Nondiagnostic biopsy

Surgeons should consider taking additional specimens in the case of nondiagnostic intraoperative frozen section during stereotactic biopsy (SB). If a tumor is suspected and final pathology is nondiagnostic, outside review of the slides may be helpful, and sampling further tissue should be considered. For diseases other than tumors, the diagnosis will generally be made without a repeat biopsy. The delays in diagnosis resulting from NDSB do not appear to affect survival, at least in patients eventually found to have brain tumors [1].

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few studies have assessed the diagnostic yield of frozen section evaluation of the initial stereotactic target (FS-0). We describe our experience with 188 stereotactic brain biopsies in order to evaluate the diagnostic yield of FS-0.

Design: Retrospective study of 188 stereotactic brain biopsies from 185 patients.

Setting: Tertiary referral center with a high volume of neurosurgical cases including image-guided stereotactic brain biopsies.

Patients: One hundred eighty-five patients who underwent imaged-guided stereotactic brain biopsy over a 58-month period.

Results: The patients studied included 107 males and 78 females (mean age 48 years). Eleven (6%) biopsies were nondiagnostic. Diagnoses from FS-0 included a neoplastic condition in 96 (73%) of 131 cases and a nonneoplastic condition in 23 (50%) of 46 cases. In 119 (67%) of 177 cases, a diagnosis was reached at FS-0. A correct diagnosis was made on subsequent frozen section in 28 (16%) of cases, including 21 (16%) of 131 neoplasms and 7 (15%) of nonneoplastic conditions. In 15 (54%) of 28 cases, the correct diagnosis was made on the second frozen section; in 25 (89%) of 28, the correct diagnosis was made by the fourth frozen section. In 14 (11%) of 131 neoplastic cases, a sampling error relative to the lesion resulted in an inaccurate diagnosis at FS-0. A significant error in diagnosis occurred in three cases (1.7%).

Conclusions: We conclude that (1) because 58 (33%) of 177 diagnosed cases in our series would have been potentially misdiagnosed if only one biopsy had been taken at the stereotactic target, frozen section evaluation or cytologic examination of material at the time of surgery should be performed routinely to ensure that adequate tissue has been obtained for purposes of diagnosis; (2) taking up to four biopsies increases the diagnostic yield (from 67% to 89% in this series); and (3) neoplastic lesions are more likely to be definitively diagnosed at FS-0 than non-neoplastic lesions [2].

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2)
Brainard JA, Prayson RA, Barnett GH. Frozen section evaluation of stereotactic brain biopsies: diagnostic yield at the stereotactic target position in 188 cases. Arch Pathol Lab Med. 1997 May;121(5):481-4. PMID: 9167601.