5. If a fallopian tube is present, submit a section of the fallopian tube with adjacent ovary.

Sample Dictation:

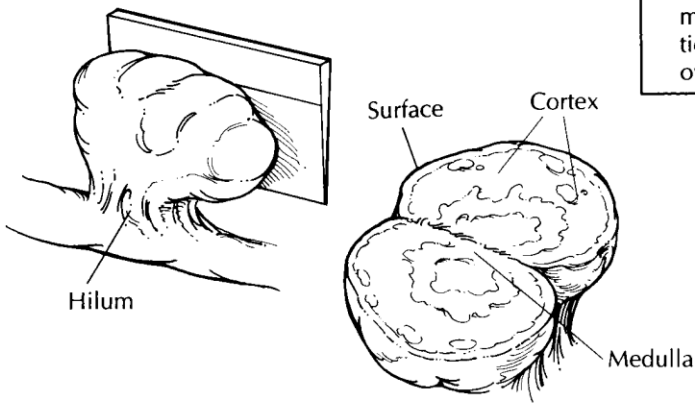
The specimen is received fresh and consists of an irregular shaped mass (with attached fallopian tube). The specimen weighs ___gms and measures ___ x ___ x ___ cm (and the fallopian tube with attached fimbria is ___ cm in length and averages ___ cm in diameter). The external surface is (cerebriform, nodular, distorted by cysts, focally covered by adhesions, marked with papillary excrescences). The external surface is inked black. Cut surface ranges from firm white and solid to cystic. The cysts range from ___ to ___ cm in greatest dimension and contain (hemorrhagic fluid, mucinous material). Possible residual ovary is seen. The mass does not appear to involve the fallopian tube. Representative sections are submitted as follows:

Regions of the fallopian tube

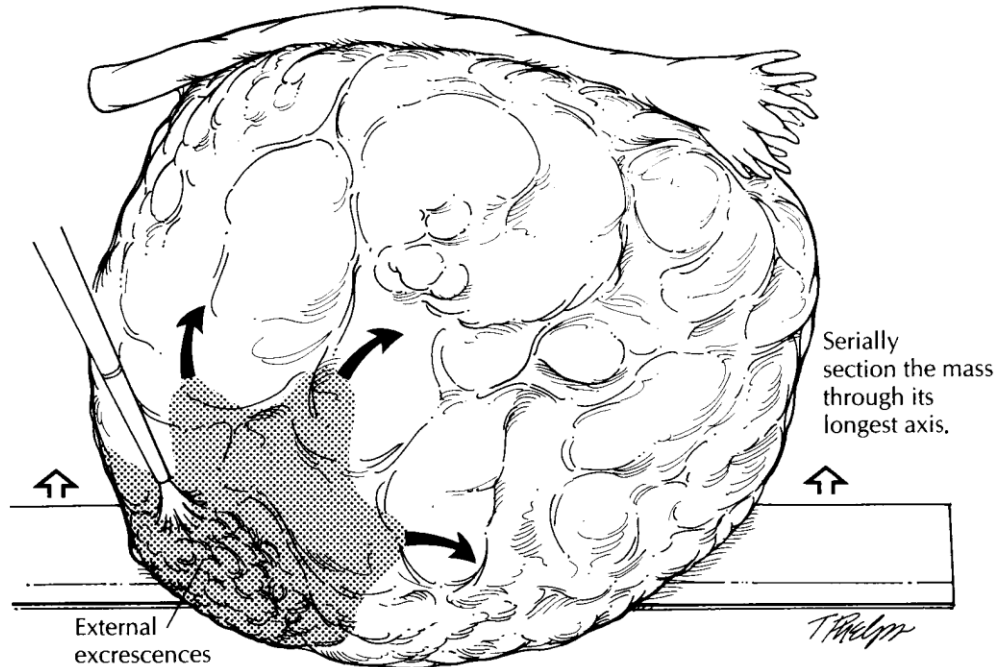


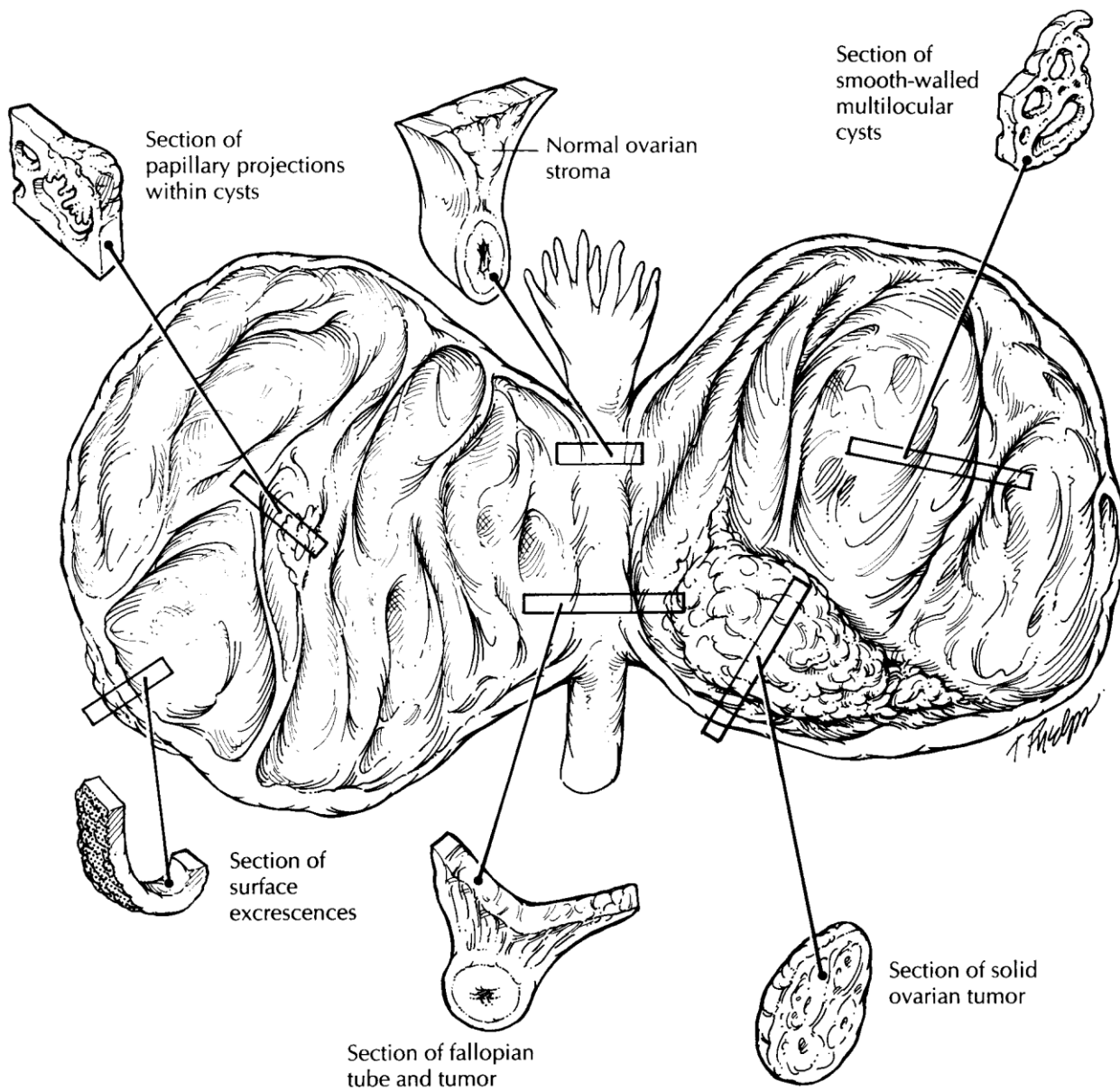
Incidental Salpingo-oophorectomy

1. Identify the fimbriated end of the fallopian tube. Record the length and diameter of the tube.
2. Probe the lumen for patency.
3. Serially section the fallopian tube at 0.5-cm intervals. Submit one transverse section from each of the isthmic, ampullary, and infundibular regions.
4. Weigh and measure the ovary.
5. Section the ovary through its longest dimension and hilum. Submit one section for every 2 cm of non-neoplastic ovary.



Salpingo-oophorectomy for an Ovarian Mass





Salpingo-oophorectomy for an Ovarian Mass

1. Weigh and measure the mass. Identify the fallopian tube, if present.
2. Carefully inspect the ovarian surface for evidence of rupture, adhesions, or tumor excrescences.
3. Ink any external surface excrescences, and section the ovarian mass at 1- to 2-cm intervals through its longest axis. If the mass is cystic, note the color and consistency of the cyst contents.
4. Submit one section per 1 to 2 cm of tumor diameter. Sample to emphasize solid, papillary, necrotic, and hemorrhagic regions. Include any surface excrescences, extension to the fallopian tube, and any residual ovary.

Hysterectomy:

Hysterectomy specimens may come with accompanying fallopian tubes and ovaries. For orientation purposes, the round ligament is the most anterior and the ovaries are the most posterior. The serosa extends lower on the posterior surface of the uterus.

Processing the Specimen: Benign

1. Determine anterior and posterior.
2. Weigh the specimen and measure from fundus to cervix, anterior to posterior and cornu to cornu. Measure ovaries and fallopian tubes if present.
3. Describe the serosa noting color, texture, adhesions, tumor implants. Describe the appearance of the ectocervix. Measure the ectocervix in cross diameters. Measure the length of the cervical os.
4. Open the uterus through the cervix along the lateral walls but leave attached at the fundus.
5. Describe the dimensions of the endometrial cavity. Measure in length, from cornu to cornu and thickness. Describe color, distortion by leiomyomas, and any lesions of the endometrial cavity. If lesions are present, describe the location (anterior or posterior), size, color, consistency, and depth of invasion into myometrium. Be careful not to abrade the mucosa.
6. Serially section the anterior and posterior halves leaving the sections attached by a small amount of serosa.
7. Describe and measure the thickness of the myometrium describing the number and cut surface of any nodules.
8. Weigh ovaries if present. Serially section ovaries and fallopian tubes and describe the cut surface.
9. Submit 2 sections of cervix including the transformation zone, one from the anterior and one from the posterior. One full thickness section from each side to include endometrium, myometrium and serosa. If nodules are present submit representative sections including any areas of softening, hemorrhage, or necrosis. If less than 5 submit one section from each.

Sample Dictation:

The specimen is received fresh and consists of a ___ gram, unopened uterus with attached cervix, and attached bilateral tubes and ovaries. The uterus distorted by large masses. The uterus measures ___cm in length, ___cm from anterior to posterior, and ___cm between the cornu. The serosal surface is smooth and glistening (fibrous adhesions, hemorrhagic areas). The ectocervix measures ___x___cm in cross diameters and is covered by smooth, glistening, pink white mucosa. The cervical os is (circular, slit like) and measures ___ cm in length. The endocervical canal has the usual palmate folds. The endometrial cavity is ___ cm in length and ___ cm between the cornu. The endometrium is (tan, tan-red, hemorrhagic) and (lush, smooth) measuring ___ cm in thickness. The myometrium is ___ cm in thickness, (color) and (unremarkable, coarsely trabecular). The myometrium is distorted by multiple (or exact number) well circumscribed white-tan masses ranging from ___ to ___cm in greatest dimension. On sectioning they have a whirled, white-tan cut surface without necrosis or hemorrhage. The right ovary weighs ___gms and measures ___ x ___ x ___ cm and the right fallopian tube is ___ cm in length and ___ cm in diameter. The left ovary weighs ___gms and measures ___ x ___ x ___ cm and the left

fallopian tube is ___ cm in length and ___ cm in diameter. The fallopian tubes are pink-tan and the fimbriated ends are identified. The left ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). Multiple smooth walled cysts are seen that measure up to ___cm in greatest dimension and are filled with clear fluid. The right ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). No cysts are seen. Representative sections are submitted:

IMAGE BENIGN UTERUS

Processing the Specimen: Endometrial Tumors:

1. Determine anterior and posterior. Describe the specimen as intact or previously opened. Weigh the specimen and measure from fundus to cervix, anterior to posterior and cornu to cornu. Measure ovaries and fallopian tubes if present.
2. The serosal surface is described and examined for any abnormalities to include adhesions, serosal implants, and direct invasion by tumor. The vaginal reflection at the cervix is examined for tumor implants
3. The anterior and posterior serosal surfaces, the parametrium and the vaginal margin are inked different colors.
4. The uterus is opened along the lateral margins, from external os to cornu using on long smooth cut.
5. Measure the endometrial cavity in length and from cornu to cornu. Examine the endometrium for lesions. Describe any thickened endometrium, polyps, or tumors and the location of the lesion.
6. Photograph the specimen, pin it out and fix in formalin overnight.
7. Take longitudinal sections through the cervix extending through the lower uterine segment to include endometrial and endocervical mucosal surfaces. Submit a section from the anterior and posterior halves to assess tumor invasion into the lower uterine segment and cervix.
8. Serially section the uterus transversely, at 0.5 cm intervals, keeping the specimen attached at the serosal surface.
9. Document the size, location, and appearance of the tumor. Measure the depth of maximal invasion into the myometrium starting from the normal junction of the endometrium and the myometrium. Measure the total myometrial thickness at this point, and note the distance from the deepest point of invasion to the serosa.
10. Submit sections to show the deepest point of tumor invasion and tumor to uninvolved endometrium.
11. Search the soft tissue for lymph nodes. Submit all lymph nodes found.

Sample Dictation:

The specimen is received fresh and consists of a uterus with attached cervix and bilateral fallopian tubes and ovaries. The uterus weighs ___gms and measures ___cm in length, ___cm from anterior to posterior and ___cm from cornu to cornu. The serosal surface is smooth and glistening (fibrous adhesions, hemorrhagic areas). The anterior surface is inked ___, the posterior surface is inked___, the perimetrial soft tissue is inked___ and the vaginal margin is inked ___. The ectocervix measures ___x___cm in cross diameters and is covered by smooth, glistening, pink white mucosa. The cervical os is (circular, slit like) and measures ___ cm in length. The endocervical canal has the usual palmate folds. The endometrial cavity is ___ cm in length and ___ cm between the cornu. The endometrium is(thick, smooth, fungating) and averages ___ cm in thickness. A ___ x ___ cm polypoid mass attaches to the (anterior/posterior) endometrial wall. The tumor measures ___cm in maximal thickness and invades ___ cm deep into the myometrium in an area where the myometrium is ___cm in thickness. No other lesions are seen. The right ovary weighs ___gms and measures ___ x ___ x ___ cm and the right fallopian tube is ___ cm in length and ___ cm in diameter. The left ovary weighs ___gms and measures ___ x ___ x ___ cm and the left fallopian tube is ___ cm in length and ___ cm in diameter. The fallopian tubes are pink-tan and the fimbriated ends are identified. The left ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). Multiple smooth walled cysts are seen that measure up to ___cm in greatest dimension and are filled with clear fluid. The right ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). No cysts are seen. Representative sections are submitted:

IMAGE ENDOMETRIAL CA

Processing the Specimen: Cervical Cancer

1. Describe the specimen as intact or previously opened. Weigh and measure in length, between the cornu and from anterior to posterior.
2. The serosal surface is described and examined for adhesions, serosal implants, and direct invasion by tumor. Measure the parametrial/paracervical soft tissue and the length of the vaginal cuff.
3. Ink the right and left parametrial/paracervical tissues, the anterior/posterior soft tissue margins, and the vaginal cuff margin. Remove the parametrial/paracervical tissue by shaving each side close to its lateral attachment on the cervix. Section this tissue at 0.3-cm intervals, and submit entirely. Any lymph nodes identified can be submitted separately.
4. Next, amputate the cervix and open it longitudinally away from the tumor. Pin it out to let it fix.
5. Measure the tumor (width X length) and the distance to the nearest vaginal margin. Examine the vaginal cuff. Unless the tumor is close to the vaginal margin, take a shave of the margin and submit as margin from each of the four designated quadrants. If the tumor closely approaches the vaginal margin, leave the vaginal cuff intact and take perpendicular margins to demonstrate the relationship of the tumor to the margin. Serially section the cervix and measure the maximum tumor thickness and the thickness of the cervical wall at that site.
6. The uterus is opened along the lateral margins, into anterior and posterior halves.
7. Examine, describe and measure the endometrial cavity. Measure length, between the cornu, and the endometrial thickness. Describe any lesions seen.
8. Describe and measure the thickness of the myometrium. Describe any lesions seen.
9. Submit the entire cervix designating the sections with the clock-face positions.
10. Submit sections that show the point of deepest invasion and tumor to normal mucosa. Submit the anterior and posterior cervical soft tissue margins and the left and right parametrial tissue.
11. Submit sections of the anterior and posterior lower uterine segment, and full thickness sections of the anterior and posterior endometrium and serosa. If necessary the section may be bisected to fit into a cassette. Submit any lesions seen in the endometrium or myometrium.
12. Search the soft tissue for lymph nodes. Submit all lymph nodes found.

Sample Dictation:

The specimen is received fresh and consists of a uterus with attached cervix and bilateral fallopian tubes and ovaries. The uterus weighs ___gms and measures ___cm in length, ___cm from anterior to posterior and ___cm from cornu to cornu. The serosal surface is smooth and glistening (fibrous adhesions, hemorrhagic areas). The ectocervix measures ___x___cm in cross diameters and is covered by smooth, glistening, pink white mucosa (hemorrhagic, has a nodular lesion). The cervical os is (circular, slit like) and measures ___ cm in length. The anterior surface of the cervix is inked ___, the posterior surface of the cervix is inked___, the right perimetrial soft tissue is inked___ and the left perimetrial soft tissue is inked ___. The vaginal cuff margin is inked ___. The endocervical canal is distorted on the anterior/posterior by a fungating lesion that measures ___x___. The cut surface of the lesions reveals _____. The lesion invades ___cm into the cervical stroma. The endometrial cavity is ___ cm in length and ___ cm between the cornu. The endometrium is (lush, smooth,) and measures ___ cm in thickness. No other lesions are seen. The right ovary weighs ___gms and measures ___ x ___ x ___ cm and the right fallopian tube is ___ cm in length and ___ cm in diameter. The left ovary weighs ___gms and measures ___ x ___ x ___ cm and the left fallopian tube is ___ cm in length and ___ cm in diameter.

