

Histological Grade Concordance between Core Needle Biopsy and Corresponding Surgical Specimen in Breast Carcinoma

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Abstract : Core needle biopsy (CNB) is well established as an important diagnostic tool in diagnosing breast cancer and it is now considered the initial method of choice for diagnosing breast disease. In comparison to fine needle aspiration (FNA), CNB provides more architectural information allowing for the evaluation of prognostic and predictive factors for breast cancer, including histological grade—one of three prognostic factors used to calculate the Nottingham Prognostic Index. Several studies have previously described the concordance rate between CNB and surgical excision specimen in determination of histological grade (HG). The concordance rate previously ascribed to overall grade varies widely across literature, ranging from 59-91%. The aim of this study is to see how the data looks like in material at authors' institution and are the results as compared to those described in previous literature. The study population included 157 women with a breast tumor who underwent a core needle biopsy for breast carcinoma and a subsequent surgical excision of the tumor. Both materials were evaluated for the determination of histological grade (scale from 1 to 3). HG was assessed only in core needle biopsies containing at least 10 well preserved HPF with invasive tumor. The degree of concordance between CNB and surgical excision specimen for the determination of tumor grade was assessed by Cohen's kappa coefficient. The level of agreement between core needle biopsy and surgical resection specimen for overall histologic grading was 73% (113 of 155 cases). CNB correctly predicted the grade of the surgical excision specimen in 21 cases for grade 1 tumors (Kappa coefficient $\kappa = 0.525$ 95% CI (0.3634; 0.6818), 52 cases for grade 2 (Kappa coefficient $\kappa = 0.5652$ 95% CI (0.458; 0.667) and 40 cases for stage 3 tumors (Kappa coefficient $\kappa = 0.6154$ 95% CI (0.4862; 0.7309). The highest level of agreement was observed in grade 3 malignancies. In 9 of 42 (21%) discordant cases, the grade was higher in the CNB than in the surgical excision. This composed 6% of the overall discordance. These results correspond to the noted in the literature, showing that underestimation occurs more frequently than overestimation. This study shows that authors' institution's histologic grading of CNBs and surgical excisions shows a fairly good correlation and is consistent with findings in previous reports. Despite the inevitable limitations of CNB, CNB is an effective method for diagnosing breast cancer and managing treatment options. Assessment of tumour grade by CNB is useful for the planning of treatment, so in authors' opinion it is worthy to implement it in daily practice.

Keywords : breast cancer, concordance, core needle biopsy, histological grade

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