THE ROLE OF 5-AMINOLEVULINIC-ACID FLUORESCENCE FOR INTRAOPERATIVE HISTOPATHOLOGY IN STEREOTACTIC INTRACRANIAL TUMORS BIOPSIES

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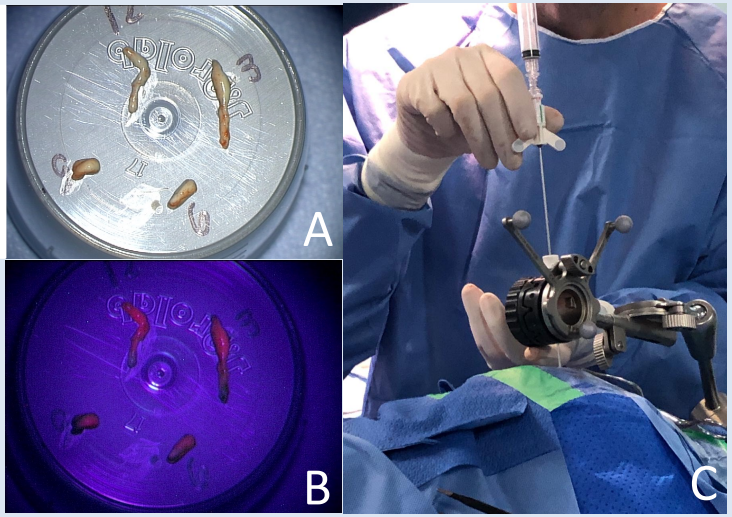
Introduction: Stereotactic biopsy with intraoperative pathology/frozen section has been the reference standard for diagnosis of intracranial tumors. The accumulation of 5-aminolevulinic acid (5-ALA) in malignant tumors such as gliomas and metastases) can be used synergistically to obtain more adequate samples or to delimit different areas of the same lesion (eg, anaplastic foci).

Objective: To systematize the application of 5-ALA in frameless stereotaxic biopsies in the management of various types of intracranial tumors.

Methods: Thirty-eight consecutive patients underwent frameless stereotactic intracranial lesion biopsy.5-ALA was administered 4h prior surgery. Neuroimaging was discussed to determine entry point and target. Serial tissue samples were classified for 5-ALA fluorescence (positive strong, positive poor, negative) before frozen section.

Figure 1 Brain specimen without **(A)** and with **(B)** 5-ALA. **C** Frameless stereotactic biopsy using VarioGuide System (BrainLAB AG, Feldkirchen, Germany)



Results: 5-ALA Fluorescence was positive in 27 (71.1%) of the 38 cases. In 20 (74%) positive cases, samples were obtained from the negative periphery to the fluorescent center. In all 5-ALA positive cases, frozen section found relevant pathological tissue. Histopathological and imunohistochemical diagnosis was possible in all cases.

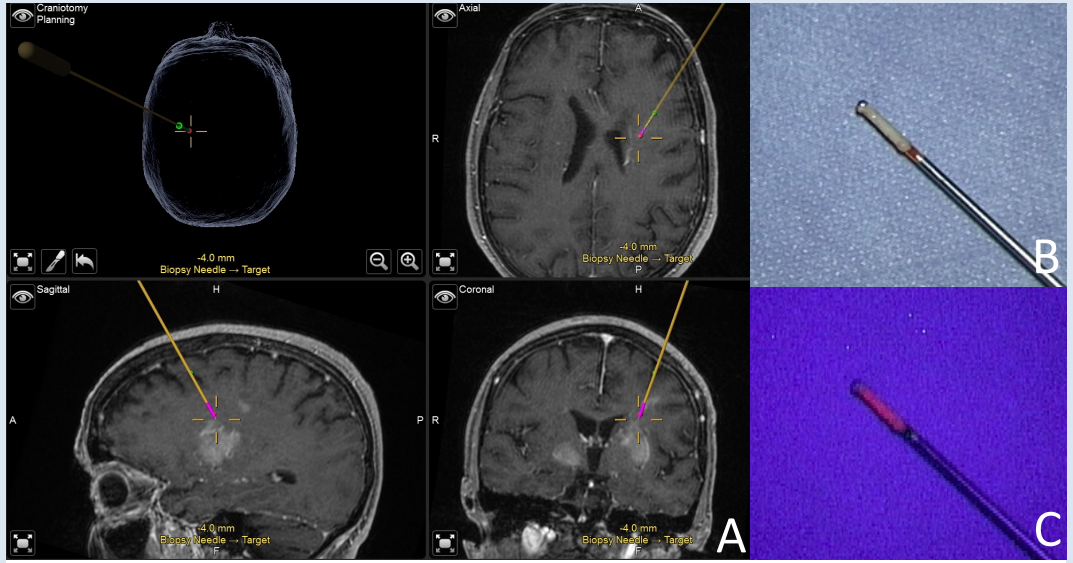


Figure 2 A 66-year-old female submitted to frameless stereotactic biopsy confirming diffuse large B-cell lymphoma. **B, C** Intraoperative confirmation with strong positive 5-ALA

Conclusions: The application of 5-ALA in stereotaxic biopsies, in selected cases (especially malignant gliomas, metastases and lymphomas), can help in the final diagnosis, enhancing the obtaining of samples according to fluorescence and making the procedure faster.

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