The Art & Science of Breast Specimen Radiography & Pathology
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Course Objectives
- Improve efficiency and accuracy when reviewing biopsy and surgical specimens
- Discuss the benefits of incorporation of radiography into the OR, intraoperative, and perioperative process
- Review and discuss evidence-based guidelines and their role in determining treatment
- Better understand how radiography plays a role in the changing landscape of patient diagnosis and treatment

Course Overview:
- Roles in patient care
- Equipment/process within radiology and surgery
- Imaging and role of pathology
- Specimen mapping
- Formalin fixation
- Future implications and molecular testing

Continuity of Care

Detection Biopsy Excision Pathologic examination Treatment
The Art & Science of Breast Specimen Radiography & Pathology
Live Webinar February 27, 2020

Radiology across the roles
- Microcalcifications are associated with Ductal Carcinoma In Situ (DCIS), a precancerous condition.
- Radiology imaging is useful for visualizing microcalcifications in detection, biopsy, excision and pathologic examination stages.

Workflow progression variability

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Imaging equipment: Cabinet X-ray systems
- Used in multiple stages, most often within radiology/surgery.
- Possible utilization overlap within specialties.

Radiology across the roles
- Biopsies are radiographically guided, and designated using a "o'clock" positioning.
- The "optimal" cores with calcifications should be designated/indicated for pathologic processing.
- Radiographic imaging of the cores can be done in pathology if a cabinet system is available to ensure complete sampling of the microcalcifications.

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Clips/Markers

Equipment/process within radiology for biopsy

Radiography-imaged clips

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Seeds/Guidewires

Guidewires

Closed/Contact X-ray systems are useful within the OR to confirm clips/seeds/guidewires and lesional tissue are present in the resected specimens.

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Who handles the prosection at your facility?
- PA (Pathologists' Assistant)
- Pathologist
- AP Resident

How can information be shared between departments?
- Electronic health system
- SpecBoards and/or suture designations for orientation
- Paper requisitions with clear history and biopsy site information

Why is having a clear workflow with access to imaging and patient information important to the examination process?
- Continuity of care
- Speed/time matter in accuracy of patient care results

What is the Anatomic Pathology lab's role in patient care of breast specimens?
- Confirm lesional site is present in resections
- Access margin status for excisional specimens
- Examine all suspicious and lesional tissue, and submit areas of interest for further microscopic analysis and diagnosis
- Retrieval of radioactive seeds per national guidelines

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- Two main areas of evaluation: outside (margin) & inside (lesion)
- Maximum preparation: orientation, inking, slabbing, and imaging aid in this process and are applicable to any large, cancer resection specimen
- Best practice to "prep" all resection specimens for proper fixation of lesional tissues
- Speed and accuracy both matter at this preparation stage to maintain specimen integrity

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**Radiologic Mapping**

- Creating a diagram of tissue submitted for microscopic diagnosis from a larger specimen resection
- Allows for exact areas to be identified and submitted for processing quickly, creating continuity of care from gross examination to microscopic exam

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Increased efficacy for PA
Increase accuracy of sampling (calc's & lesions)
Decreased block/slide count
Increased TAT

Specimen mapping

"Mastectomy studies ... have shown that a substantial minority of patients would have residual invasive or in situ carcinomas even when the principal focus of carcinoma is excised with a substantial margin. It is possible that more detailed cancer mapping in lumpectomies could help to predict this situation."


Fixation Guidelines

1. Formalin (NBF) is the gold standard fixative
2. Fixation is time sensitive, and slow to infiltrate tissue
3. Fixative infiltration stops tumor degradation
4. Proper fixation is CRITICAL for proper diagnosis
5. Guidelines apply to lesion, not just whole specimen

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Mapping the future: Cancer markers

• Collaboration between specialties remains critical for patient care
• Formalin fixation guidelines become increasingly important, and for more than just breast tissue/tumors
• Modality of evaluation = change in workflow
• Internal evaluation of pathway from patient to result must be considered

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Future implications and molecular testing.