



## **Percutaneous Needle Biopsy for Image Detected Breast Abnormalities**

A major goal of modern breast medicine is to minimize the number of patients with benign lesions who undergo open surgical breast biopsies for diagnosis. Image guided percutaneous needle biopsy is the diagnostic procedure of choice for image-detected breast abnormalities. It should be readily available to all patients with image-detected lesions. There are relatively few patients for whom excisional biopsy should be the initial procedure for diagnosis. For patients with a diagnosis of breast cancer, the goal is to make the diagnosis with a needle and to go to the operating room one time for definitive treatment. A definitive diagnosis of breast cancer made using a minimally invasive needle biopsy permits optimal preoperative work-up, patient counseling, and surgical planning. This may include a preoperative MRI and provision for the use of intra-operative ultrasound. When a diagnosis of cancer has been made preoperatively, definitive surgery can generally be performed as a single procedure, clear margins are more likely to be obtained, and patients are spared the additional morbidity of a second (or third) surgery. This also results in a substantial cost savings.

Percutaneous histologic tissue-acquisition techniques include large-core biopsy (typically 12-14 gauge), vacuum-assisted biopsy (typically 7-11 gauge), and larger tissue-acquisition methods. In general, stereotactic guidance using vacuum-assisted devices with larger (11 gauge or greater) needles is the preferred approach for lesions presenting as microcalcifications without a mass. This method permits contiguous and more complete tissue-acquisition compared with use of smaller-gauge needles. Ultrasound is the preferred biopsy guidance method for sonographically visible lesions.

For smaller lesions (1 cm or less) percutaneous excision using a vacuum-assisted device with clip placement is desirable as sampling error is significantly reduced in such cases and characterization of important pathological parameters is more reliable. For larger (greater than 1 cm) BI-RADS 4 or 5 masses, 14-gauge core needle biopsy is sufficient although even in such instances, pathological parameters may be more reliably characterized when larger gauge needles are used. If percutaneous biopsy results in removal of the entire lesion or a significant portion of it, a clip or other marking device should be inserted at the time of biopsy.

While fine-needle aspiration cytology is useful for lymph node evaluation, it is less desirable than histologic tissue-acquisition techniques for evaluation of primary breast lesions. Regardless of the instrument used, correlation of histologic and imaging findings is essential.

Open biopsy procedures are not required in patients with histologically benign findings on percutaneous biopsy if imaging and pathologic findings are concordant. However, patients with atypical ductal hyperplasia (ADH), atypical lobular hyperplasia (ALH), and lobular carcinoma in situ (LCIS) found on percutaneous biopsy may have DCIS or invasive cancer



at the same site and should generally undergo surgical excision. Controversy exists regarding the management of radial scars and papillomas. Unless a radial scar is very small and found incidentally at biopsy of some other imaged abnormality, surgical excision is recommended. If the majority of a papilloma has been removed by the biopsy procedure, and no atypia is present, further open excision may not be needed. The rate of missing such important findings is significantly reduced, but not eliminated, with the use of vacuum-assisted biopsy and larger gauge devices. For select individuals with high-risk histologic findings in whom careful correlation of imaging and histologic findings is concordant and/or breast MRI is normal, follow-up without surgical excision may be reasonable. Such patients remain at risk and should be monitored appropriately. The use of second opinions from experts in breast pathology before deciding on such a course is recommended.

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