The fallopian tubes are pink-tan and the fimbriated ends are identified. The left ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). Multiple smooth walled cysts are seen that measure up to ___cm in greatest dimension and are filled with clear fluid. The right ovary has a (smooth, cerebriform) external surface. The ovarian stroma is grey white, with multiple corpora albicantia and a single golden yellow corpus luteum (with a hemorrhagic center). No cysts are seen. Representative sections are submitted:

IMAGE CERVICAL CA

APPENDIX H: GASTROINTESTINAL

Esophagus:

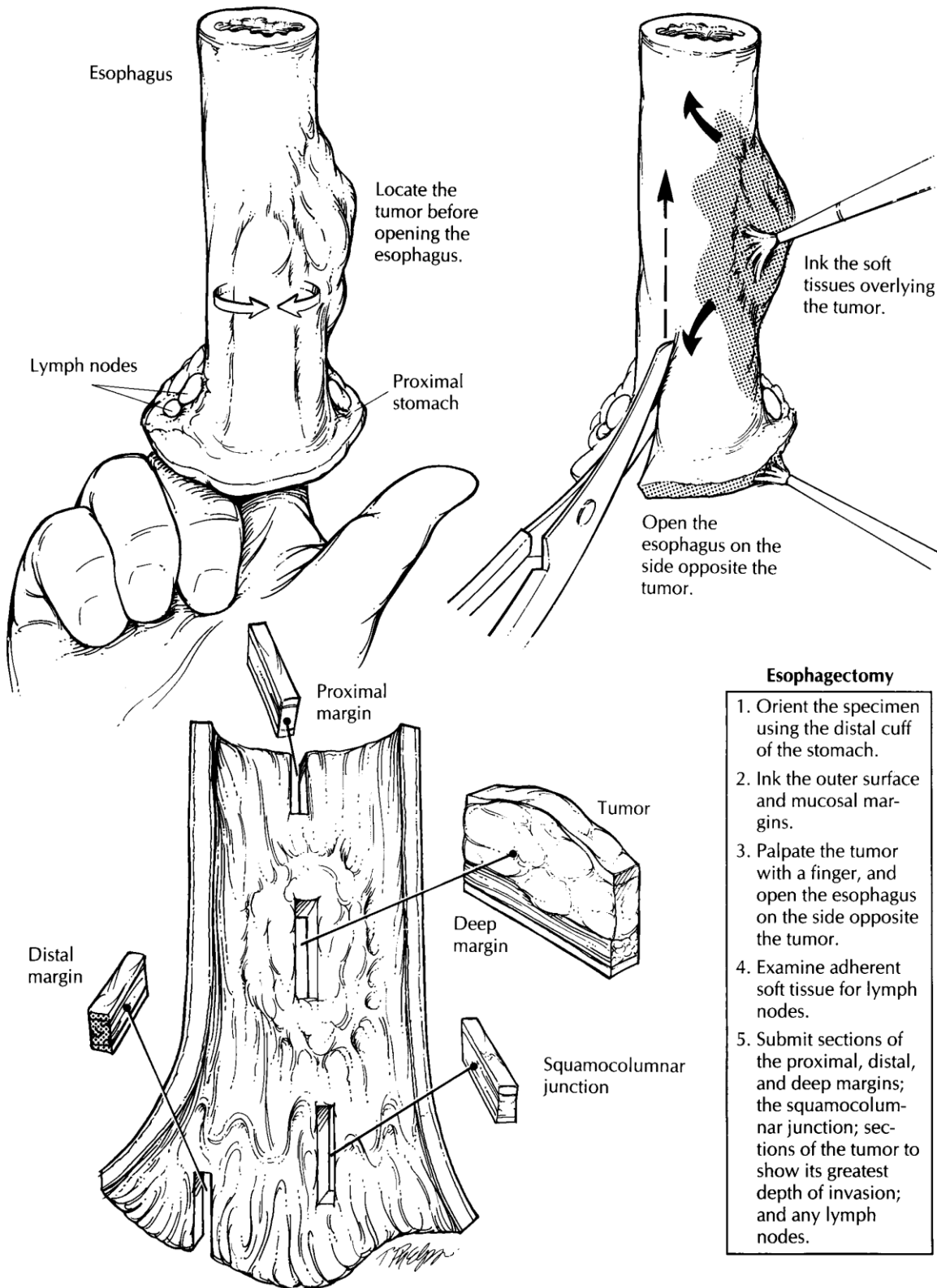
The specimens are usually easy to orient because a portion of proximal stomach will be attached at the distal portion of the esophagus. The specimen is typically resected for adenocarcinoma, squamous cell carcinomas or severe dysplasia. Always try to open the specimen along the side opposite the tumor. Note the location of the tumor in the gross dictation. The location of the tumor is important for classification and staging purposes.

Processing the Specimen:

1. Orient the specimen. A portion of stomach is usually attached at the distal aspect.
2. Measure the dimensions (length, diameter and wall thickness) and the length of the staple lines. Ink the outer surface (true soft tissue margin) and the proximal and distal resection margins in different colors.
3. Measure the stomach or other organs if present.
4. Open the esophagus by palpating the tumor and opening along the side opposite the tumor.
5. Describe the mucosa noting any hemorrhage, ulceration or puckering.
6. Describe any tumor identified and measure in three dimensions. Include color, location, percent of circumference involved, the diameter of the lumen at the site of the tumor, and distance from margins (distal, proximal, and deep). Note its location with respect to the gastroesophageal junction.
7. Pin the specimen on cork board and fix overnight.
8. Section through the tumor and measure the depth of invasion into the underlying wall.
9. Describe the cut surface of the tumor.
10. Search for lymph nodes in the attached soft tissues.
11. Submit sections of the proximal and distal margin enface if the tumor is far away and perpendicular if it is close. Submit at least 2 full thickness sections at the area of deepest invasion to include the inked deep margin. Submit sections of tumor to normal mucosa, both proximal and distal to the tumor and uninvolved mucosa both proximal and distal to tumor. If no discrete tumor is identified, entirely submit the area of concern. Submit a section of the squamocolumnar junction and any lymph nodes identified

Sample Dictation:

The specimen is received fresh and consists of an esophagus with an attached portion of proximal stomach. The esophagus is ___cm in length and ___cm in diameter. The portion of stomach measures ___x___cm and ___cm in thickness. The adventitial surface of the esophagus is inked black. The proximal staple line measures ___cm and is inked green. The distal staple line measures ___cm and is inked red. Opening longitudinally reveals a ___x___cm (ulcerated area, raised(color) lesion, an unremarkable mucosal surface.) The lesion is located (at the GE junction, ___cm proximal to the GE junction, ___cm distal to the GE junction). The lesion is ___cm from the proximal staple line margin and ___cm from the distal staple line margin. Sectioning reveals a firm white mass which measures ___cm in thickness and extends into the muscularis propria grossly. The remaining mucosa is unremarkable. Also attached to the external surface of the stomach are portions of yellow adipose tissue. The adipose tissue is sectioned. No lymph nodes are identified. Representative sections are submitted as follows:



Esophagectomy

1. Orient the specimen using the distal cuff of the stomach.
2. Ink the outer surface and mucosal margins.
3. Palpate the tumor with a finger, and open the esophagus on the side opposite the tumor.
4. Examine adherent soft tissue for lymph nodes.
5. Submit sections of the proximal, distal, and deep margins; the squamocolumnar junction; sections of the tumor to show its greatest depth of invasion; and any lymph nodes.

Stomach:

Specimens are typically resected for malignancy. A small portion of stomach may be removed for peptic ulcer disease. In some cases, benign appearing lesions have proven to be malignant after examination so margins should always be assessed.

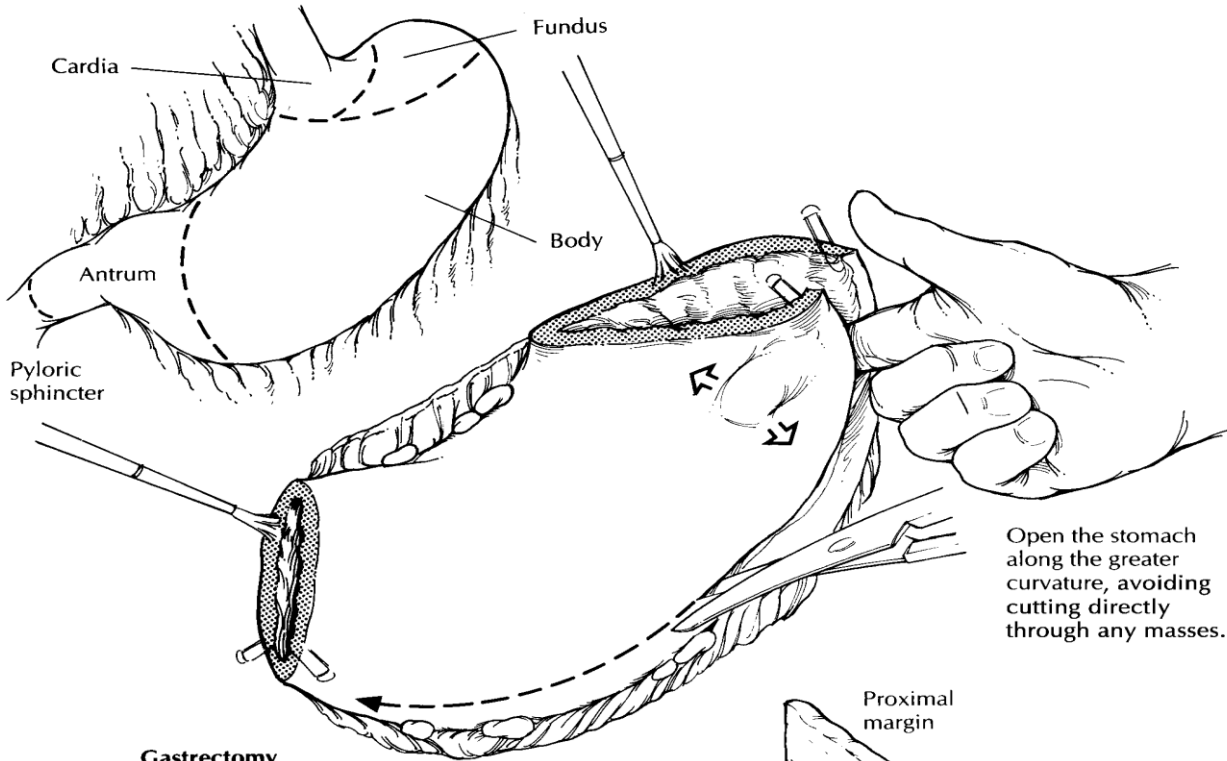
Processing the Specimen:

1. Orient the specimen. Ink the proximal and distal resection margins different colors.
2. Remove the omentum from the greater and lesser curvatures and set aside for a lymph node dissection.
3. Examine and describe the serosa.
4. Measure the length of the greater curvature, the lesser curvature, the diameter of the proximal and distal resection margins, and the thickness of the wall.
5. Palpate to identify any lesions. Ink the serosal surface overlying any lesion black. Open the stomach along the greater curvature, unless a lesion is present at that site.
6. Note the presence of esophagus or duodenum. Measure individual structures if present.
7. Describe and measure any mucosal lesions. Include size, color, shape (ulcerated, polypoid, diffuse, fungating), and consistency (hard, firm, soft). Describe the edges of the lesions (irregular, rolled, puckered), their location within the stomach and whether a gross perforation of the wall is seen.
8. Measure the distance from the lesion to each resection margin.
9. Section through tumors to determine depth of invasion into the wall.
10. Describe the cut surface and measure the maximal thickness.
11. Describe the uninvolved mucosa including color and texture.
12. For peptic ulcers, submit the entire lesion sequentially.
13. Submit sections at the point of deepest invasion and sections of tumor with relationship to normal mucosa.
14. Submit the margins enface if the tumor is far away from the margin or perpendicular if the tumor appears close to the margin.
15. Submit sections from all four regions of the stomach (cardia, fundus, body, and antrum).
16. Search through the omentum for lymph nodes. Submit all lymph nodes.

Sample Dictation:

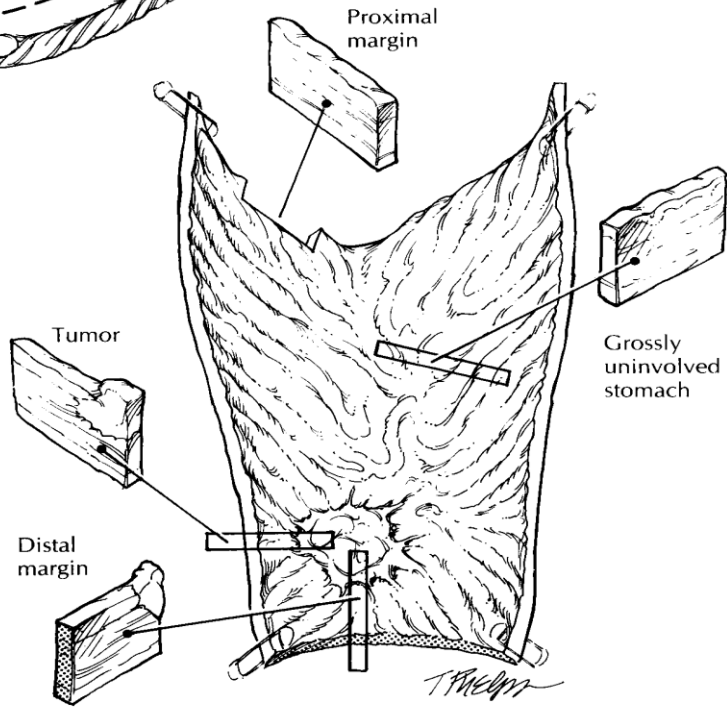
“The specimen is received fresh and consists of a total gastrectomy specimen which measures ___ cm along the lesser curvature and ___ cm along the greater curvature. It measures ___ cm in circumference at the proximal margin, which is inked green, and ___ cm in circumference at the distal margin, which is inked red. A (color) ulcerated lesion/raised mass is located within the (lesser curvature, greater curvature, anterior surface, posterior surface). The lesion is located ___ cm from the distal margin and ___ cm from the proximal margin. The tumor measures ___ x ___ cm and invades through the wall to the serosa. The tumor measures ___ cm in maximal thickness. The serosa overlying the tumor is irregular

and thickened/unremarkable. The cut surface of the tumor is (homogeneous, friable, mucinous). The remaining gastric mucosa has the usual rugal folds. Sectioning through the attached adipose tissue reveals (#) possible lymph nodes ranging from ___ to ___ cm in greatest dimension. The lymph nodes are entirely submitted. Representative sections of the remainder of the specimen are submitted.”



Gastrectomy

1. Orient the specimen using the greater curvature, lesser curvature, and pyloric ring as landmarks.
2. Depending on the extent of the specimen, try to appreciate the four anatomic regions of the stomach.
3. Ink the stomach resection margins, and place two safety pins on either side of the greater curvature at both the proximal and distal margins.
4. Remove the omenta from the greater and lesser curvatures, and dissect them separately for lymph nodes.
5. Open the specimen along the greater curvature. Cut between the two safety pins that mark the resection margin at each stomach orifice, and be careful not to cut across the tumor.
6. For peptic ulcers, block out the entire lesion for histologic evaluation. For tumors, submit sections from its center and periphery. For all specimens, sample each region of the stomach and submit margin sections and lymph nodes.



Bowel:

The specimen is typically resected for adenocarcinomas or adenomatous polyps. It is important to identify all segments of the bowel that are present. The rectum can be distinguished from the colon by the lack of a serosal surface. The outer surface of the rectum, therefore, represents a true soft tissue margin and should always be inked. Always try to open the specimen along the side opposite the tumor. Resections are also performed for non-neoplastic conditions. The most common non-neoplastic conditions of the colon include inflammatory bowel disease and diverticulosis.

