CURRENT METHODS IN IMAGE GUIDED BREAST BIOPSY

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OBJECTIVES

- Review development of current techniques
- Discuss stereotactic breast biopsy
- Discuss US guided breast biopsy
OBJECTIVES

- Introduce MRI guided biopsy
- Introduce vacuum-assisted biopsy devices

ALONG THE WAY...

- Emphasize the importance of concordance between biopsy results and expected diagnosis
- Review breast biopsy results at Victoria General Hospital breast centre
- Discuss the role of the radiologist in directing and managing image guided biopsies
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IMAGE GUIDED BREAST BIOPSY

• Developed as alternative to fine wire guided excision biopsy

• Traditional wire guided excision biopsy cancer rates 20-30%
IMAGE GUIDED BREAST BIOPSY

- Accurate and reliable
- Decreased patient morbidity
- Cost effective
- *Used for abnormal imaging findings, not palpable abnormalities*

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IMAGE GUIDED BREAST BIOPSY

- Fine needle aspirate - cytology
- Core biopsy - histology
IMAGE GUIDED BREAST BIOPSY

- Not every lesion that can be biopsied, should be biopsied
- Radiologist determines which lesion needs biopsy, and appropriate method

STEREOTACTIC BREAST BIOPSY

- Computer determines depth from 2 images obtained at different angulations
- Now used almost exclusively for microcalcifications
STEREOTACTIC BREAST BIOPSY

- Stereotactic add on to standard mammography machine

STEREOTACTIC BREAST BIOPSY

- Advantages: cost, space, efficiency
- Disadvantages: access to some calcifications limited, vasovagal episodes
STEREOTACTIC BREAST BIOPSY

- Prone stereotactic table
- Advantages: improved access to micros in all locations, patient comfort
- Disadvantages: cost, space, efficiency

STEREOTACTIC BREAST BIOPSY

- Accuracy depends on showing representative micros on specimen X-ray
- Histology must be correlated with imaging
- *If biopsy results do not match expectation, follow up!*
US GUIDED BREAST BIOPSY

- US initially limited to cyst vs. solid
- Improved resolution has increased sensitivity and specificity

US GUIDED BREAST BIOPSY

- Advantages: improved resolution allows accurate biopsy of lesions to 3mm
- Fast, comfortable, real-time confirmation of needle position
US GUIDED BREAST BIOPSY

- Accuracy determined by operator
- Histology must be correlated with imaging.
- *If biopsy results do not match expectation, follow up!*

US GUIDED BREAST BIOPSY

- Most commonly performed image guided breast biopsy
- Accurate and reliable when performed by experienced operator
BREAST BIOPSY STATISTICS: VGH 2003

• Non-diagnostic biopsies:
  • Stereo 1/85 1%
  • US 4/453 0.8%

• Non concordant biopsies:
  • Stereo 19/85 22%
  • US 56/453 12%

MRI GUIDED BREAST BIOPSY

• Expanding role of MRI in breast imaging
• Increased sensitivity, decreased specificity
• Most lesions can be localized with US
MRI GUIDED BREAST BIOPSY

- Indications: search for occult primary, screen in high risk - dense breasts, assess for multifocal disease.

- Need to be able to biopsy MRI detected lesion
MRI GUIDED BREAST BIOPSY

• Advantages: allows biopsy of lesion only seen at MRI

• Disadvantages: cost, time, patient comfort, accuracy

• Difficult to confirm accurate biopsy, difficult to correlate histology with imaging.

VACUUM-ASSISTED BREAST BIOPSY

• Developed to increase yield for histology

• Automated vacuum-assisted core biopsies, needle size 9-12 Fr
VACUUM-ASSISTED BREAST BIOPSY

- Placement guided by mammography (stereotactic), US or MRI
VACUUM-ASSISTED BREAST BIOPSY

- Advantages: large sample size, single needle placement

- Disadvantages: cost ($20,000/yr at VGH), time, trauma

SUMMARY

- Accurate and reliable breast biopsy can be performed using stereotactic, US or MRI guidance

- All biopsy results must be correlated with imaging. *If results are not concordant - follow up!*

- Radiologist should be responsible for initiating, performing and auditing results of image guided breast biopsy
US GUIDED BREAST BIOPSY