Surgical/Cytology Specimen Collection and Handling

To ensure that hospital departments and outside sources submitting specimens to the surgical pathology department follow the established methods to guard against clerical and/or processing errors;
To ensure that collection, handling and transport of all specimens is consistent in maintaining tissue integrity and proper patient identification; and
To provide the pathologist and pathologist's assistant with pertinent clinical and historical information to aide in the dissection and pathologic diagnosis the please follow the instructions provided below.

SPECIMEN CONTAINER LABELING AND REQUISITONS:

Specimen container labeling:

Specimen containers, including multi-specimens (i.e., Multiple colon bx), **MUST** contain the following information:

a. Patient's full first and last names (no nicknames).
b. Patient's medical record and hospital number
c. Patient's date of birth
d. Physician's name and/or location
e. Specimen source
f. Date collected

Place label on container (*i.e. not on cover or lid*)

Requisitions:

All specimens submitted to surgical pathology **MUST** have a completed, accurate and legible requisition accompany the tissue sample. The requisition **MUST** contain the following information:

g. Patient's full first and last names (no nicknames).
h. Patient's medical record and hospital number
i. Patient's date of birth
j. Date specimen collected
k. Physician's name
l. Additional physician names to receive copies of pathology report
m. Clinical information, including ICD-9 diagnosis code if sent from outside source

All specimens (both Surgical Pathology and Cytopathology) must be accompanied by a patient History and Physical (H&P) and/or Endoscopy report as means of providing adequate and timely clinical history essential to rendering a proper and adequate diagnosis.

NOTE: The Surgical Pathology and Cytopathology reports are medical consultations. The type and amount of clinical data provided may significantly affect the accuracy and relevance of the pathologic diagnosis in addition to such issues as the time and extent of initial tissue processing by the Pathologist.

SPECIMEN PICK-UP and RECEIPT

1. Pick-up of specimen will be done by the pathology staff at routine intervals throughout the day and a final pick-up by the end of the shift at 2:00PM.
2. Any specimen collected after the last pick-up time:
    a. OR – leave specimen and requisition in transfer refrigerator for AM pick-up.
    b. Outpatient - leave specimen and requisition on collection tray for AM pick-up.
    c. Referrals - place specimen and requisition in gray tissue specimen holding bin in laboratory office for AM pick-up.
3. All Specimens **MUST** have an accompanying completed, accurate and legible requisition.
4. OR Surgery - requisitions and specimen labels are verified by the pathology technicians at time of pick-up.
5. Referrals - requisition and specimen labels are verified by the pathology technicians after the specimen is received.
6. Surgical pathology specimens are irretrievable therefore all attempts from any incomplete requisitions, mislabeled specimens, or other discrepant conditions, will be handled as unacceptable until discrepancies are corrected. Specimen will NOT be destroyed. The proper collecting unit and/or originating facility will be notified of discrepancy and an incident form and accountability form submitted. (see Unacceptable specimens) (See Specimen Identification Policy).
7.

SPECIMEN TYPES AND HANDLING:

ROUTINE SPECIMENS:

Fixative - 10% Zinc Formalin

1. Specimens requiring routine processing submitted to surgical pathology for examination will be submitted:
    a. In 10% zinc formalin.
    b. In an appropriate sized container.
    c. In a sufficient quantity of formalin to achieve a 10:1 ratio of formalin to specimen.
2. All specimens must be submitted with completed, accurate and legible requisition. (Specimen labeling and requisition).
3. All specimens containers must be properly labeled (Specimen labeling and requisition).
4. History and Physical (H&P) must be submitted with specimen.
5. X-ray film must be submitted with Breast needle loc and Breast core biopsy specimens or available online in the Radiology Department Synapse module.

GASTROINTESTINAL BIOPSIES:
These biopsies are obtained in Outpatient Surgical Services Department in the Endoscopic Examination Rooms.

Fixative – Hollande's Fixative for all routine biopsies (including all polyps)
10% Zinc Formalin for all tumor biopsies

1. Gastrointestinal biopsies are submitted in either Hollande's fixative or 10% Zinc Formalin (see above)
2. Submit a completed, accurate and legible requisition. (Specimen labeling and requisition).
3. Specimen containers must be properly labeled (Specimen labeling and requisition).
4. Endoscopic report must be submitted in all specimens.