Processing the Specimen: Non-tumor conditions

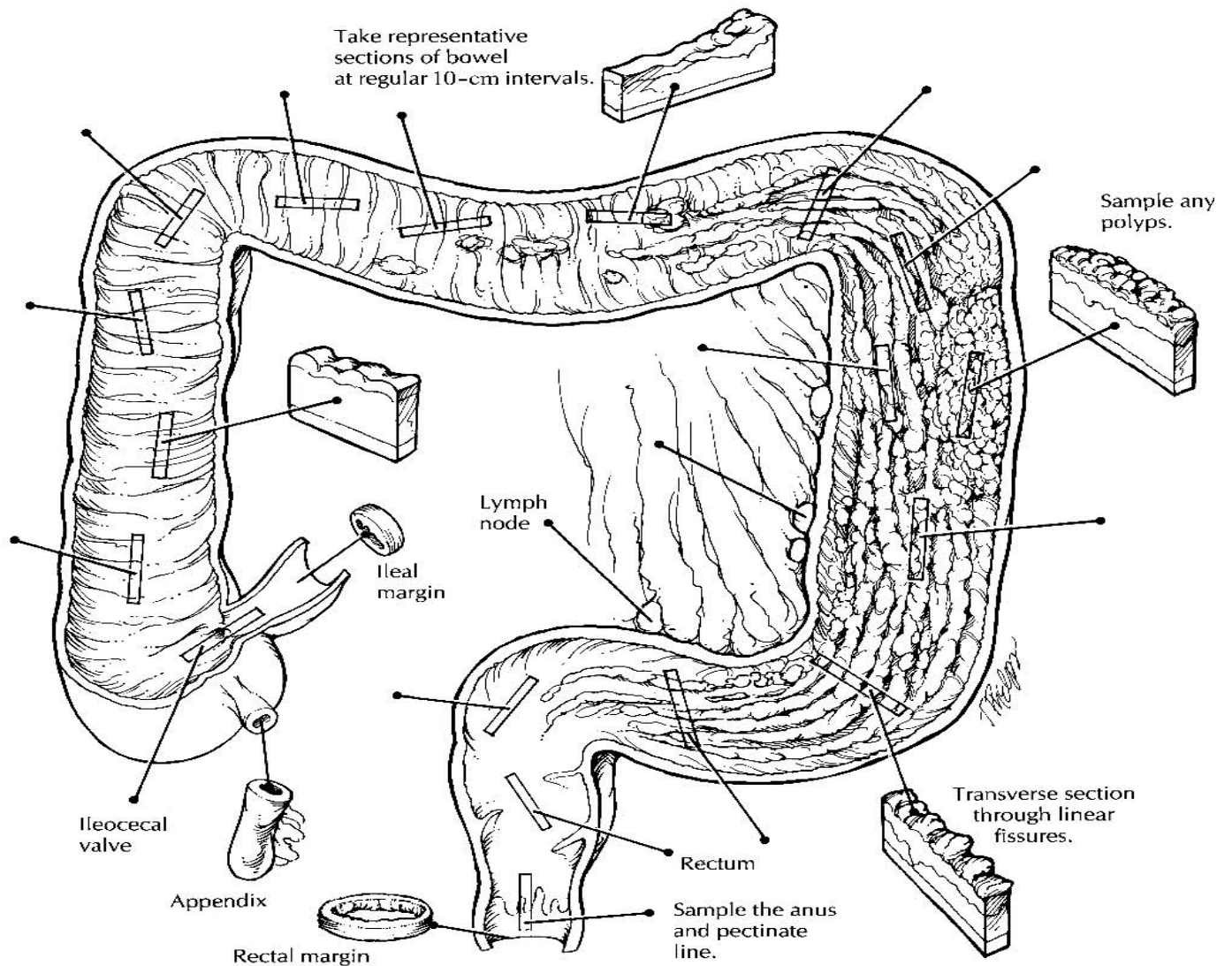
1. Identify all components of the colon present. Measure each individual structure in length and circumference. Orient proximal and distal if possible. Describe and measure the appendix if present.
2. Ink the proximal margin green and the distal margin red.
3. Describe the serosa surface including any adhesions, hemorrhage, or exudate which could indicate a perforation, especially if the diagnosis is diverticular disease.
4. Open the specimen along the antimesenteric border. Pin it flat on cork and submerge in formalin to allow for better fixation.
5. Describe the mucosal surfaces. Note the presence of any mucosal abnormalities or diverticula. Measure the distance of all lesions to both resection margins.
6. Measure the thickness of the wall in both normal and abnormal areas.
7. Submit one section of each margin enface.
8. For inflammatory bowel disease, submit representative sections of bowel at 10 cm intervals, including ileocecal valve and any lesions or abnormalities.
9. For diverticular disease submit at least 2 sections to show diverticula. Include any areas of possible perforation.
10. Submit representative sections of normal bowel and appendix.
11. Section through the attached adipose tissue searching for lymph nodes. Give a range in size and submit any lymph nodes identified.

Sample Dictation: Diverticula

“The specimen is received fresh and consists of a ___ cm segment of colon and attached adipose tissue that measures ___cm in length and ___cm in circumference. The serosal surface is (glistening, smooth, unremarkable, partially covered by yellow-white exudate). The proximal margin is inked green and the distal margin is inked red. The attached adipose tissue is (unremarkable, hemorrhagic, necrotic). An appendix is not present. The mucosa is (color & texture) with normal mucosal folding/flattened/edematous. On sectioning, multiple diverticula are seen measuring up to ___cm. The bowel wall ranges from ___ to ___cm in thickness. No perforations are seen. No lesions are seen on the mucosal surface. (#) of possible lymph nodes are identified in the attached adipose tissue. All possible lymph nodes are submitted. Representative sections of the remainder of the specimen are submitted as follows:”

Sample Dictation: Inflammatory Bowel Disease

“The specimen is received fresh and consists of a ___ cm segment of colon and attached adipose tissue that measures ___ cm in length and ___ cm in circumference. The serosal surface is (glistening, smooth, dusky, hemorrhagic, covered with adhesions). The proximal margin is inked green and the distal margin is inked red. The attached adipose tissue is (unremarkable, hemorrhagic, necrotic). An appendix is not present. The mucosa in the distal portion is dusky red-brown. This area measures ___ cm in length. There are multiple ulcerated areas and small polyps scattered across the mucosa. The polyps range from ___ to ___ cm in greatest dimension. The proximal and distal resection margins appear grossly viable. The bowel wall ranges from ___ to ___ cm in thickness. (#) of possible lymph nodes are identified in the attached adipose tissue. All possible lymph nodes are submitted. Representative sections of the remainder of the specimen are submitted.”



Resections for Inflammatory Bowel Disease

Processing the Specimen: Colon for Tumor

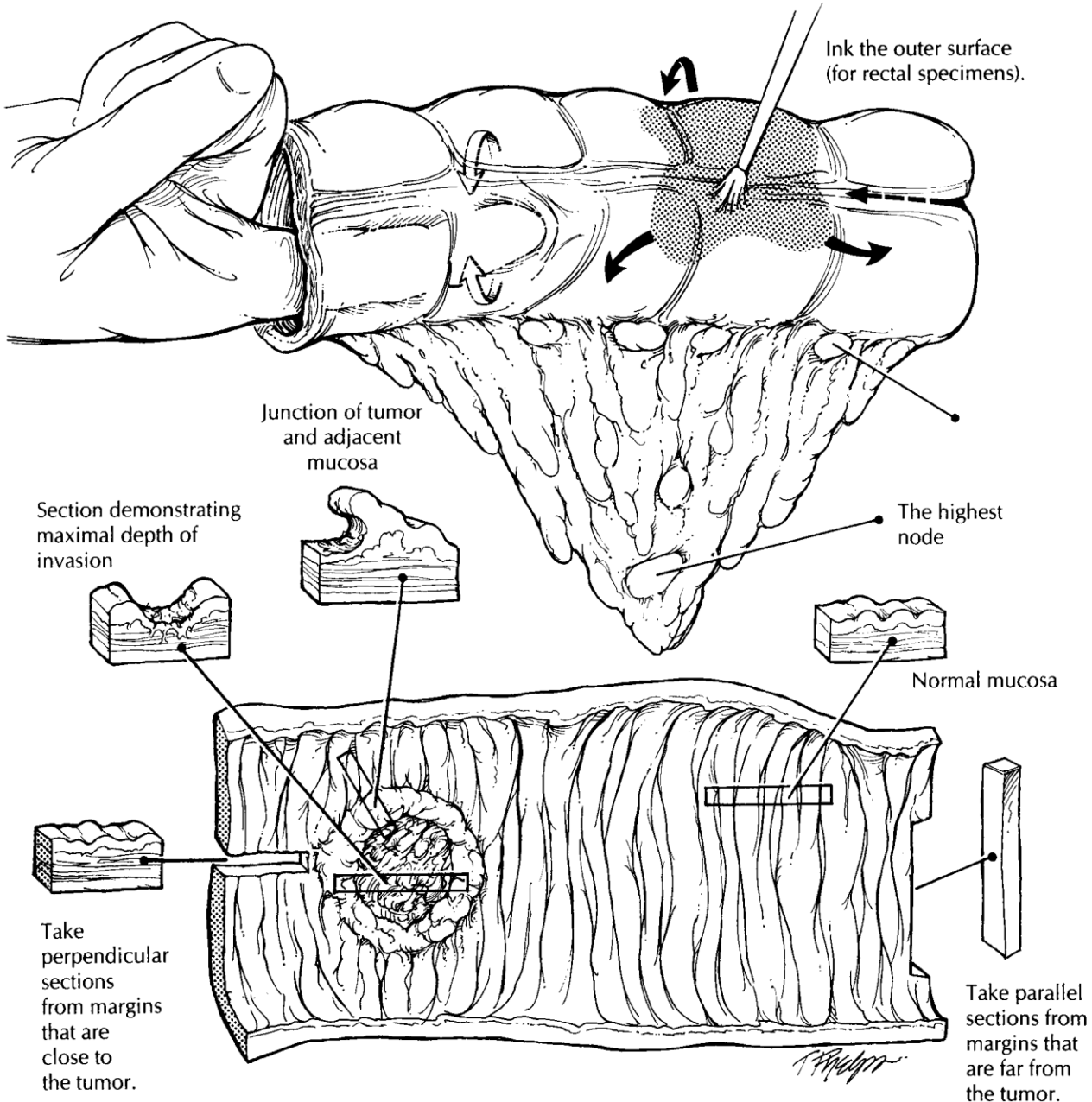
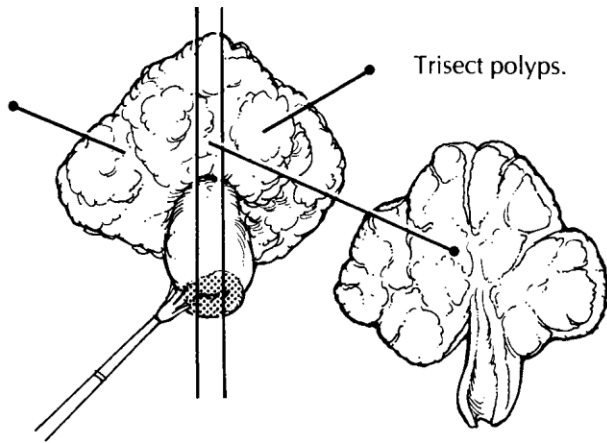
1. Identify all components of the colon present.
2. Ink the proximal margin green and the distal margin red.
3. Ink the radial margin overlying the tumor black.
4. Remove the fat away from colon except in the area of tumor and save for a lymph node dissection. Describe the appearance of the serosal surface.
5. Describe the appendix if present including length and diameter.
6. Open the specimen from one end to the other along the side opposite the tumor. If a tumor is not palpated open along antimesenteric border.
7. Measure the length overall and the range in circumference especially noting the dilation proximal to the tumor and the stricture in the area of the tumor. Measure the different segments of the bowel individually if they can be identified (ie. Terminal ileum, cecum, etc). Make sure to measure the thickness of the bowel wall.
8. Measure the tumor in length and circumferentially. Describe the gross appearance (raised rolled edges, centrally ulcerated). Measure the distance of the tumor to the proximal, distal and radial margins and ileocecal valve.
9. Section the tumor and describe the cut surface. Measure the maximal thickness and depth of invasion. Note any invasion into the bowel wall or adipose tissue.
10. Describe the remainder of the mucosa including any additional lesions (polyps, diverticula, etc).
11. Submit sections of tumor in relationship to normal bowel and tumor at the point of deepest invasion (at least one section per cm of tumor should be submitted). Submit the proximal and distal margins enface unless the tumor is close to the margin and then the sections should be taken perpendicular.
12. Submit sections of any additional lesions, normal mucosa and bowel wall from each different segment, and appendix if present.
13. All lymph nodes present are to be identified. Thinly section through the adipose tissue and palpate for lymph nodes keeping them separated into those proximal to tumor, near tumor and distal to tumor. Count and give a range in size. Submit all lymph nodes identified and designate location in cassette summary. If fewer than 12 lymph nodes are found, submit sections of adipose tissue that may represent small lymph nodes.

Sample Dictation:

“The specimen is received fresh and consists of an oriented ___ cm segment of terminal ileum, cecum and ascending colon and attached adipose tissue that measures ___ cm in length. The proximal margin is inked green and the distal margin is inked red. The terminal ileum measures ___ cm in length and ___ cm in circumference. The cecum measures ___ cm in length and ___ cm in circumference and the ascending colon measures ___ cm in length and ___ cm in circumference. The serosal surface is (retracted, smooth, unremarkable). An appendix is present that measures ___ cm in length, ___ cm in diameter and is unremarkable. There is a ___x___x___ cm (color) mass on the mucosal surface that is centrally ulcerated with raised rolled edges. The mass is ___ cm from the proximal margin and ___ cm from the distal margin. On sectioning, the mass has a firm grey-white cut surface and measures ___ cm in maximal thickness. Grossly the mass invades through the muscularis propria and into the underlying adipose tissue. The bowel wall ranges from ___ to ___ cm in thickness. No other lesions are seen on the mucosal surface. Sectioning through the adipose tissue reveals (#) of possible lymph nodes ranging from ___ to ___ cm in greatest dimension. All possible lymph nodes are submitted. Representative sections of the remainder of the specimen are submitted as follows:”

Resections of Intestinal Neoplasms

1. Orient the specimen. Record its length and diameter proximal and distal to the tumor. Describe the serosa.
2. Open the bowel on the side opposite the tumor. Record the size of the tumor and the distance to each margin. Section the tumor, and document its deepest gross penetration.
3. Remove the mesentery, and submit representative sections of each node by level. Look for vascular invasion.
4. Submit sections of tumor to demonstrate its deepest penetration and relationship to normal mucosa. Submit sections of the proximal and distal margins, other lesions, normal mucosa, all lymph nodes, and any attached structures or organs.

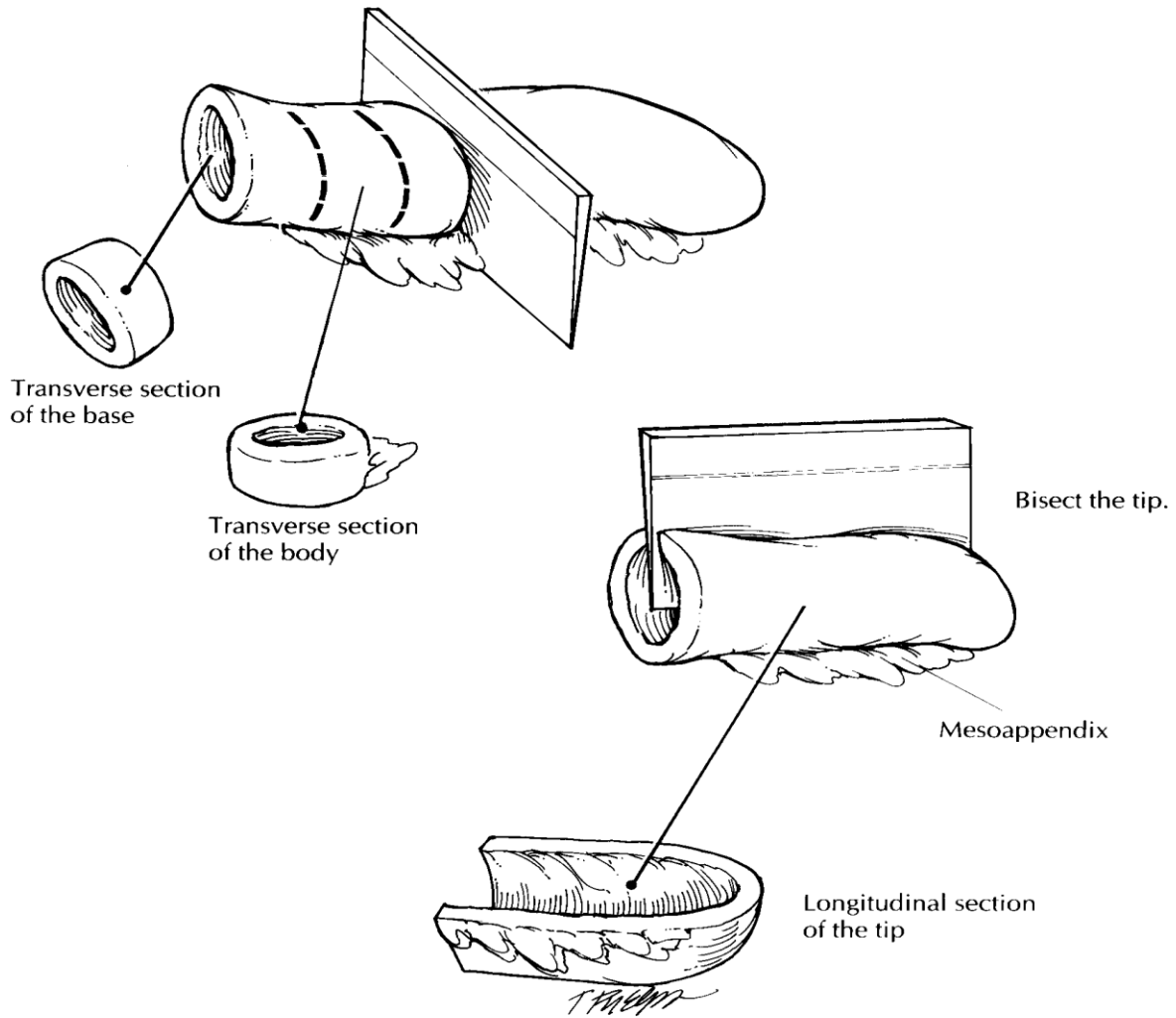


Appendix

1. Orient and measure in length and diameter. Note any areas of narrowing or dilation.
2. Examine and describe the serosal surface. Measure and describe the attached mesoappendix if present. Look for attached exudate, hemorrhage, or perforations to demonstrate an inflammatory process.
3. Ink the proximal resection margin.
4. If the appendix is abnormal in shape or there is suspicion of carcinoma ink the serosal surface another color.
5. Bisect the tip using a longitudinal section. Check the tip for tumor (carcinoids are the most common appendiceal tumors and are usually yellow in color). If tumor is present note the size and distance from the margin.
6. Serially section the remainder of the appendix using transverse sections. Describe the mucosa and measure the wall thickness. Describe the lumen and its contents, including fecaliths, foreign bodies (e.g., seeds, gallstone calculi), or purulent material.
7. Note the presence of any masses, strictures, or other gross abnormalities.
8. Submit a shave section of the proximal (resection) margin. Submit at least one half of the tip and any sections to demonstrate inflammation (perforations, exudates, strictures, etc). For tumors submit the entire appendix sequentially.
9. If the appendix is submitted for appendicitis and appears grossly normal, the entire appendix should be submitted.

