

Stereotactic biopsy of brain stem masses: A safe and useful procedure

Empiric therapy of brain masses should generally be avoided because image-based diagnosis of brain masses, even with the latest imaging tools such as magnetic resonance (MR) spectroscopy, can be fallacious.^[1] Wrong therapy can do harm by delaying the appropriate therapy and also by causing unnecessary side effects of the unwarranted therapy. Stereotactic biopsy of brain masses helps in avoiding empiric therapy by obtaining a histological diagnosis from masses located in deep seated and eloquent regions of the brain.^[2] Brain stem masses fall into this category. Most surgeons would not want to perform open microsurgery for such masses given the possibility of operative morbidity and mortality and more importantly the likelihood of a negative exploration. An image-guided procedure such as stereotactic biopsy allows the surgeon to choose the target and the stereotactic apparatus helps avoid missing the target.

The authors' paper^[3] adds to the increasing number of articles that have shown safety and efficacy of stereotactic biopsy of brain stem masses.^[4] Their success rate is in the lower range of that reported in literature. However, the message is still quite clear, namely, that histological verification of brain stem masses must be obtained before starting therapy. The only exception to this is the diffuse pontine glioma in children which has a characteristic non-enhancing appearance centered on the pons.^[5] This MR appearance with the typical clinical presentation of a rapidly progressing brain stem dysfunction is diagnostic of this malignant pathology. Histological grade of the tumor as obtained through a stereotactic biopsy does not predict the outcome in these children.^[6] Hence, biopsy of these lesions is best avoided. In adults, on the other hand, all brain stem masses must be histologically verified

except obvious vascular lesions such as cavernomas. Even for astrocytomas, the histological grade correlates with the outcome.^[6]

Finally, with respect to the route taken to the brain stem, the shortest route should be chosen. For pontine lesions and those in the upper medulla the transcerebellar route is the shortest. The transfrontal route allows more flexibility by providing access to the entire length of the brain stem from the midbrain to the upper medulla. The authors preferred the transfrontal route for most of their patients.^[3] A judicious use of the two routes should be made and those performing stereotactic biopsy of brain stem masses should be familiar with both the trajectories.

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