LYMPH NODES:
Please contact Pathology in advance to optimize specimen handling.

Fixative- Submit Fresh

1. Submit ALL lymph nodes in the fresh state for intra-operative consultation.
2. Submit a completed, accurate and legible BLUE requisition, include OR room phone extension (Specimen labeling and requisition).
3. Specimen containers must be properly labeled (Specimen labeling and requisition).

SENTINEL LYMPH NODES:

Fixative- Submit in 10% Zinc Formalin unless frozen consultation is requested by surgeon.

1. Submit sentinel lymph nodes in 10% zinc formalin.
2. Submit a completed, accurate and legible surgical pathology requisition.
3. Specimen containers must be properly labeled (Specimen labeling and requisition).

NOTE: Due to negligible radiation in the sentinel lymph nodes no special handling is required.

URATE CRYSTALS (gout):

Fixative-100% Ethyl Alcohol

1. Submit specimen for uric acid crystals in 100% Ethyl alcohol.
2. Submit a completed, accurate and legible requisition. (Specimen labeling and requisition)
3. Specimen containers must be properly labeled. (Specimen labeling and requisition)

4. History and Physical (H&P) must be submitted with specimen.

PLACENTAL / FETAL DEMISE (UNDER 20 WEEKS):

Fixative- NONE - Submit Fresh

1. Placental specimens and Fetal demise under 20 weeks are submitted **Fresh**, no fixative.
2. Specimens must be refrigerated until gross inspection.
3. Submit a completed, accurate and legible requisition. *Include gestation date and pertinent clinical information.* (See Specimen labeling and requisition)
4. Specimen containers must be properly labeled. (See Specimen labeling and requisition)
5. History and Physical (H&P) must be submitted with specimen.
6. If Cytogenetics is requested, please contact Histology for the proper specimen transport vial.

NOTE: For Fetal Demise **over** 20 weeks, please see Autopsy Protocol.

AMPUTATED LIMBS:

Fixative – Submit Fresh

1. Wrap in an under pad and place in labeled bio hazard bag.
2. Submit a completed, accurate and legible requisition.
3. Specimen bio hazard bag must be properly labeled.
4. History and Physical (H&P) must be submitted with specimen.
5. Place in OR transfer refrigerator

SPECIAL TISSUE HANDLING:

1. Conditions under which special handling may be desirable:

    a. frozen section diagnosis
    b. necessity for touch preps
    c. estrogen-progesterone receptor assays
    d. immunohistochemistry
    e. electron microscopy

2. Tissue must be submitted rapidly to anatomic pathology. The specimen must be submitted fresh and transported in an appropriately sized container containing normal saline or wrapped in gauze soaked with normal saline.
3. The pathologist must be notified in advance of specimen acquisition so that rapid tissue processing can be performed and tissue autolysis minimized.
4. Typical specimens requiring Special Tissue Handling:

    a. any tissue requiring Frozen Section Diagnosis

NOTE: The purpose of Frozen Section Diagnosis is to provide information that will affect intraoperative or immediate medical management of the patient.

(a) Factors that affect the extent of intraoperative surgery as a result of the frozen section diagnosis.

(b) factors accessing adequacy of margins of resection.

b. breast tissue lesions suspicious for malignancy with the potential for sending tissue for estrogen/progesterone receptor assays.

c. lymph node biopsies in which lymphoma is a possible differential diagnosis.

d. lesions of unknown etiology in which tissue must be processed for possible immunohistochemical and/or electron microscopic studies.

e. fresh tissue for gross examination or inspection by the pathologist

f. fresh tissue for culture

TISSUE FOR CYTOGENETICS:

Fixative – Submit Fresh, Saline, or Hanks Solution

1. Fresh specimens must be refrigerated.
2. Submit a completed, accurate and legible requisition. *For placental / fetal tissue - Include gestation date and pertinent clinical information.* (Specimen labeling and requisition)
3. Specimen containers must be properly labeled. (Specimen labeling and requisition)
4. History and Physical (H&P) must be submitted with specimen.