Sample Dictation:

The specimen is received fresh and consists of a vermiform appendix with attached adipose tissue that measures ___cm in length and ___cm in diameter. The serosa is (glistening and smooth/ focally covered by yellow-white exudate). There is a staple line on the proximal margin. The proximal margin is inked green. The mucosa is tan and the wall measures ___cm in thickness. The lumen contains (brown soft material/hemorrhagic fluid/fecalith. A perforation is not seen. The proximal resection margin and the tip are submitted in cassette ___ and representative cross sections are submitted in cassette ___.



Appendectomy

1. Orient and measure the appendix. Carefully look for perforations.
2. Serially section the body of the appendix using transverse sections. Bivalve the tip using a longitudinal section.
3. Describe and measure any tumors.
4. Submit sections of the base, body, and tip of the appendix for histologic evaluation. The entire appendix should be submitted for all tumors and mucoceles.

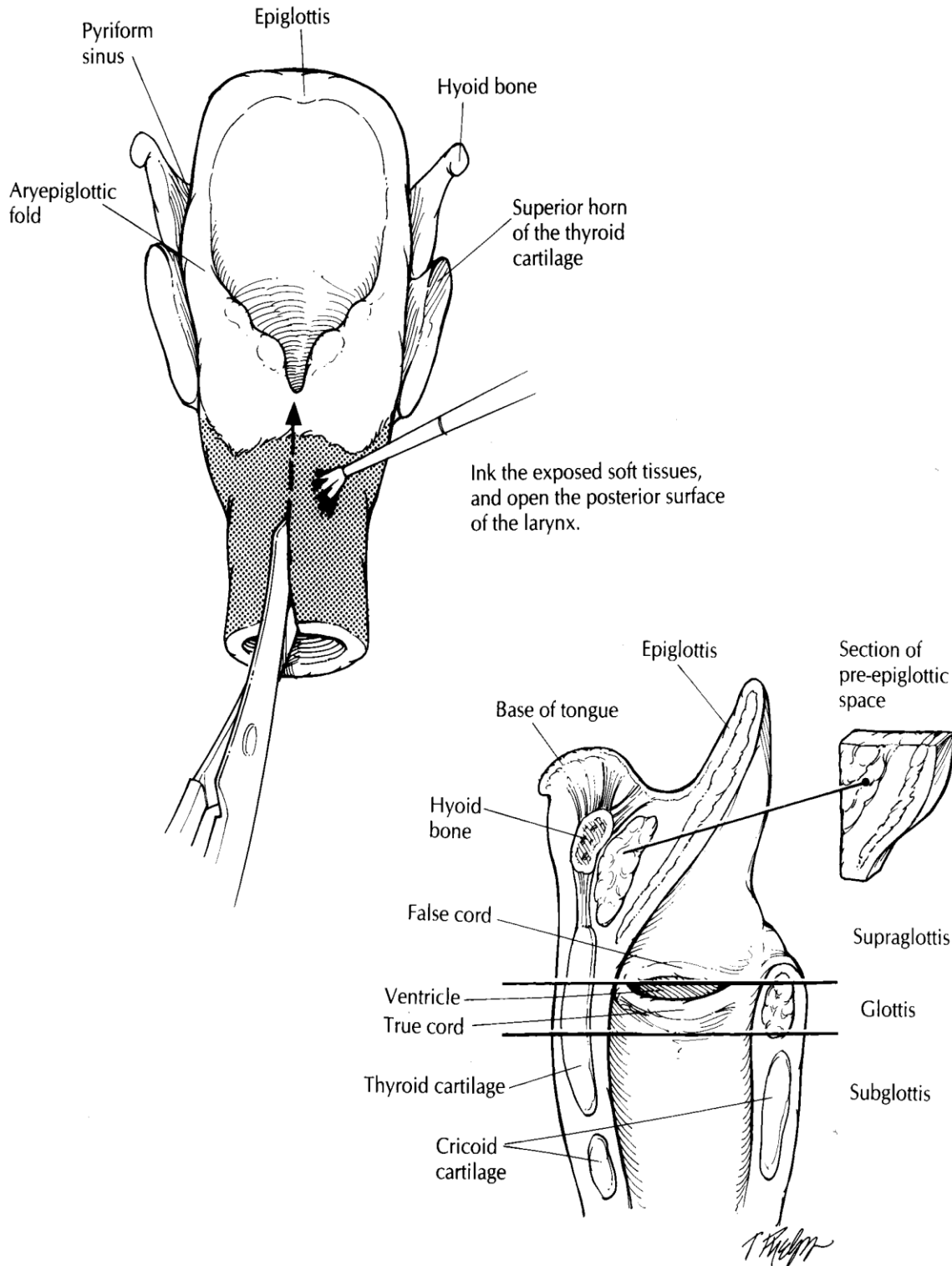
APPENDIX I: HEAD AND NECK

Larynx

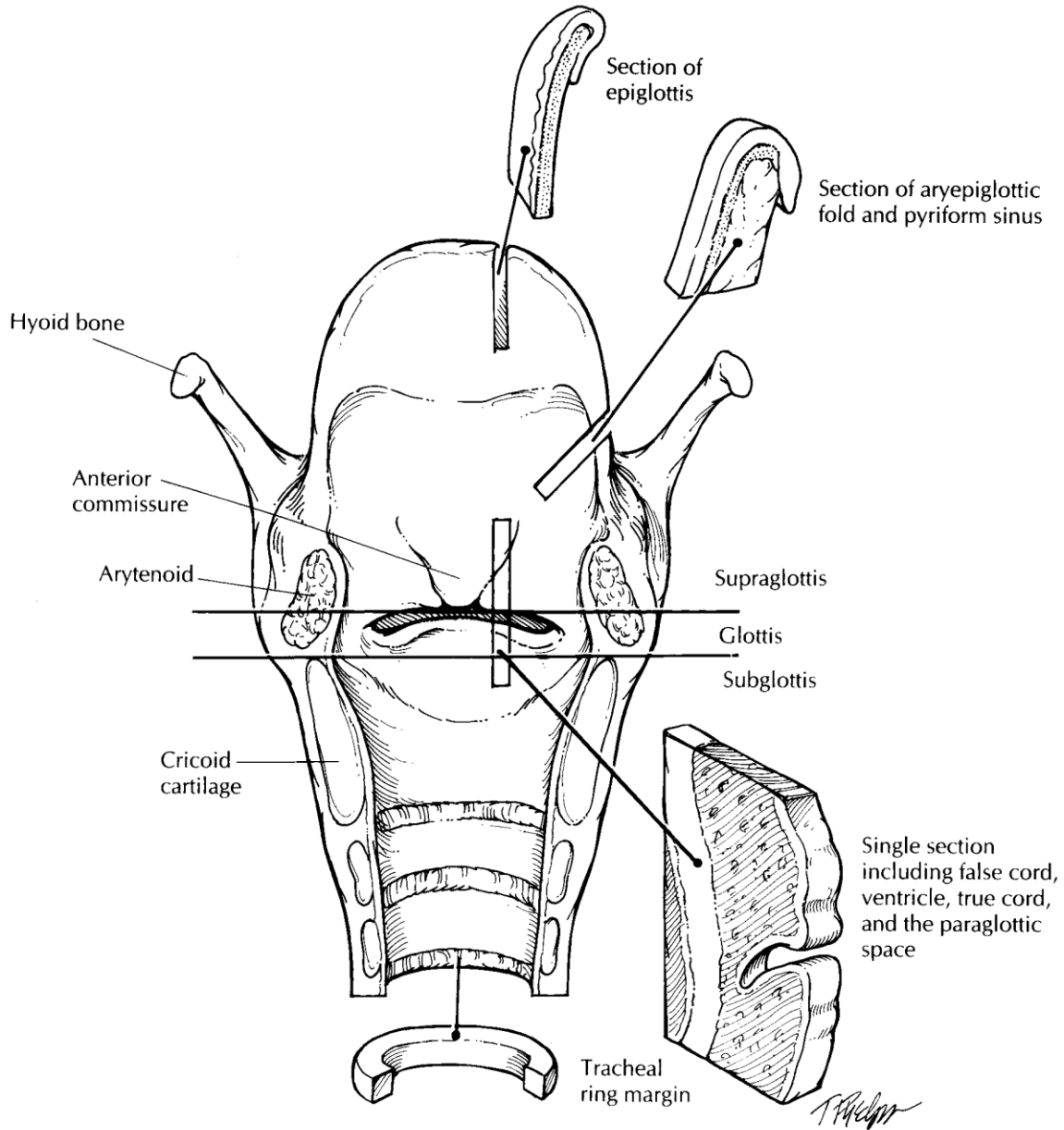
1. Orient the specimen. The epiglottis is anterior and at the most superior aspect of the larynx.
2. Measure the overall specimen in 3 dimensions. Measure the individual components in 3 dimensions (thyroid gland, parathyroid glands, hyoid bone, tongue, neck dissection).
3. Ink the resection margins (trachea, mucosa, base of tongue, soft tissues).
4. Open the specimen longitudinally along the posterior aspect.
5. Measure and describe the tumor. Determine the tumor location. Note whether the tumor crosses the midline of the specimen.
6. Measure the distance of the tumor to the resection margins.
7. Count the number of tracheal rings.
8. Document the point of deepest invasion of tumor. If the tumor extends into the cartilage, the specimen may need to be decalcified. Try to determine if other structures (vocal folds, epiglottis, commissures, thyroid gland, cartilage) have been invaded by tumor.
9. Describe the uninvolved mucosa.
10. Search the soft tissue for lymph nodes.
11. Submit surgical margins: trachea en face, mucosa en face, base of tongue and soft tissue margins perpendicular.
12. Submit the entire tumor sequentially including area of deepest invasion and tumor with all adjacent structures. Decalcify sections if necessary.
13. Submit sections of uninvolved larynx including false and true cords and ventricles, hyoid bone closest to tumor, thyroid gland, parathyroid if present, lymph nodes if identified. Submit sections from tracheostomy site if present.

Sample Dictation:

“The specimen is received fresh and consists of a total laryngectomy specimen which includes the hyoid bone, thyroid gland, and ___ tracheal rings and measures ___x___x___cm overall. The hyoid bone measures ___x___x___cm and the thyroid gland measures ___x___x___cm. The larynx is symmetrical and measures ___ cm superior to inferior, ___ cm medial to lateral, and ___ cm anterior to posterior. There is a ___x___cm tracheal stoma ___cm from the distal margin. The tracheal margin is inked blue, the mucosal margin is inked red, the base of the tongue is inked yellow, the posterior soft tissue margin is inked black and the anterior soft tissue margin is inked green. There is an (color/shape) mass with central ulceration located in the _____ and does/does not involve the (left/right) vocal cord. The mass crosses/does not cross the midline. The false vocal cords are not involved. The mass is ___cm from the closest proximal mucosal margin (left aryepiglottic fold) and ___ cm from the distal tracheal margin. The mass (invades into the lamina propria/is confined to the mucosa) and focally appears to invade into, but not through, the thyroid cartilage. _____, _____, and _____ are not involved with tumor. The remainder of the mucosa is unremarkable. The anterior surface is covered by red-brown strap muscles, which are grossly unremarkable. The thyroid has a brown soft cut surface. Parathyroid glands are not seen. Representative sections are submitted.”



Although this is a plane of section you will not see, we find this diagram helpful, because it demonstrates the anatomy and the location of the pre-epiglottic space.



Total Laryngectomy

1. Orient the specimen. The epiglottis is present anteriorly at the most superior aspect of the larynx, and the flap of the epiglottis closes posteriorly.
2. Ink the margins, and then cut through the posterior wall of the larynx in the midline. Open the larynx by pushing hard on the superior horns of the thyroid cartilage.
3. Submit sections of the inferior (tracheal) and superior (base of tongue, pyriform sinus or lateral hypopharyngeal wall, and posterior cricoid) mucosal margins and anterior and posterior soft tissue margins.
4. Describe and submit sections of the tumor, keeping the three anatomic regions of the larynx in mind: the supraglottis, the glottis, and the subglottis.
5. Submit a section from both sides to include the false cords, the ventricles, and the true cords. Submit sections of the pyriform sinuses, the epiglottis, the aryepiglottic folds, the anterior commissure, the subglottis, the thyroid cartilage, the cricoid cartilage, and the hyoid bone. Submit sections of the pre-epiglottic space, the paraglottic space, and the anterior commissure.

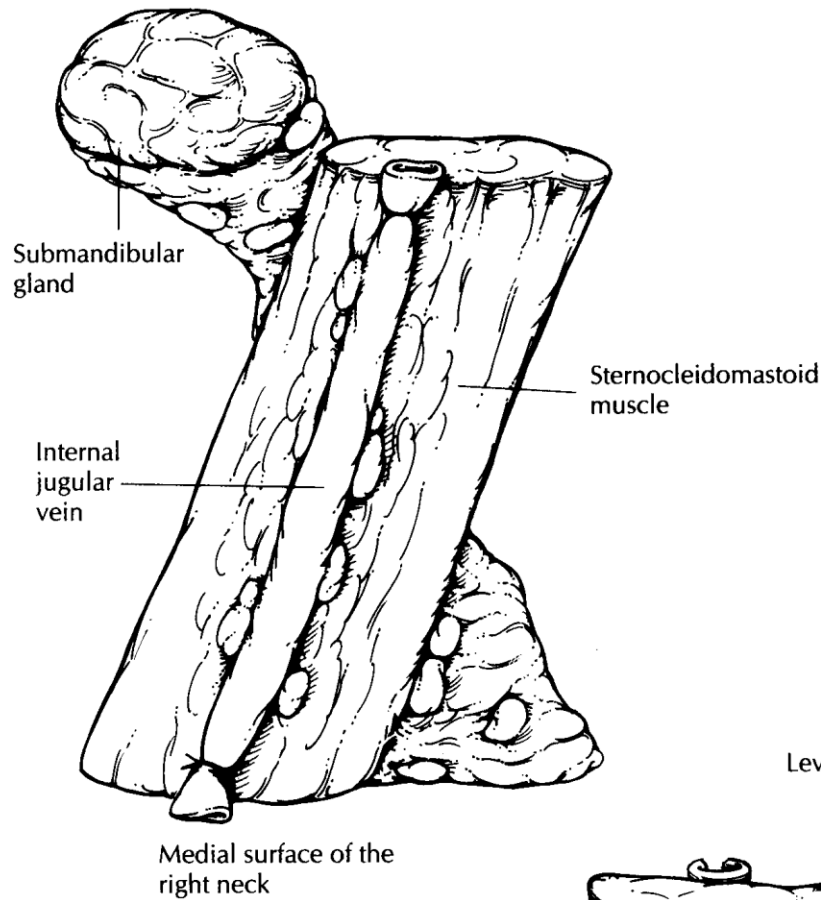
Salivary Gland

1. Measure and weigh the specimen.
2. Describe and ink the external surface.
3. Serially section the specimen in 2-3 mm intervals parallel to the short axis.
4. Describe the cut surface. Measure and describe any tumors in 3 dimensions. Measure the distance from the external surface.
5. Submit sections of tumor including the relationship to uninvolved gland and inked capsule. Up to six sections.
6. If no lesions are seen submit 3 representative sections of gland.
7. Submit any lymph nodes identified.

“The specimen is received fresh, and consists of a ___ x ___ x ___ cm parotid gland measuring ___ x ___ x ___ cm and weighing ___gms. The external surface is brown and lobulated. The external surface is inked black. There is a ___ x ___ x ___ cm encapsulated/unencapsulated/irregular/well-circumscribed mass within the gland that is measures ___x___x___cm and comes within ___ cm of the inked capsule. It has a white/tan/necrotic cut surface. The remainder of the gland is tan-yellow, has the usual lobular appearance and is unremarkable. No lymph nodes are identified in the surrounding soft tissue.”

