There appears to be a growing movement in favour of the use of core biopsy (CB) over FNAC in making a tissue diagnosis. The new technology available enables both surgeons and radiologists to take tissue samples by CB. This apparently requires less technical skill and the sample is easier to transport to the laboratory; a piece of tissue is simply dropped into formalin rather than having to prepare multiple glass slides, label, dry and fix them and, despite this, frequently failing to produce adequate samples. On the other hand, most pathologists welcome the situation where material is sent in the format suitable for tissue processing with all the advantages that is carries: the preparation and staining is standardised and not dependent on the operator, material can be cut into multiple levels and special stains can be applied in case of need. The morphology is familiar and the clinicians trust the tissue diagnosis implicitly, because they can understand the concept of the architecture of the lesion easily. Patients, having discovered a lump, find themselves overwhelmed by the new situation and their level of anxiety is raised. They often leave it to the surgeon to choose the optimal method of investigation. Which will he/she choose? This chapter discusses some of the arguments for and against the use of FNAC or CB in a variety of clinical settings.

**11.1 Breast Lesions**

FNAC of the breast has long been recognised as a useful diagnostic tool and has been used in many institutions because it provides a rapid, accurate and cost-effective evaluation (see chapter 9) [1]. However, the use of CB is increasing and vacu-
um-assisted biopsy devices have been developed to produce larger specimens for analysis. CB is useful because the frequency of inadequate specimens is lower than in FNAC, and it requires a less invasive procedure than open biopsy [1]. CB is also more widely used than FNAC because it can provide a more definitive diagnosis of borderline lesions and can be used to distinguish between invasive ductal and invasive lobular carcinoma. Therefore, the use of CB with mammographic or ultrasonographic guidance is especially high for non-palpable tumours [1]. FNAC of palpable breast lesions is the more sensitive method for the detection of carcinoma regardless of tumour type, size or differentiation. Contrary to other reports, Ballo and Sneige found that not only was FNAC alone more sensitive than CB alone, the addition of CB to an already negative FNAC failed to increase sensitivity in the detection of carcinoma [2]. However, CB did contribute to a more definitive diagnosis in some cases. These authors also found FNAC to be more cost-effective than CB for palpable breast lesions when time and effort are taken into consideration. CB may be an alternative method for preoperative diagnosis when experienced cytopathologists are not available. CB is superior to FNAC in fibrotic and collagenous lesions such as lobular carcinoma and radial scar because of low cellularity [3].

Patients with a discrete breast lump and unclear cytology results require CB [4]. FNAC is the more accurate method when an immediate assessment by a cytopathologist is performed for the evaluation of adequate material so that additional aspirations can be done if needed. When comparing stereotactic FNAC with stereotactic CB in the evaluation of radio-graphically clustered mammary microcalcification, FNAC was superior to CB for the confirmation of clustered mammary microcalcification (99% versus 94%) and in the identification of cancer associated with microcalcification (false-negative rate of 4% versus 8%) [5]. Foster et al. found that 17% of patients with lobular carcinoma in situ or atypical lobular hyperplasia diagnosed on CB were upgraded to invasive cancer or ductal carcinoma in situ after excision biopsy [6]. Excisional biopsy is supported when lobular carcinoma in situ, atypical lobular hyperplasia, or atypical ductal hyperplasia is diagnosed at CB [6]. Cheung et al. have carried out a statistical comparison showing that there was no significant difference between FNAC and CB [7]. Masood et al. analysed the relative merits of FNAC and CB in the diagnosis of papillary lesions and found that both FNAC and CB share similar diagnostic challenges and recommended a follow-up surgical excision when diagnosis of a papillary lesion is entertained by both procedures [8, 9]. The combined result of both FNAC and CB was superior to clinical examination when non-diagnostic samples were excluded [7]. With the routine use of both techniques, frozen section was avoided in 73% of all cancers and unnecessary operations were avoided in 33.5% of patients, including those with breast cysts, benign mammary dysplasia and inflammatory lesions [7].

Where there is access to skilled cytopathologists, FNAC can provide a highly accurate, rapid and cost-effective means of triage of patients who would benefit most from the more expensive CB [10]. Stereotactic CB was more accurate than stereotactic FNAC in the diagnosis of non-palpable breast cancer [11]. Florentine et al. found that the addition of CB is especially useful for: (1) providing a definitive diagnosis of infiltrating carcinoma in those cases in which the FNAC diagnosis was reported as suspicious, (2) providing ample tissue for ancillary studies, and (3) differentiating a PT from a fibroadenoma. A false-negative diagnosis of breast carcinoma was found to be more common in CB performed without image guidance, but occurred to a lesser degree in image-guided biopsies [12, 13]. A pathologist performing FNAC is the physician best qualified to perform the combined FNAC/CB procedure should he/she deem it necessary [14]. A combination of CB and FNAC can markedly improve the preoperative diagnosis of breast cancer [15], particularly where there is no access to skilled cytopathologists or where the inadequate rate of FNAC is exceptionally high [16, 17].

FNAC is a rapid and non-invasive procedure that is useful for mass lesions. The accuracy of FNAC for non-palpable lesions is relatively low and depends upon the skill of the aspirators, cytoscreeners and cytopathologists involved in the procedure. However, FNAC for palpable masses,