TISSUE FOR FLOW CYTOMETRY:

Fixative – Submit Fresh, Saline, or RPMI solution

5. Fresh specimens must be refrigerated.
6. Submit a completed, accurate and legible requisition. *For placental / fetal tissue - Include gestation date and pertinent clinical information.* (Specimen labeling and requisition)
7. Specimen containers must be properly labeled. (Specimen labeling and requisition)
8. History and Physical (H&P) must be submitted with specimen.
9.

SUBMITTING TISSUE FOR CULTURE:

1. The most stable environment for obtaining tissue culture is the immediate operating environment.
2. Abscess lesions can be cultured using sterile culturette swabs immediately upon incision and delivery immediately to the laboratory.
3. Solid lesions suspicious for bacterial or viral infection (e.g. granulomas of M.Tuberculosis) can be submitted as solid tissue fragments in a sterile petri dish and delivered immediately to the laboratory.
4. Specimens for anaerobic culture should be submitted with a capped syringe (if aspirated) or in a suitable anaerobic transport medium if a swab is used.

BODY FLUID HANDLING:

Various body fluids can be processed by the laboratory for Cell Counts, Chemical analysis, Microbiology, and/or Cytology.

CELL COUNTS:

2-3 mL of fluid is placed into a tube with anticoagulant (heparin or liquid EDTA) for microscopic examination and cell count. (See Body Fluid Count Peritoneal, Pleural & synovial procedures)

***__NOTE__: Oxalated and powdered EDTA should not be used because they can produce artifacts in the microscopic examination for crystals.

CHEMICAL ANALYSIS:

Approximately 5 mL of fluid into a plain (red-top) tube for chemical studies (if ordered).

FLUID CULTURE:

Body fluids (with the exception of urine) are best collected for **routine** and **anaerobic** culture by injecting the fluid into a "Starswab Anaerobe" vial. Both aerobe and anaerobic organisms can be recovered by this method. (See Collection of Cultures- Submission Requirements)

CAUTION: Care should be taken not to allow air bubbles into the syringe (gas exchange from the air bubble into the fluid may result in contamination of the specimen. DO NOT submit syringes with needles.

CYTOLOGY:

Method A: *Preferred method*

1. Express the aspirated material into a tube of CytoLyt cytology fixative supplied by the Histology/Pathology department or into a container of 50% ethanol.
2. Aspirate a small amount of fixative into the barrel of the syringe and rinse the needle into the fixative.

Method B: Submit fresh unfixed aspirated fluid in the syringe **immediately** to the laboratory.

Method C: See Aspiration cytology

ASPIRATION CYTOLOGY:

1. Fine needle aspiration cytology of tumors is rapidly evolving as an inexpensive, highly accurate and reproducible diagnostic methodology.
2. Biopsies are best performed using a 22 gauge or narrower needle attached to a 20 cc syringe (used to provide vacuum).
3. Biopsies should be confined to the lumen of the needle and care should be taken to avoid aspirating tissue into the syringe.
4. The vacuum is then slowly released. The needle is disconnected from the syringe and air is aspirated into the syringe. The needle is then reattached to the syringe and a drop of tissue is then forced out into a clean glass slide. Using a second

slide smears are made in a manner identical to that of a peripheral blood smear.

5. Two slides are immediately placed into 95% ethanol and two slides are allowed to air dry.
6. After the slide preparations are completed, 95% ethanol (1-2 cc) is then aspirated into the syringe, to rinse the lumen, and then expressed into a specimen container containing 50% ethanol and submitted for cell block analysis.

REFERENCES:

Theory and Practice of Histotechnology; 2nd edition
Sheehan, Hrapchak, (1980) Theory and Practice of Histotechnology; 2nd
Fletcher Allen Health Care Pathology Lab.

Related Procedures:

NMC Body Fluid Count Peritoneal, Body Fluid Count Pleural & Body Fluid Count Synovial procedures

NMC Collection of Cultures- Submission Requirement.