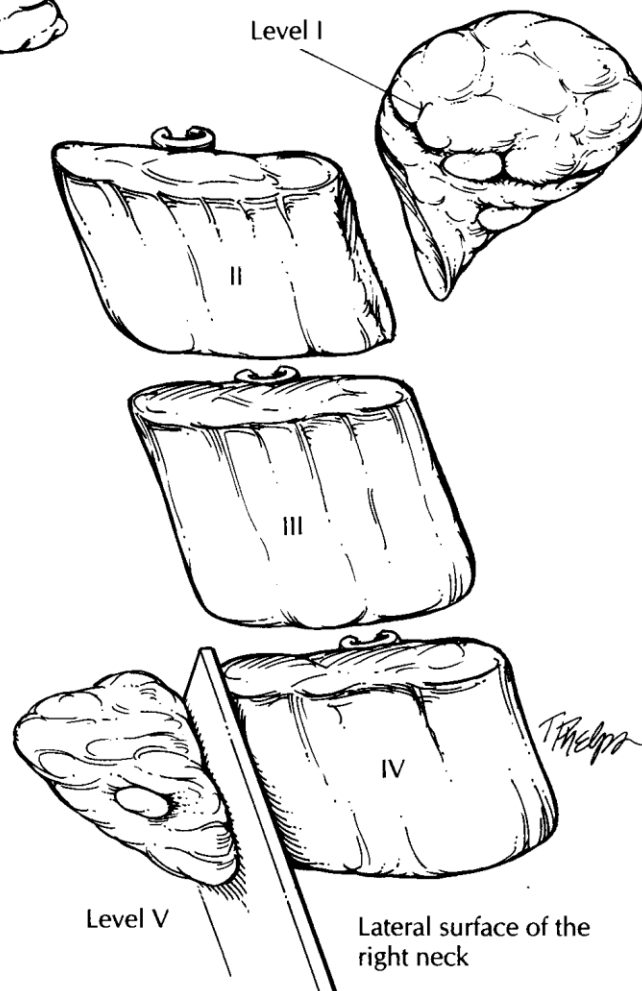
Radical Neck Dissection

1. Orient the specimen. The submandibular gland is located at the anterosuperior aspect. The sternocleidomastoid runs from superoposterior to the inferoanterior of the specimen. The internal jugular vein is on the medial aspect of the sternocleidomastoid muscle. Sometimes the specimen is marked with sutures which help provide orientation.
2. Measure the entire specimen and its individual components.
3. Open the vein and look for any lesions. If a lesion is present measure in 3 dimensions and the distance from the margin. Note the appearance of the vein lining and the adherence to surrounding structures.
4. Divide the specimen into its 5 levels.
 - Level I: Submandibular gland, soft tissues anterior to the sternocleidomastoid muscle.
 - Level II: Upper third of sternocleidomastoid and jugular vein and surrounding soft tissue.
 - Level III: Middle third of sternocleidomastoid and jugular vein and surrounding soft tissue.
 - Level IV: Lower third of sternocleidomastoid and jugular vein and surrounding soft tissue.
 - Level V: Triangle of soft tissue posterior to the muscle.
5. Dissect each level searching for lymph nodes.
6. Give a range in size of lymph nodes from each level.
7. Describe and measure the submandibular gland.
8. Submit all lymph nodes identified and a section of the submandibular gland.
9. Submit a section of jugular vein and sternocleidomastoid if involved by tumor.
10. Divide lymph nodes into appropriate levels and specify in cassette summary.



Radical Neck Dissection

1. Orient the specimen. The submandibular gland occupies the most anterosuperior aspect of the resection, and the internal jugular vein lies over the medial surface of the sternocleidomastoid muscle.
2. Open the vein, and sample any lesions.
3. Separate off each level, identify all of the lymph nodes, and submit each node for histology.
4. Examine the submandibular gland, and submit a section for histology.
5. Section the muscle, and submit a section of it if any lesions are encountered.



APPENDIX J: HEPATOBILIARY/PANCREAS

Gallbladder

Processing the Specimen:

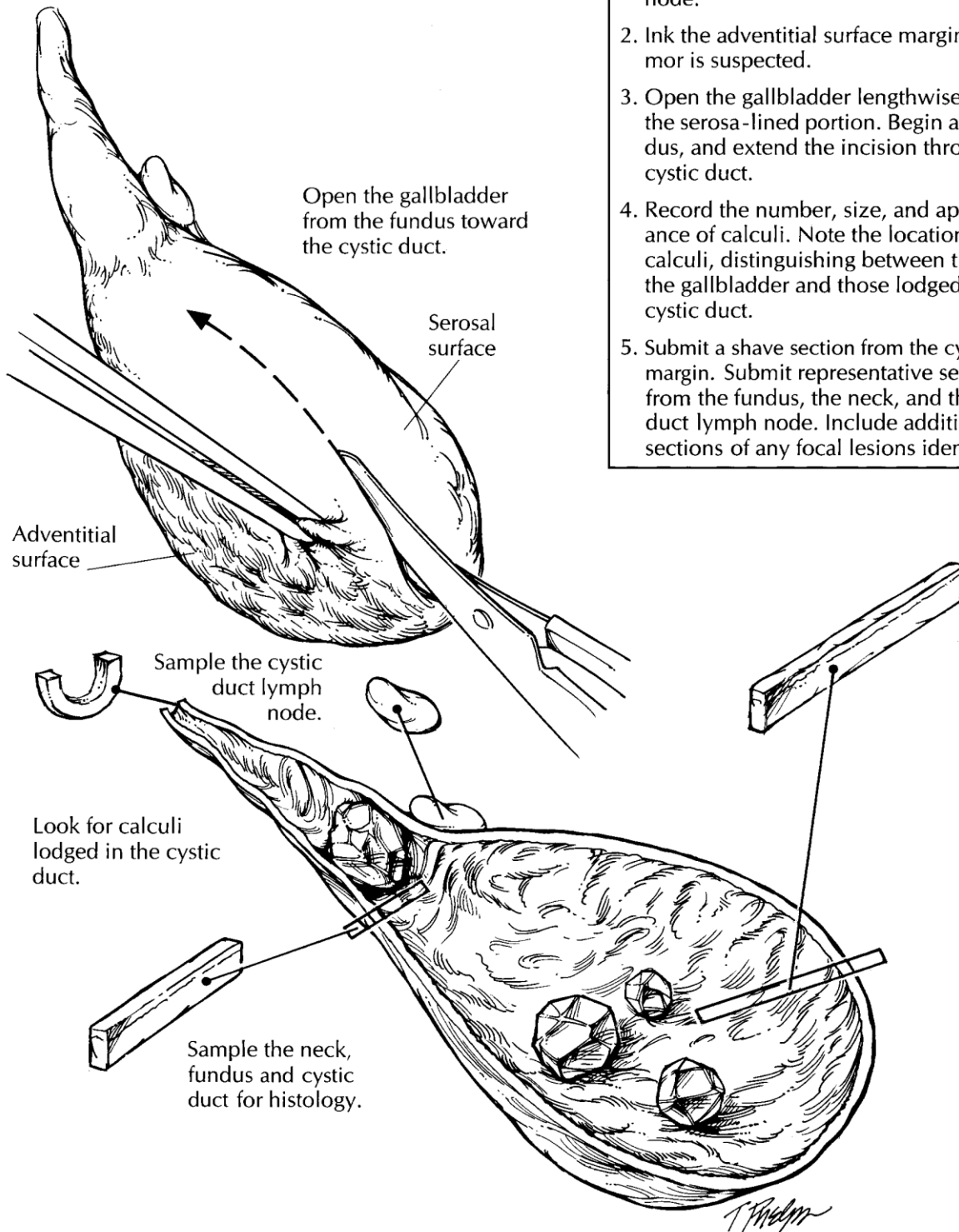
1. Measure the specimen and state whether it is received intact or previously opened.
2. Describe the serosal and adventitial surfaces. Look for any lymph nodes near the cystic duct.
3. Take a shave cross section of the cystic duct margin and submit in a cassette.
4. Open the gallbladder longitudinally starting at the fundus and going through the cystic duct.
5. Describe the contents of the lumen. Describe the shape and color of any stones present. Include how many stones are identified and a range in their size. If there are many, estimate the number. Do not describe as multiple or many. It should be noted if there are stones lodged in the cystic duct.
6. Measure the thickness of the gallbladder wall and describe the mucosa. Describe and measure any polypoid areas (usually soft, yellow and papillary).
7. Submit a cross section of the cystic duct margin, a section from the fundus and from the neck. Submit any lymph nodes identified.
8. If neoplasia is suspected, ink the adventitial surface and cystic duct margin different colors. Describe relationship of tumor to the margins and the serosal surface. Describe the lesions (carcinomas usually appear as solid white masses infiltrating the wall or as exophytic, soft fronded intraluminal tumors).
9. Note depth of invasion, ie into muscle, through muscle, through muscle and at deep margin.
10. For neoplasia submit sections including inked margins and one section per cm of tumor including relationship to margins, serosal surface and advential margin.

Sample Dictation:

“The specimen is received fresh and consists of a ___ x ___ x ___ cm (intact/previously opened) Gallbladder. The cystic duct is (patent/occluded by stones). The serosa is (green-tan/smooth and glistening/dull and dusky). The adventitial surface is rough and irregular with a scant amount of attached liver parenchyma. The wall measures ___cm in thickness. The lumen contains (green/yellow-green/thin/thick, mucoid) bile (#) (smooth/faceted)(yellow/green/black) stones which range from ___ to ___cm in greatest dimensions. The mucosa is (green/brown/green with diffuse yellow flecks) and (velvety/flattened/trabecular). A tan possible lymph node is identified at the neck of the gallbladder that measures ___cm in greatest dimension. (Submit the cystic duct margin and gallbladder wall in one cassette and lymph nodes in a separate cassette)”

Cholecystectomy

1. Orient the gallbladder. Distinguish the serosal surface from the adventitial surface. If present, locate the cystic duct lymph node.
2. Ink the adventitial surface margin if a tumor is suspected.
3. Open the gallbladder lengthwise through the serosa-lined portion. Begin at the fundus, and extend the incision through the cystic duct.
4. Record the number, size, and appearance of calculi. Note the location of any calculi, distinguishing between those in the gallbladder and those lodged in the cystic duct.
5. Submit a shave section from the cystic duct margin. Submit representative sections from the fundus, the neck, and the cystic duct lymph node. Include additional sections of any focal lesions identified.



Liver (Partial)

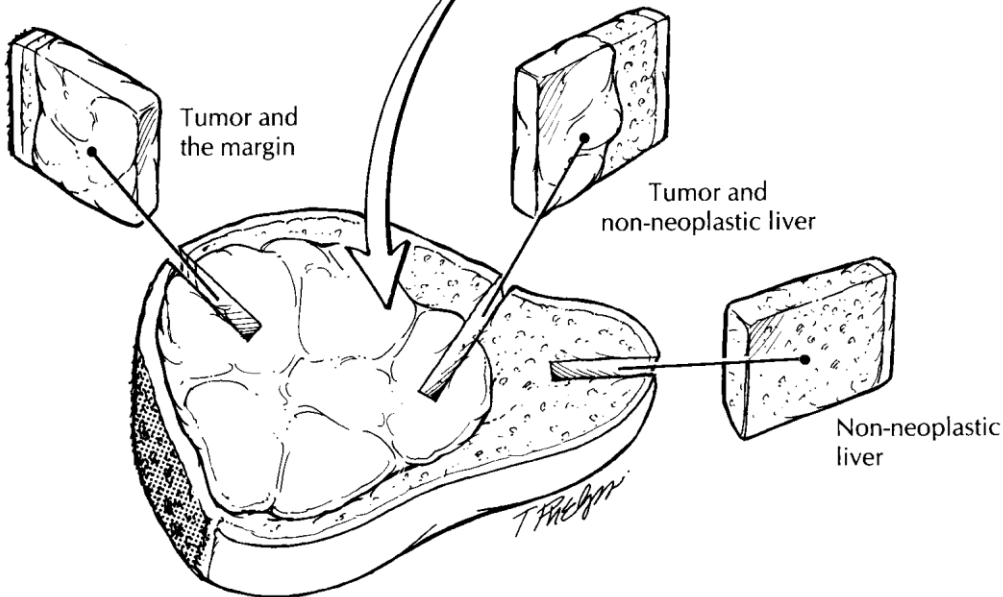
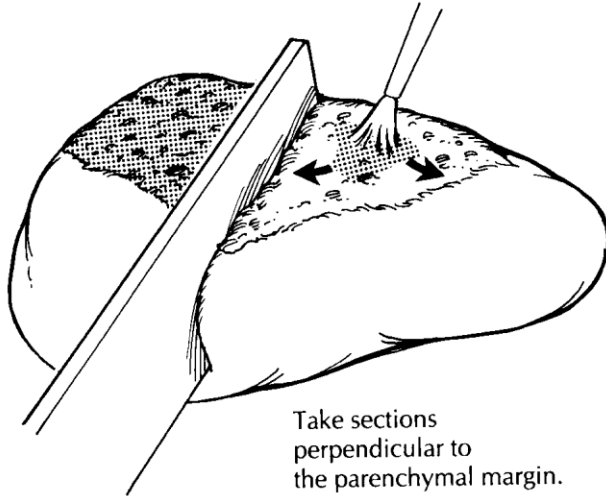
1. Weigh and measure the specimen.
2. Describe the resection margin and overall appearance of the specimen including a description of the capsule. Ink the resection margin black.
3. Serially section at 0.5 cm intervals.
4. Describe and measure any lesions with respect to the surgical margin and capsule.
5. Describe the remainder of the liver parenchyma.
6. Submit sections of the lesion in relationship to the resection margin (perpendicular sections) and uninvolved liver. Submit 1-2 sections of uninvolved liver farthest from the lesion.
7. For metastatic lesions submit 2-3 sections from the periphery of the tumor and of the margin if requested.
8. If no tumor is seen submit 3-4 sections of normal appearing liver.

Sample Dictation:

“Received fresh is a segment of liver that weighs ___gms and measures ___x___x___cm. The capsule is (smooth/tan-brown/lacerated/nodular). The resection margin is rough and cautery is noted. No lesions are seen at the resection margin. The surgical margin is inked black. The specimen is serially sectioned. There are multiple tan-white nodules ranging from ___ to ___cm in greatest dimension scattered throughout the liver parenchyma. The closest comes within ___cm of the surgical margin and is ___cm from the capsule. The remainder of the liver parenchyma is (brown/tan-yellow/unremarkable/nodular). Representative sections are submitted.”

Partial Hepatectomy

1. Weigh and measure the specimen.
2. Identify and ink the liver resection margin.
3. Serially section the liver perpendicular to the resection margin at 0.5-cm intervals.
4. Document the distance from the resection margin to the edge of the tumor.
5. For metastatic lesions, submit sections from the periphery of the tumor and of the margin. Sample primary liver tumors more extensively, including perpendicular sections from the resection margin at points most closely approached by tumor. Representative sections of non-neoplastic liver should also be submitted, including a section as far away from the mass as feasible to evaluate background liver fibrosis.



Liver (Total)

Processing the Specimen:

1. Weigh and measure the specimen in 3 dimensions.
2. Describe the resection margin and overall appearance of the specimen including a description of the capsule. Ink the resection margin black.
3. Submit a shave section of the resection margin to include the bile duct, hepatic artery, portal vein and hepatic veins.
4. Identify and dissect hilar lymph nodes. Give a range in size and entirely submit.
5. Remove the gallbladder if present. Describe and process like a normal cholecystectomy.
6. Take 1-2 perpendicular sections through the hilum to include soft tissue.
7. Serially section at 0.5 cm intervals.
8. Describe and measure any lesions with respect to the surgical margin and capsule.
9. Describe (color and texture) of the remainder of the liver parenchyma.
10. Submit sections of any lesion with relationship to the large vessels/ducts and uninvolved liver. Submit at least one section per cm of tumor.
11. If no tumor is seen, submit at least 2 sections from each lobe of the liver.

Sample Dictation:

“The specimen is received fresh and consists of a total hepatectomy with attached gallbladder which measures ___ x ___ x ___ cm and weighs ___ g. The external surface is (color/smooth/nodular). The main vessels and ducts are opened. A mass is not seen. A thrombus is not seen. The specimen is serially sectioned. The cut surface is (green/yellow-tan/tan-brown) and (smooth/nodular). Two white-tan nodules are seen. The nodules measure up to ___ cm in greatest diameter and are located in the right lobe. The nodules are ___cm and ___cm from the _____ margin. They are ___cm and ___cm from the capsule. No lymph nodes are seen. The attached gallbladder is grossly unremarkable and measures ___x___x___cm. The gallbladder contains green bile and no stones. Representative sections are submitted.”

Image for total hepatectomy

Pancreas (Distal)

Processing the Specimen:

1. Identify proximal and distal if possible. The spleen near the more distal aspect.
2. Weigh and measure the specimen in aggregate. Measure the pancreas and spleen individually.
3. Ink the proximal surgical margin blue. Ink the anterior soft tissue margin red and the posterior soft tissue margin black.
4. Shave the proximal resection margin and submit in a cassette.
5. Serially section the specimen perpendicular to the long axis into 2-3 mm slices.
6. Examine the cut surface of the pancreas and describe any tumor seen.
7. Measure the tumor in the dimensions and measure the distance of the tumor to the proximal resection margin. Note whether the tumor extends into the spleen or adjacent soft tissue.
8. Describe the uninvolved pancreatic parenchyma.
9. Unless it is involved by tumor, dissect off the spleen and weigh separately.
10. Serially section the spleen and describe the cut surface.
11. Search the soft tissue for lymph nodes. Submit any lymph nodes identified.
12. Submit anterior and posterior soft tissue margins if not represented in tumor sections.
13. Submit at least one section per cm of tumor showing relationships to adjacent structures and normal parenchyma.
14. Submit 2 representative sections of uninvolved pancreas and uninvolved spleen.

Sample Dictation:

“The specimen is received fresh and consists of a ___x___x___ cm portion of pancreas and attached spleen that weighs ___gms. The soft tissue surrounding the pancreas is unremarkable. The proximal resection margin is inked blue. The anterior is inked red and the posterior is inked black. The specimen is serially sectioned. There is a ___x___x___ cm mass within the pancreas that has a (tan/yellow/necrotic/cystic)cut surface. The tumor is ___cm from the pancreatic resection margin. The remainder of the pancreatic parenchyma is yellow-tan, with the normal lobulated architecture. No other lesions are seen. The spleen weighs ___gms and smooth capsule. The cut surface is dark red-purple with visible white pulp. No lymph nodes are identified. Representative sections are submitted.”

