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Trucut biopsy of breast lesions: The first step toward international standards in developing countries

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Abstract The new concept in breast cancer diagnosis and treatment is based on a less invasive, more accurate and effective strategy, with a multidisciplinary approach in a specialised breast unit. When indicated, conservative surgery has replaced mastectomy with sentinel-node biopsy substituting routine axillary dissection. But the key factor in respect of these new standards is to confirm the cancer before going to the operating room. Trucut biopsy is performed instead of incisional or excisional biopsy and frozen section. The technique is reliable, simple, and reproducible, and not at all expensive; it can be adapted even for low-income developing countries.
Materials and methods: Between March 2006 and June 2010, 764 patients under clinical suspicion of cancer and/or with BIRADS (Breast Imaging Reporting and Data System) III–V in imaging in one university and one private hospital in Tehran, Iran underwent trucut biopsy (60% palpable and 40% non-palpable lesions). Cancer was found in 30.8% of the cases. In benign pathology, in concordance with clinical and imaging suspicion, surgery was omitted with short-term follow-up. For palpable symptomatic benign lesions surgery was performed to relieve the patient's symptoms. When the pathology report was not in concordance with clinical/imaging suspicion (1.8%), and in the presence of moderate and severe hyperplasia with or without atypia, in lobular and papillary lesions (4.9%) open biopsy was done to rule out cancer (10 added cancers, 1.3%; total cancers 32.1%). Cancer surgery was done as a single procedure in 89.8% of cases.
Conclusion: Trucut biopsy for breast lesion assessment is the first step toward a new concept in breast cancer care. It is simple, reduces the number of surgeries (no surgery for non-symptomatic benign lesions and one surgery for cancer), and avoids diagnostic errors with full respect for the patient's rights. We insist on its routine use to extend international guidelines while decreasing the total cost of this common disease in all low-resource countries.

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1. Introduction

First introduced by Ellis and Martin in 1930 in New York for the cytological evaluation of solid lesions,[1] fine-needle aspiration (FNA) was rapidly disseminated in Europe and then in the United States of America (USA) as part of a triple assessment of palpable breast lesions. Breast cytomorphology has been added to the educational curriculum of pathology and cytopathology fellowships.[2–9] In 1996 the National Cancer Institute published a guideline for breast FNA interpretation.[10,11]

Sample insufficiency is seen in 2–36% of FNA cases (mean 19%).[10,12–15] Other disadvantages of FNA include false negatives, false positives, inability to differentiate intraepithelial or intralobular lesions, and hyperplasia from invasive cancers. The main limiting factors to the widespread use of FNA are the need for an expert breast cytopathologist and a severe shortage of such specialists even in well-developed countries.[10–14]

Though rare, false positivity is an important issue for FNA, leading erroneously to surgery for cancer. FNA is not a reliable technique for atypical ductal and lobular hyperplasia, hypocellular cancer, papillary benign and malignant lesions, fibroepithelial tumours and mucinous cancers.[11,14]

For small non-palpable lesions detected in screening programs, trucut biopsy has replaced FNA because. Sample insufficiency is rare for trucut biopsy even for these lesions.[12–18] Compared to open surgery, trucut biopsy is much less invasive. The volume of tissue removed, breast deformity, and the effect on mammography are much reduced. For non-palpable lesions surgery is omitted when the pathology is benign. For malignant lesions cancer surgery can be done in a single session.[18,15,19]

Although breast cancer assessment by either FNA or trucut biopsy has been considered a standard of care for more than one decade,[20] it is still not a routine procedure in many developing countries, including Iran. The absence of a national screening program and a low level of breast cancer awareness are common features of developing countries. At presentation cancers are symptomatic, mostly in stage II–III.[21–24] The actual trend for palpable lesions is either excisional or incisional biopsy, with or without intraoperative assessment by frozen section, all frankly against the standard assessment of breast lesions.[20] For non-palpable lesions that are small – less than 1 cm in the majority of cases – frozen section is prohibited.[20] With preoperative confirmation of cancer the number of surgeries is significantly decreased.[25] Combined with the elimination of unnecessary surgery just to rule out cancer, the total cost of breast cancer diagnosis and treatment is decreased.

The main difference in the quality of breast cancer care between developing and developed countries is a limited health budget, which is a barrier for early detection. So it seems that in developing countries respecting health economy must be more important than in developed ones.[15,26]

The new concept in breast cancer care is based on a multidisciplinary team working in a specialised breast unit. The aim is to minimise invasion to the patient while increasing the accuracy and quality of care. Despite cost-effectiveness and all the other advantages of this new concept, it is still not respected in many developing countries, including Iran.[26–29]

In this study we present our team's work to introduce trucut biopsy as an essential step in triple assessment in Iranian patients. We think that, despite all limitations, this is the key point to overcome all barriers to international guidelines.

2. Materials and methods

Between March 2006 and June 2010, in one university and one private hospital in Tehran, Iran, 34,760 patients are visited in the breast clinic. In 22,304 patients mammography was done-and 764 patients aged 19–84 years underwent trucut biopsy due to clinical suspicion and/or BIRADS (Breast Imaging Reporting and Data System) III–V classification of imaging. All palpable lesions (60%) and non-palpable lesions well seen by sonography have undergone sonoguided biopsy. Stereotactic biopsy was performed for the others.

In benign pathological results in concordance with both clinical and imaging suspicions, surgery was omitted. Short-term follow-up was done to overcome the low false-negative rate. Surgery was performed only for symptomatic lesions to relieve the patients' symptoms (Figs. 1–3).

When the pathological result was not in concordance with clinical/imaging suspicions, open biopsy was done as the diagnostic procedure to rule out cancer (14 patients or 1.8% of cases). Except for one all these cases were non-palpable. Open surgery was done for moderate

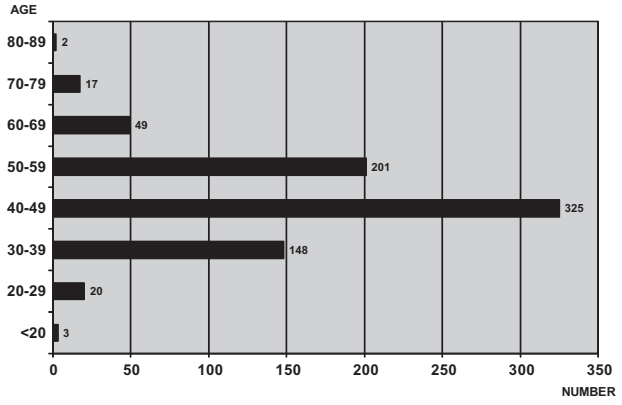

Fig. 1. Age distribution of trucut biopsy.