Pancreas (Whipple)

Dissection of pancreatoduodenectomy specimens (PDEs) is difficult for the following reasons. The anatomy of the region is complex and key anatomical structures are small and may be missed or poorly visualised if dissection is not accurate. The specimen surface is extensive and needs to be included in the examination to allow correct evaluation of the margin status. Carcinoma in PDEs can be of pancreatic, ampullary, distal bile duct or duodenal origin, and as in many cases the histology is indistinctive and precursor lesions are absent, this important diagnostic decision is based exclusively on macroscopic findings. Last but not least, as pancreatobiliary cancer is usually poorly circumscribed and its periphery

obscured by chronic obstructive pancreatitis, exact evaluation of the tumour size and extension is often problematic.

In the following, a grossing procedure based on axial specimen slicing is described. While various dissection techniques for PDEs exist, recent studies have demonstrated the advantages and accuracy of the axial slicing technique. This dissection technique allows detailed assessment of the local anatomy and direct comparison with findings on pre-operative CT- or MRI-images. It is easy to perform and can be used irrespective of the pathology that is contained in the specimen. It allows examination of the entire specimen surface, ie. of all circumferential resection margins in every single specimen slice. The resulting axial specimen slices are easy to sample from, either as standard or whole-mount tissue blocks.

1. Specimen orientation and inking of the resection margins

Orientation of PDEs is most easily done by identification of the duodenal 'C' and the transection margin of the pancreatic neck. The latter contains the transected, often dilated main pancreatic duct, which is surrounded by bare pancreatic parenchyma, and may slightly protrude over the groove of the superior mesenteric vein (SMV). Once orientated, the specimen should be subjected to rigorous external inspection, which includes recording of any additionally resected structures, eg. a segment of the SMV or portal vein. To allow optimal specimen dissection, surgical sutures and clips should be carefully removed without disruption of the specimen surface, as the latter represents the circumferential resection margin. A PDE has 4 *transection margins*: the proximal (gastric or duodenal) and distal (duodenal) transection margins, which are of little if any clinical significance, and the transection margins of the common bile duct and pancreatic neck. The extrapancreatic stump of the common bile duct can be easily found by following the SMV groove (see below) 1-2 cm up cranially. The *circumferential margins* are as indicated in figure 1:

- Resection margin at the SMV groove ('SMV margin'): It normally has a smooth, slightly shiny surface. If a venous resection was undertaken, the venous segment will be found adherent to the SMV groove. It is recommended to ink the resected vein with a different colour to facilitate identification of this tissue following specimen slicing and during microscopic examination.
- Resection margin facing the SMA ('SMA margin'): In contrast to the latter, its surface is rough, fibrous and often irregular.
- Posterior resection margin: this is the flat surface at the back of the pancreatic head.
- Anterior pancreatic surface: this is not a resection margin but a free anatomical surface facing the lesser

sac. Tumor breaching of this surface can be of prognostic significance and therefore the anterior surface should be included in the assessment.

These surfaces should be inked according to an agreed color code. Possible other resection margins, eg. of a segment of vein, should be inked in a different color and this should be stated in the macroscopic description.

2. Axial specimen slicing

The PDE is sliced in the axial plane (ie. perpendicular to the longitudinal duodenal axis) through the entire pancreatic head (figure 2). The specimen slices should be no more than 3 mm thick, as some of the native anatomical structures are of that order of magnitude (eg. normal main pancreatic duct: 2-3 mm diameter). For most cases this will result in at least 12 slices. The specimen slices should be laid out in sequential order, and overview photographs and close-ups of individual slices should be taken.

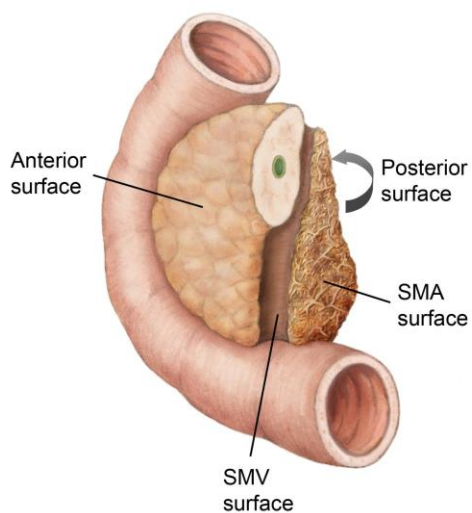


Figure 1

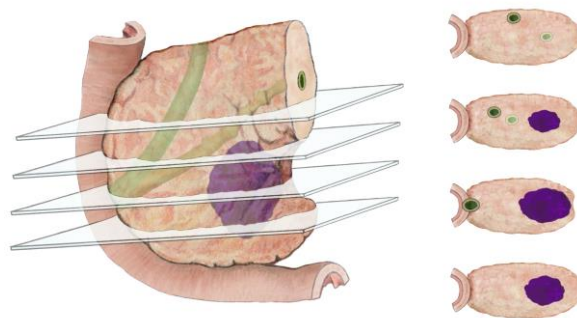


Figure 2

3. Inspection of the dissected specimen

The tumour is described regarding its appearance and location. The latter is of utmost importance for clinicopathological correlation and identification of the cancer origin (ie. pancreas, ampulla, common bile duct, duodenum). The location within the pancreatic head (eg. medial-dorsal half, lateral-anterior aspect), and the spatial relationship to the key anatomical structures (ampulla, duodenal wall and intra-

/extrapancreatic bile duct, peripancreatic soft tissue, SMV if resected, etc) are recorded. The craniocaudal dimension of the tumour is calculated from the number of slices that contain tumour. The two tumour dimensions in the axial plane are measured in the specimen slice where the tumour is at its largest extension. The minimum distance of the tumour to the nearest specimen margins and surfaces is assessed at this point, however, this requires microscopic correction. Any further abnormalities, identified in the pancreas or other structures included in the specimen are described.

4. Tissue sampling

It is recommended to take at least one whole mount block from the specimen slice in which the tumour is at its largest extension, and which demonstrates best the relationship to structures that are essential for correct T- and R-staging. As cancer in the pancreatic head is usually poorly circumscribed, and therefore the relationship of the invasive tumour front to other structures and the resection margins is often difficult to assess, extensive sampling is recommended. The number of tumour samples has a direct impact on correct assessment of the margin status. To allow verification and correction of the craniocaudal dimension of the tumour, samples should also be taken from the specimen slices cranial and caudal to those containing the macroscopically apparent top and bottom end of the tumour. Further samples may be needed if additional tissues or structures (eg. venous segment) are included in the specimen, to examine the relationship of these to the tumour. Tissue samples should also be taken from background pancreatic parenchyma, ampulla and bile duct.

5. Lymph node sampling and allocation

The lymph nodes are not dissected out from the specimen, but instead they are left intact and sampled together with the surrounding tissues. The colour of the ink on the specimen surface overlying the lymph nodes will allow allocation to the different lymph node stations defined by the UICC or the Japan Pancreatic Society. A PDE specimen yields on average a minimum of 15 lymph nodes, and this has been accepted as a quality benchmark, as the number of evaluated lymph nodes influences survival.

APPENDIX K: THORAX

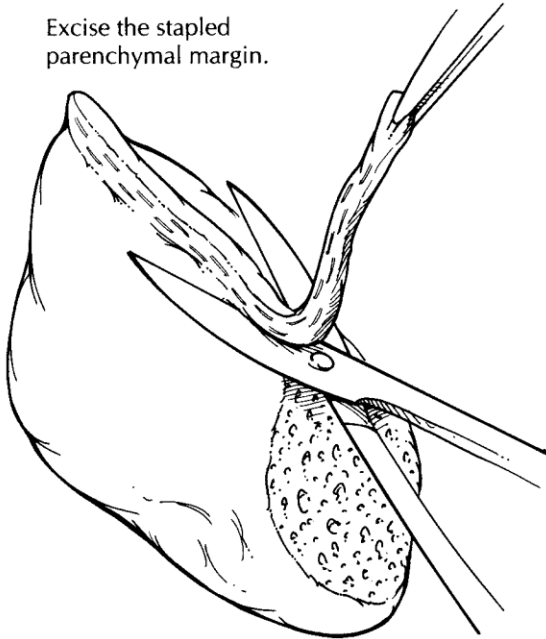
Lung Wedge Resection:

1. Weigh and give a 3 dimensional measurement of the specimen.
2. Examine the pleural surface for any abnormalities
3. Measure the length of the staple line.
4. Ink the staple line one color and the pleura overlying the mass or areas of pleural retraction another color.
5. Remove the staple line and serially section the lung perpendicular to the staple line.
6. Describe and measure any lesions and measure the distance of the tumor to the resection margin and the pleura.
7. Describe the remainder of the lung parenchyma.
8. Submit sections of tumor (at least 1 per cm) in relationship to the pleura, staple line resection margin, and adjacent normal lung.
9. Submit sections of normal appearing lung parenchyma.
10. If lymph nodes are present, they should be submitted.

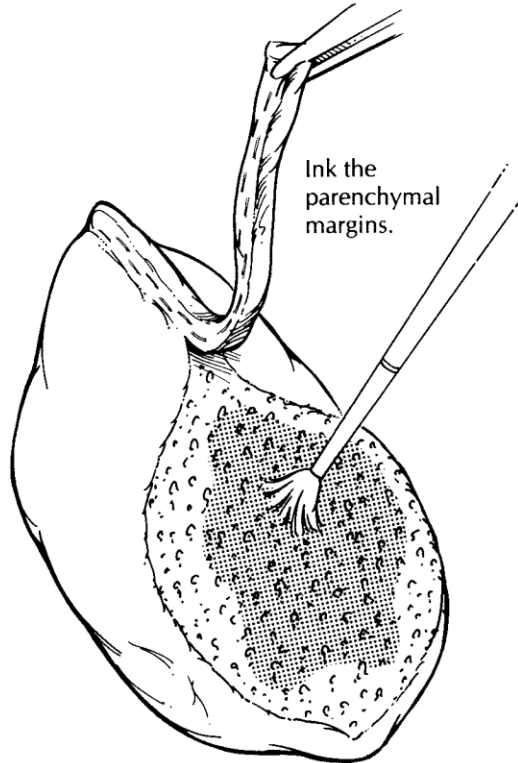
Sample Dictation:

“Received fresh is a wedge of lung that measures __x__x__cm. There is a __cm staple line. The staple line is inked blue. The pleura is grey-purple and wrinkled. There is an area of pleural retraction overlying a palpable nodule. The pleura in this area is inked black. On sectioning, in the area underlying the pleural retraction is a white mass measuring __x__x__cm that has a firm cut surface with soft yellow-grey center consistent with necrosis. This mass is __cm from the staple line resection margin and __cm from the pleural surface. The remainder of the lung parenchyma is red-brown and spongy. Representative sections are submitted.”

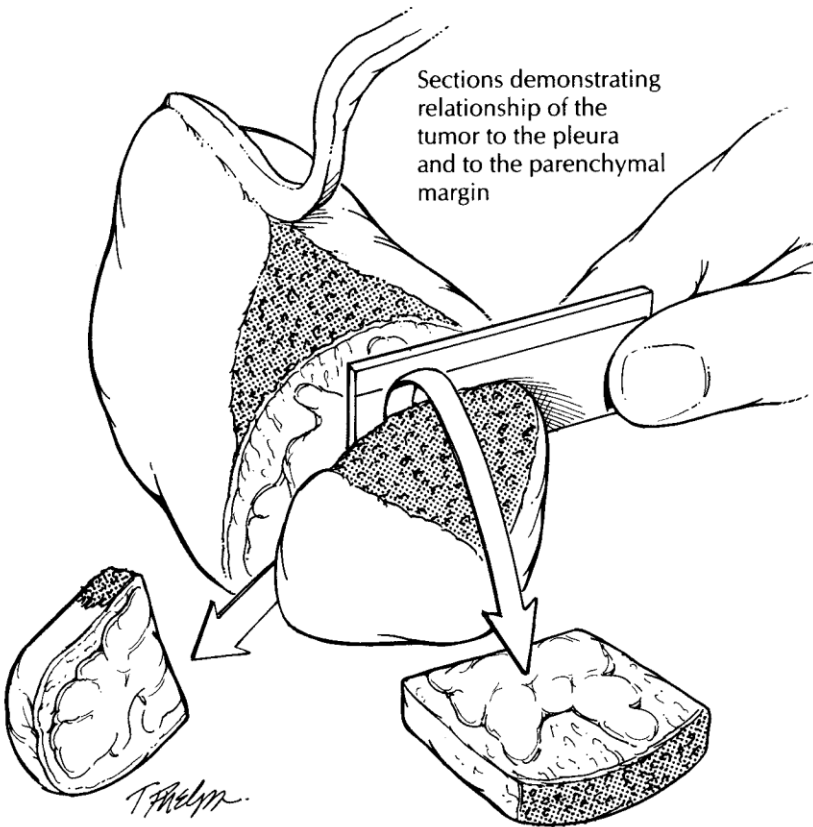
Excise the stapled parenchymal margin.



Ink the parenchymal margins.



Sections demonstrating relationship of the tumor to the pleura and to the parenchymal margin



Wedge Resection

1. Remove the staple line.
2. Ink the parenchymal margin.
3. Section the lung parenchyma perpendicular to the resection margin, document the size of the tumor, and measure the distance from the edge of the tumor to the resection margin.
4. Submit sections of the tumor to demonstrate its relationship to the parenchymal margin and to the pleura. Submit sections of non-neoplastic lung.

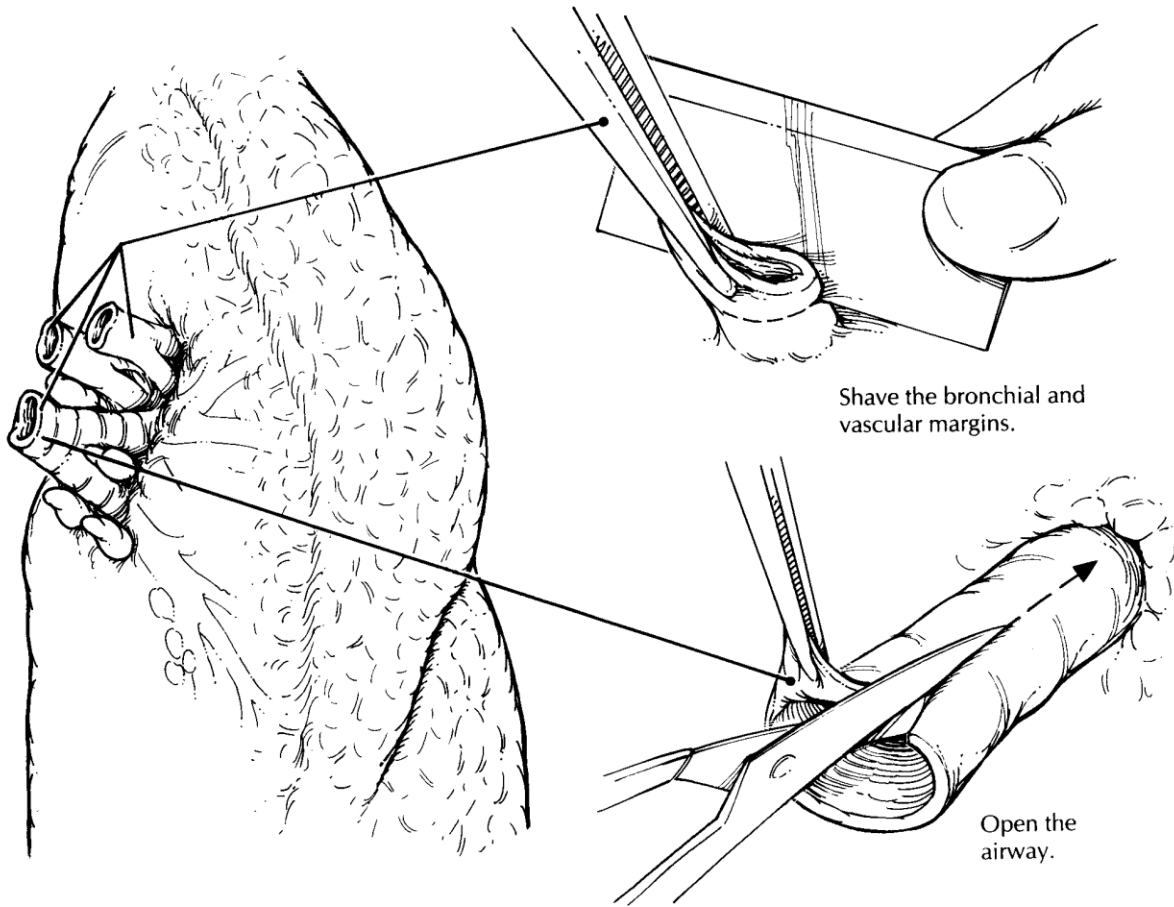
Lung Lobectomy/Pneumonectomy:

Processing the Specimen:

1. Orient and identify which lobes are present.
2. Weigh and give a 3 dimensional measurement of the specimen.
3. Examine the pleural surface for any abnormalities or areas of pleural retraction.
4. Measure the length and diameter of the bronchial margin.
5. Shave off the bronchial and vascular resection margins and place into a cassette and dissect the hilar lymph nodes. Submit these lymph nodes in a cassette designated as "hilar lymph nodes."
6. Ink the pleura overlying the tumor especially if there is an area of pleural retraction.
7. Open the airways with scissors.
8. Serially section the lung in the plain that best reveals the lesion and its relationship to surrounding structures.
9. Describe the location (which lobes are involved) and cut surface of any masses and measure the distance from the pleura and the bronchial resection margin. Note whether there is bronchial invasion by the tumor.
10. Describe the uninvolved lung parenchyma.
11. Submit sections of tumor in relationship to the pleura, the airways, the vessels, and adjacent lung parenchyma. Submit a perpendicular section of the pleural margin. Submit representative sections of lung parenchyma, pleura away from the mass and all identified lymph nodes.
12. For non-neoplastic conditions, submit at least one section from each lobe, the bronchial margin, and all lymph nodes.

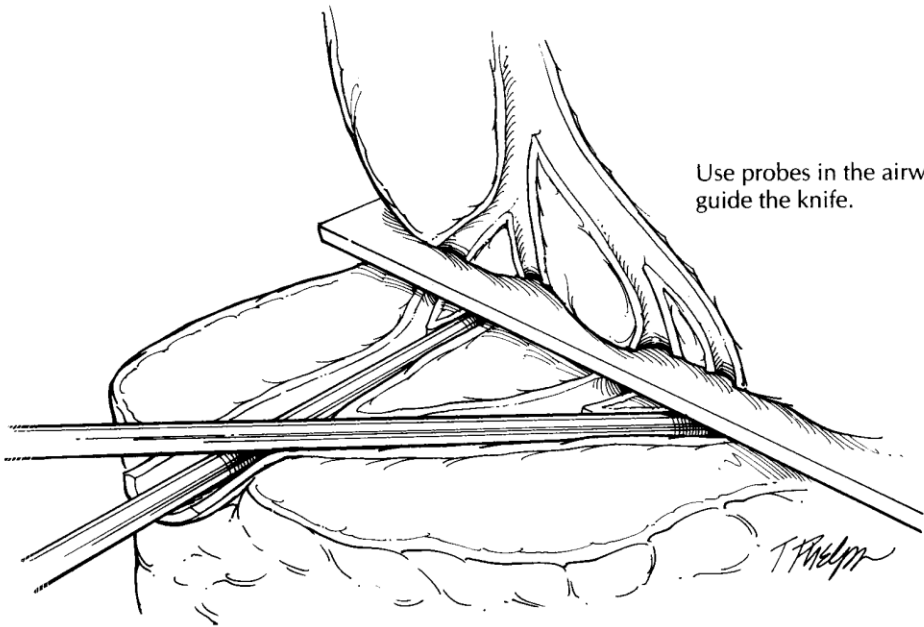
Sample Dictation:

"The specimen is received fresh and consists of a (right/left) lung that weighs ___gms and measures ___ x ___ x ___ cm. The bronchus measures ___ cm in length and ___cm in diameter. The bronchial and vascular margins appear unremarkable. (#) of dark black possible lymph nodes are identified at the hilum that range from ___to ___cm in greatest dimension. The pleural surfaces are (glistening/smooth/wrinkled/grey-purple/pink). There is an area of retraction that measures ___cm in greatest dimension. The pleural surface overlying this area is inked black. On sectioning, a (firm tan/focally necrotic) mass is seen measuring ___ x ___ x ___ cm. The mass is located (upper/lower/middle lobe/adjacent to the hilum). The mass is located ___cm from the bronchial margin and ___cm from the pleural surface. Grossly the mass does not involve the bronchus. The remainder of the lung parenchyma is brown, spongy and unremarkable. Representative sections are submitted."



Shave the bronchial and vascular margins.

Open the airway.



Use probes in the airway to guide the knife.

Image for total pneumonectomy

Lung for Metastatic Lesions:

1. Margin assessment is normally not needed. Discuss with surgeon prior to grossing the case. If margin assessment is required treat as a pneumonectomy described above. If margins are not needed proceed as follows.
2. Weigh and give a 3 dimensional measurement of the specimen.
3. Examine the pleural surface for any lesions. Describe the pleura.
4. Open the airways and serially section the lung. Describe lesions (usually multiple) and give a range in size.
5. Describe uninvolved lung parenchyma.
6. Submit representative sections of lesions and uninvolved lung. Submit any lymph nodes present.

Mediastinal Masses:

1. Weigh, measure in 3 dimensions.
2. Describe the external surface.
3. Ink external surface if intact.
4. Serially section and describe the cut surface.
5. Submit at least one section per cm of the mass to show all components of the lesion.

APPENDIX L: LYMPHOID

Lymph Node

If there is a question of lymphoproliferative disorder, Hematopathology should be notified **before formalin is added**. If warranted, Heme Path will process the specimen and return the remainder to Histology. Then formalin can be added. If the specimen is not for heme path start with step 2.

1. Read procurement note from Hematopathology.
2. Measure the specimen.
3. Describe both the external and cut surfaces.
4. Submit the entire specimen.

Special Procedures for LYMPH NODE (in patients with suspected lymphoproliferative disorders):

Most of these specimens are first handled in the Hematopathology Section and grossed by the hematopathology fellow. If not, at the direction of the hematopathologist, cut the larger nodes into thin slices and then fix overnight before submitting for processing. Put one thin slice per cassette. If the case comes on Friday, submit for processing on a schedule set for a weekend delay. Consult with a histotechnologist to make sure the processor is set appropriately.

Spleen

- If possible weigh (without blood clots) and measure the spleen while it is fresh. If a lympho or myeloproliferative disease is suspected clinically, contact the hematopathology section to discuss the case and if needed procure fresh tissue for ancillary studies (i.e. flow cytometry and/or cytogenetics).
- Examine and describe the capsule. Document if it is intact or lacerated or if any lesions are seen.
- Examine the hilum for lymph nodes.
- Before fixation in formalin, serially section the spleen into 2-3 mm sections. Place the thin slices in formalin (large volume). Examine each slice carefully, documenting the appearance of the cut surface including both red and white pulp.
- Document the number, size and appearance of any discrete nodules.
- If no nodules are seen submit 2 to 4 sections of splenic parenchyma, including lacerations or areas of hemorrhage.
- If nodules are present, contact the hematopathology section to discuss sampling.
- Submit sections of each nodule and 1-2 sections of normal splenic parenchyma after proper fixation (usually overnight).

Sample Dictation:

“The specimen is received fresh and consists of a ___ gram spleen that measures ___x ___x ___ cm. The capsule is (color) intact, smooth and glistening. No lacerations seen. No lymph nodes are seen at the hilum. Serial sectioning reveals mildly congested red pulp with visible white pulp nodules. One nodule is identified that measures ___x___x___cm and has a ___cut surface. Representative sections are submitted.”

Tonsils

- Measure the specimen in 3 dimensions.
- Describe the external surface.
- If tumor is present ink the resection margin.
- Measure the size of the tumor in 3 dimensions.
- Serially section and describe the cut surface.
- If lymphoma is suspected, consult with Hematopathology

Sample Dictation:

“Received fresh is a right tonsil that measures ___x___x___cm. The external surface is tan and cerebriform. On sectioning, the cut surface is tan-grey with the normal crypt architecture. Small, yellow, soft nodules are present between some of the crypts. No other gross abnormalities are seen. Representative sections are submitted.”

Thymus

- Examine the external surface. Document degree of encapsulation and if there is any evidence of tumor invasion into adjacent structures.
- Weigh, measure in three dimensions and ink the external surface.
- Serially section into 2-3 mm sections and describe the cut surface.
- If a lesion is identified, measure in 3 dimensions and measure the distance from the inked margin and adjacent structures. Submit a minimum of 5 sections to show the relationship of tumor from the margin and to adjacent structures.
- If no lesion is identified submit 4 representative sections.

APPENDIX M: MALE REPRODUCTIVE

Vas Deferens

- Measure the length and diameter.
- Serially section transversely.
- Submit the entire specimen.

Sample Dictation:

“Received in formalin labeled with the patient’s name, MRN, and “left/right vas” is a grey tubular structure measuring __cm in length and __ cm in diameter. It is serially sectioned transversely and entirely submitted in cassette __.”

TURP (Prostate Chips)

- Measure the specimen in aggregate dimensions.
- Weigh the specimen in aggregate.
- Describe the fragments, usually grey to tan and rubbery. Describe any yellow or hard areas.
- If yellow, hard areas suspicious for cancer are seen, 1-2 cassettes can be submitted.
- If suspicious areas are not seen, 6 to 8 cassettes should be submitted.

Sample Dictation

“Received fresh labeled with the patient’s name, MRN and ____, are multiple irregular tan rubbery tissue fragments that weigh __gms in aggregate and have an aggregate measurement of __x__x__cm. No yellow areas of discoloration are seen. Representative sections are submitted in cassettes __to __.”

Prostate

Usually done at time of procurement:

- Orient, weigh and measure the prostate: apex to base, transverse and anterior to posterior. Measure the seminal vesicles (three dimensions) and the vas deferens (length x diameter).
- Use the following ink code: urethra-yellow, anterior 1/3-black, right 2/3-blue, left 2/3-red.

At grossing bench:

- Weigh, ink and measure if not already complete.
- The specimen is grossed using a customized whole mount mold.
- See Whole Mount Prostate SOP for more detail.

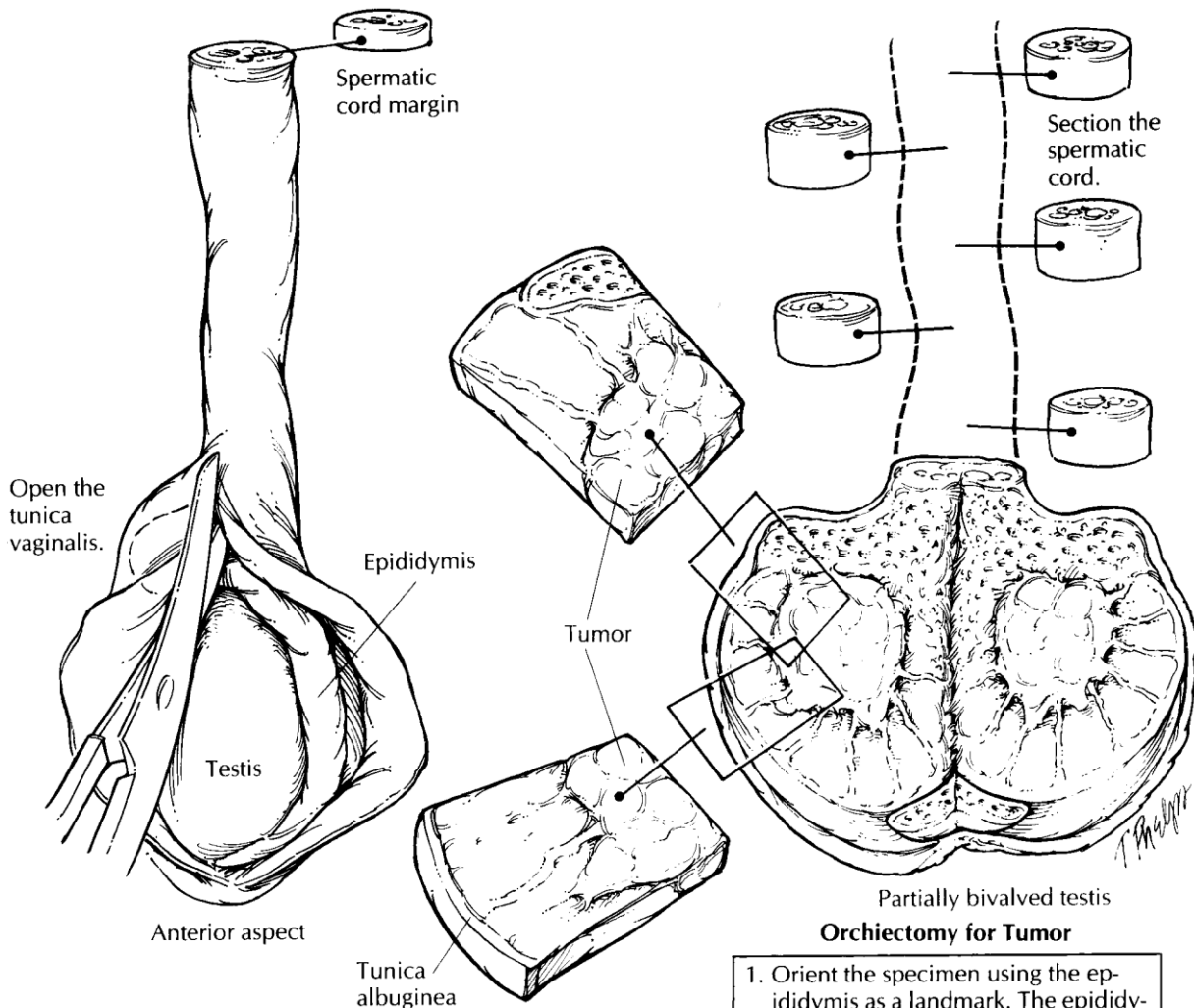
Orchiectomy

Processing the Specimen:

1. Orient the specimen. The epididymis runs along the posterior aspect.
2. Weigh the specimen. Measure the specimen overall and then measure the testis, spermatic cord, and epididymis separately.
3. Describe the appearance of the tunica vaginalis (the thin membranous tissue surrounding the testis).
4. Ink the spermatic cord resection margin black.
5. Take a shave section of the spermatic cord margin and submit in a cassette. Section through the remainder of the spermatic cord looking for lesions. Submit additional cross sections of the cord from the middle and distal portion (nearest to testis).
6. Bivalve the specimen along its axis on the anterior surface through to the epididymis on the posterior. Describe the tunica albuginea.
7. Perform any touch preps or special studies necessary. Let the specimen fix in formalin.
8. Section the testis parallel to the initial section. Describe and measure any lesions. Note any areas of hemorrhage or necrosis. If a lesion is seen, try to determine if the tumor extends into the surrounding structures (epididymis, spermatic cord, tunica albuginea, rete testis) or if it is confined to the testicle.
9. Describe the remainder of the testicular parenchyma including any additional lesions. If cystic areas are identified note the presence and amount of any fluid.
10. Section the epididymis from head to tail perpendicular to its long axis.
11. If a tumor is present, submit sections of the tumor (at least one section per cm) showing its relationship to the tunica albuginea, rete testis, to normal testicular parenchyma, and to the epididymis. Submit sections of uninvolved testis and epididymis.
12. If no tumor is present submit sections from the spermatic cord (proximal, mid, and distal), at least 2 sections of testicle with additional sections of any abnormal appearing areas, and a section of epididymis.

Sample Dictation:

“Received fresh is a testicle with attached spermatic cord that measures __x__x__cm and weighs __gms. The testis measures __x__x__cm and the spermatic cord measures __cm in length and __cm in diameter. The epididymis measures __x__x__cm. Tumor is not identified at the spermatic cord resection margin. The resection margin is inked black. The cord is sectioned. No lesions are seen/a nodule is seen that has a yellow lobulated cut surface (possible cord lipoma). The tunica vaginalis is tan and wrinkled. The tunica albuginea is grey-white and smooth. On sectioning a tan-pink mass is seen that measures __x__x__cm. The cut surface ranges from cystic to solid and is focally hemorrhagic. The mass does not appear to invade surrounding structures grossly. The remainder of the testicular parenchyma is tan brown and spongy. The seminiferous tubules string with ease. No other lesions are seen. Representative sections are submitted.”



Orchietomy for Tumor

1. Orient the specimen using the epididymis as a landmark. The epididymis is C shaped and cups the testis along its posterior aspect.
2. Take a shave section of the spermatic cord margin, and bread-loaf the spermatic cord along its entire length.
3. Open the tunica vaginalis anteriorly, partially bivalve the testis, note the size of any nodules, and then fix the specimen overnight.
4. Section the testis along its long axis parallel to the initial section. Section the epididymis from the posterior aspect of the specimen, perpendicular to its long axis.
5. Submit sections of tumor showing its relationship to the tunica albuginea, to the mediastinum testis, and to the testicular parenchyma. Submit sections of spermatic cord, of uninvolved testis, and of the epididymis.

APPENDIX N: SOFT TISSUE

Lipoma

- Measure the specimen in 3 dimensions. If skin is present describe the skin and measure in length and width.
- Ink the surgical surface black.
- Serially section and describe the cut surface. Usually yellow and glistening. Note the presence of hemorrhage or necrosis.
- Submit 1 section per cm.

Sample Dictation:

“Received fresh is a well circumscribed portion of tan-yellow adipose tissue measuring __x__x__cm. The external surface is inked black. The specimen is serially sectioned. The cut surface is tan-yellow glistening and homogenous. No hemorrhage or necrosis is seen. Representative sections are submitted.”

Omentum

- Measure and describe the external surface.
- Serially section the specimen at one cm intervals. Describe the cut surface.
- Measure any masses seen. If many, give a range in size.
- Look for any lymph nodes.
- Submit representative sections of any masses, all lymph nodes and 1-3 sections of omentum.

Sample Dictation:

“Received fresh is a portion of yellow lobulated adipose tissue consistent with omentum that measures __x__x__cm. On sectioning multiple hard white-grey nodules are seen ranging from 0.5 to 2.0 cm in greatest dimension. The remainder of the cut surface is yellow and lobulated without hemorrhage or necrosis. Representative sections are submitted.”

Hernia

- Measure the specimen in 3 dimensions.
- Describe the external surface.
- Describe the internal lining.
- Serially section. Describe any contents of the hernia sac. Note any areas of wall thickening or any other abnormalities.

Sample Dictation:

“Received fresh is a portion of grey-purple fibromembranous tissue that measures __x__x__cm. The external surface is wrinkled. The internal surface is predominately smooth and glistening. (The wall has a uniform thickness of __cm/there is a thickened area of the wall that measures __cm in thickness). No other gross abnormalities are seen. Representative sections are submitted.”

TIL Cases:

- Some cases will be procured in the TIL lab prior to being received in surgical pathology. The TIL researcher will procure approximately 90% of the tumor for their protocol. In the TIL lab, Pathology Hot Seat or the PA will save a diagnostic portion of the tumor tissue in a cassette. Any normal tissue not collected by TIL lab will be placed back into the original container with the diagnostic cassette and transported to surgical pathology.
- In surgical pathology, the in-house resident will transfer the diagnostic tissue into a cassette labeled with the case's SI number.
- It is at the discretion of the in-house resident whether to submit any of the additional tissue.

APPENDIX O: URINARY

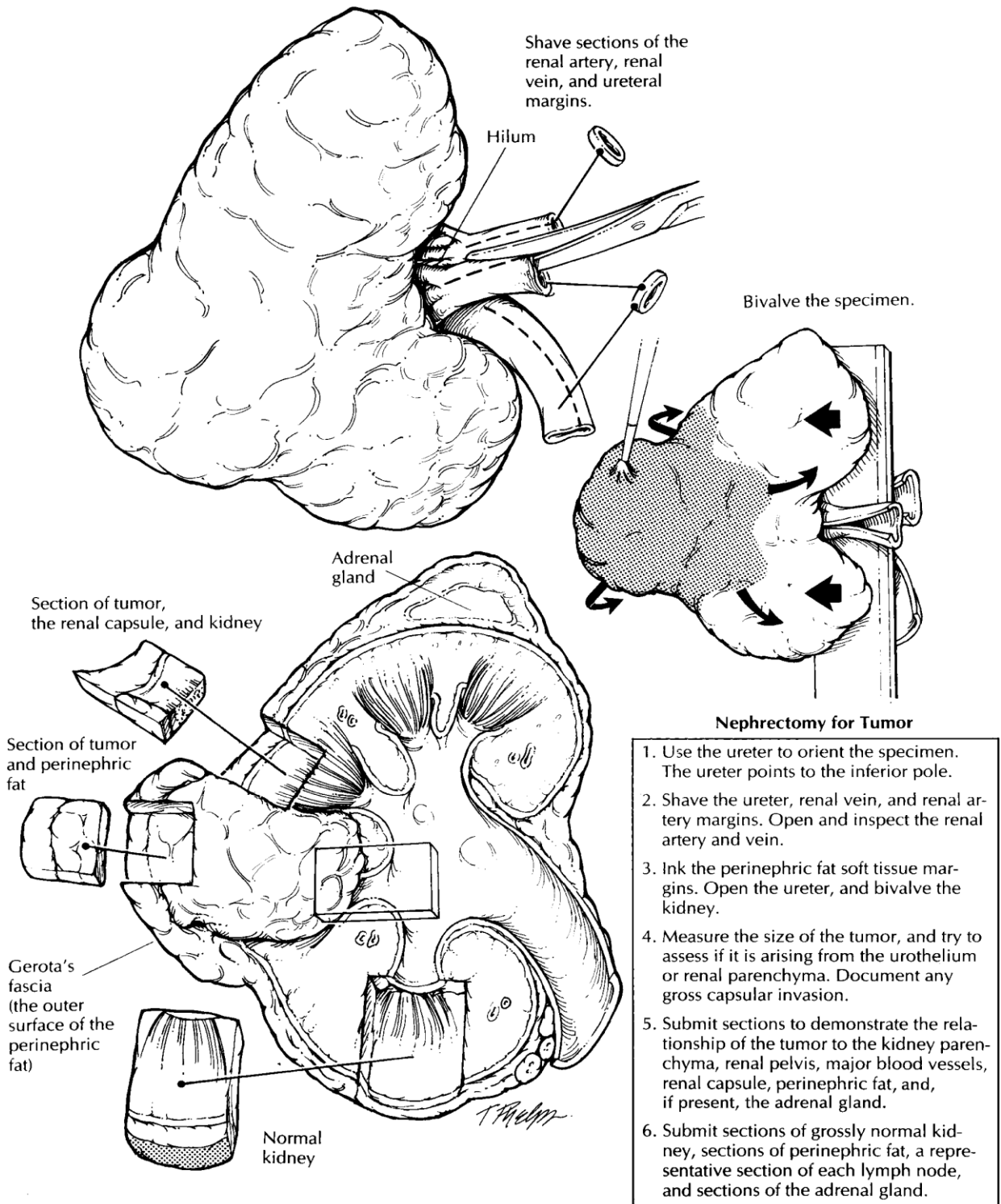
Kidney (Radical)

Processing the Specimen:

1. Weigh and measure the entire specimen. Using the ureter, orient the kidney. The ureter points to the inferior pole of the kidney.
2. Identify the ureter and renal vessels and take a cross section of each at the resection margin. Next open each to the point where they enter the kidney. Examine for any abnormalities. If involved by tumor measure the distance from the resection margin.
3. Ink the perinephric fat black. Do not remove fat or strip the renal capsule in the area of the tumor.
4. Bivalve the kidney starting from the side opposite the hilum. Measure the kidney itself and the thickness of the perinephric fat.
5. Describe the tumor and give a three dimensional measurement. Note its location within the kidney. Measure the distance to the nearest margin and note the relationship to the perinephric fat, ureter, renal vein, renal pelvis, and adrenal gland if present. Look for invasion into the fat.
6. Section through the remainder of the kidney to look for satellite lesions.
7. Describe the uninvolved kidney parenchyma. Measure the thickness of the cortex, describe the shape of the papillae, and the pelvis.
8. Look for the presence of an adrenal gland or any lymph nodes. If the adrenal gland is present, weigh and measure and submit a section if it is uninvolved by tumor. Submit any abnormal appearing areas.
9. Submit at least one section per cm of tumor with relationship to normal kidney, renal pelvis, capsule, and perinephric fat. Submit 1 to 2 sections of normal appearing kidney.
10. For non-neoplastic kidneys, dissect in the same manner. Describe and measure each component individually (hilum, kidney capsule, cortex, medulla, perinephric fat, and adrenal gland if present. Submit representative sections of each structure.

Sample Dictation:

“Received fresh is a kidney with surrounding fat and attached ureter, renal artery, and renal vein. The specimen weighs ___ grams and measures ___x___x___cm overall. The attached ureter measures ___cm in length and ___cm in diameter, renal vein measures ___cm in length and ___cm in diameter, renal artery measures ___cm in length and ___cm in diameter. The perinephric adipose tissue is inked black. Tumor is not seen at the surgical resection margin. The cortical surface tan and smooth/granular. The kidney is bivalved. On sectioning, a well circumscribed yellow gold mass is seen in the _____ (upper pole/lower pole/midpole) that measures ___x___x___cm. It has a (homogeneous, variegated), (yellow, pale gray, brown), (focally necrotic, focally hemorrhagic) cut surface. The tumor grossly (invades, does not invade) the renal vein/ureter. The tumor (is confined to the kidney, extends into the adjacent adipose tissue). The remainder of the kidney parenchyma is tan-brown with a well-defined cortico-medullary junction. The cortex measures ___cm in thickness. The calyces are grey-white and blunted. Sectioning through the adipose tissue reveals an adrenal gland that measures ___ x ___ x ___ cm. and has an unremarkable cut surface. No lymph nodes are seen. Representative sections are submitted.”



Partial Nephrectomy (VHL)

- Measure and describe each tumor. They may be solid or cystic.
- Ink the external surface if renal capsule or perirenal fat is attached.
- Serially section. Describe the cut surface.
- Submit entirely if less than 2 cm.
- If greater than 2 cm, submit at least 1 section per cm of tumor.

Cystectomy

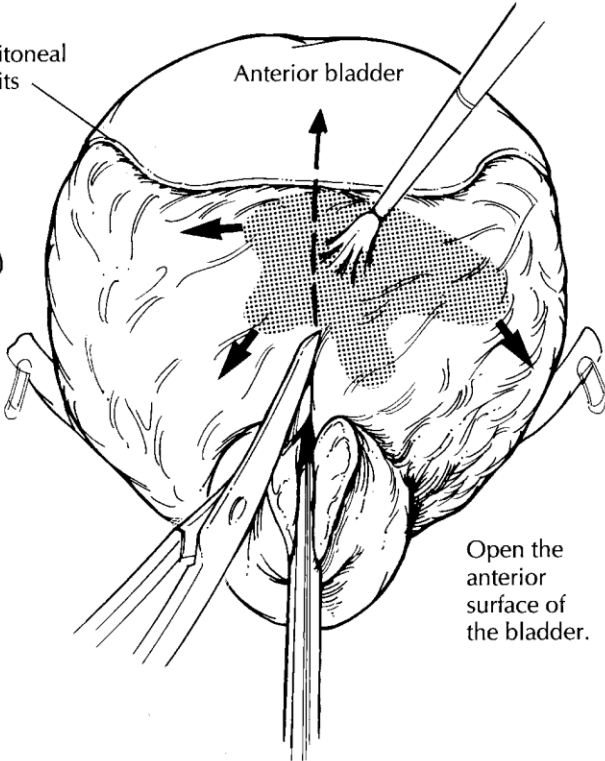
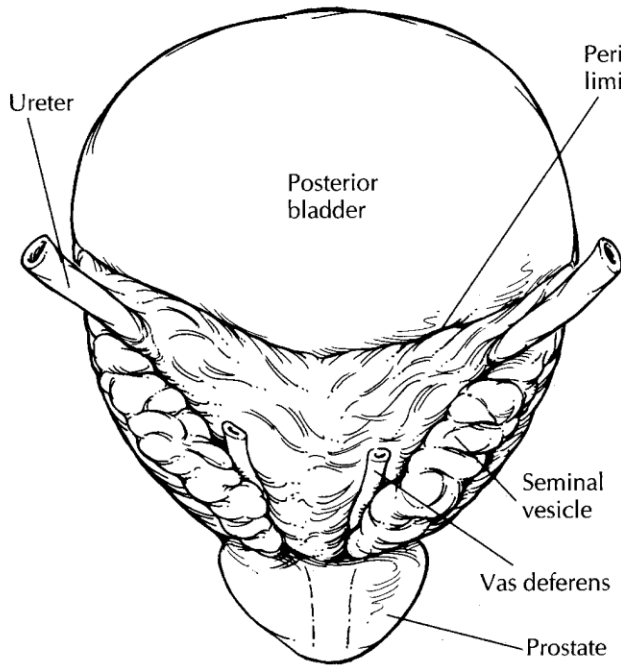
Processing the Specimen:

1. Orient and measure the specimen. The peritoneum extends further along the posterior aspect. Seminal vesicles or the uterus also mark the posterior aspect.
2. Identify and measure (length x diameter) the ureters. Submit the margins in cassettes. Tie off the ends to make it easier to locate them later.
3. Measure any attached structures. For males: seminal vesicles, prostate and vas deferentia. For females: anterior vaginal wall or uterus.
4. Submit a thin shave section of the distal urethral margin.
5. Open the ureters on both sides with a small pair of scissors looking for stricture, dilation, or mucosal lesions. Submit 3 cross sections of each including abnormal areas.
6. Describe the outer surface. Ink the anterior of the bladder one color and the posterior another color. If prostate or uterus are present ink the anterior and posterior surfaces.
7. Unless the lesion is located on the lateral wall, open the bladder along the lateral aspect. In the case of a lateral lesion open along the anterior bladder wall away from the lesion.
8. Identify, measure and describe any lesions. Make a cut through the tumor and bladder wall to see whether the tumor appears to invade into the muscularis propria and surrounding soft tissues. Take sections of tumor with adjacent urothelium and at maximal depth of invasion. Measure the distance of the tumor from the ureteral orifices.
9. Describe the remainder of the bladder mucosa.
10. Submit at least one section per cm of tumor including tumor to normal mucosa, tumor at point of deepest invasion and tumor with deep margin.
11. Submit sections of normal appearing bladder from the trigone, dome, right, left, anterior and posterior as well as any abnormal appearing mucosa.
12. Occasionally residual tumor is not seen on gross exam. Submit at least 2 sections of all six sides of the bladder (trigone, dome, right, left, anterior and posterior) as well as any abnormal appearing mucosa.
13. Submit perpendicular sections of the soft tissue margins.
14. Submit any lymph nodes identified.
15. Submit margins of vas deferens or seminal vesicles if present.
16. In the case of a cystoprostatectomy, discuss the handling of the prostate gland with duty pathologist.

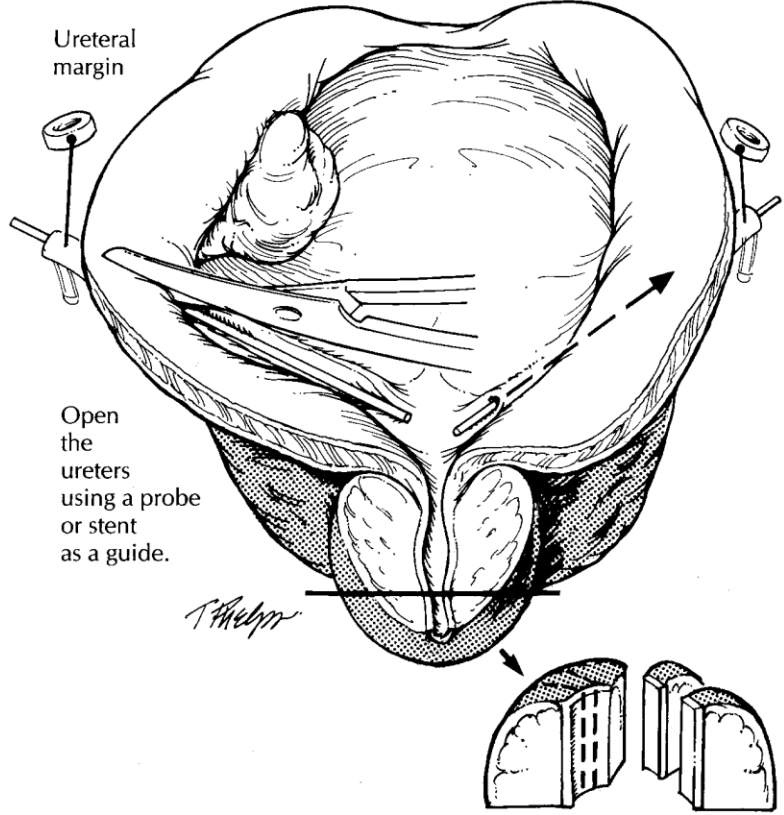
Sample Dictation:

The specimen is received fresh and consists of a urinary bladder (__x__x__cm) with attached prostate gland (__x__x__cm), segments of ureters (right measuring __cm in length and __cm in diameter and left measuring __cm in length and __cm in diameter). The anterior surface of the bladder and prostate is inked blue and the posterior is inked black. The bladder is opened along the lateral aspect. There is a red-pink ulcerated lesion/tan-pink papillary lesion on the posterior surface measuring __x__ cm. The lesion extends into the bladder wall on sectioning. It measures __cm in maximal thickness. The remainder of the bladder mucosa is (glistening/brown/red/edematous/dull/focally hemorrhagic). The bladder wall underlying this mucosa is unremarkable. The prostatic urethra is ___ cm in length x ___ cm in diameter. It is focally hemorrhagic. Serial cross sections of the ureters and urethra reveal no gross abnormalities. Serial sections through the prostate reveal (nodular/smooth/tan/focally yellow) cut surfaces. No gross lesions are seen in the prostate. The seminal vesicles and segments of vasa deferentia are grossly unremarkable. Representative sections are submitted.

For cystectomies in women, use same description for bladder. Add description of other organs, (vagina, uterus). Submit any gross lesions and one grossly normal section of each structure present.



Cystoprostatectomy



1. Orient the bladder. The peritoneum extends further down the posterior wall than it does anteriorly.
2. Open the prostate and bladder along the anterior surface, beginning at the distal urethra.
3. Think of the bladder as a box with sides made up of the trigone, dome, anterior wall, posterior wall, left lateral wall, and the right lateral wall.
4. Submit shave sections of distal urethral and ureteral margins and perpendicular sections from the closest soft tissue margin.
5. Submit sections of the tumor to demonstrate its maximal depth of invasion and the relationship of the tumor to the bladder mucosa. Submit two sections of the trigone, dome, anterior wall, posterior wall, left lateral wall, and right lateral wall. Submit transverse sections of the ureters and a longitudinal section through the ureteral orifices. Include standard prostate sections. Submit sections of any lymph nodes.

APPENDICES P: CENTRAL NERVOUS SYSTEM

Brain Biopsy:

- The specimen is usually procured. Page the on-call neuropathologist before proceeding to discuss how much tissue will be given for research.
- Describe the specimen and measure in 3 dimensions. If the specimen is received in multiple pieces also give a range in size.
- Typically, 1/3 - 50% is given for research.
- In surgical pathology, if not done previously measure in 3 dimensions. Describe the cut surface and submit the remainder of the tissue for permanents.

Epilepsy: Consult with the on-call Neuropathologist

- Maintaining orientation is paramount.
- Describe and measure the specimen.
- With the neuropathologist present the specimen is sectioned and placed sequentially into cassettes maintaining orientation throughout. This is usually done at time of procurement.
- In surgical pathology transfer the specimen into cassettes labeled with the case number, maintaining orientation.

Special Procedures for Brain Specimens:

The following is for any brain specimen larger than a biopsy (> 1.0 cm). The purpose for the above is that formalin penetrates and fixes slowly. In brain, it has been shown to take at least 24 hours to adequately penetrate 4 mm slices. Since brain is so soft anyway, maximum fixation is needed prior to processing. Since surgeons often want results on day 3, the procedure below is needed to optimize fixation without increasing turn-around-time. It is expected to get a CRIS order along with the sample. When that does not happen, page the neurosurgeon or the Neurosurgery Fellow for a CRIS order. If that does not work, contact Dr. Quezado.

3. Day of surgery:

- Mon-Thurs, have CRIS: Block specimen. Cut no thicker than 3mm. Place cassettes in “Hold” vat filled with 10% formalin.
- Friday, have CRIS: Block specimen as above. Place in “Routine” vat. Tell a histotech to make sure the case is placed on a processor set for a weekend delay (not a program to come out Saturday).
- No CRIS*: Block specimen; place tissue in cassettes labeled with patient name (Note: do NOT do this for any other tissue type). Write notes for later dictation. Place cassettes in “Hold” vat until CRIS is received.

Day after surgery: Transfer cassette from “Hold” vat to “Routine” vat.