Evaluation of Intraoperative Ultrasound in Resection of Intraaxial Posterior Fossa Lesions.

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Introduction

Neuronavigation localize brain lesions accurately in areas with limited space like posterior fossa. Compared to Intraoperative MRI, Intraoperative Ultrasound (IOUS) is a more economical and user-friendly device. **Higher expenses of Intraoperative MRI is a limiting factor in developing nations.**

Intraoperative MRI

Learning Objectives

By the conclusion of this session, participants should be able to:

1) compare benifits and feasability of Intaoperative MRI and IOUS.

2) Identify that IOUS define tumor borders from normal brain tissues.

3) Identify that IOUS is an intraoperative neuronavigation tool that tailor craniectomy in posterior fossa tumor resection.

4) Estimate IOUS accuracy in detection of residual lesions volume.

Methods

Device:

Intraoperative Ultrasound probe with frequency 6-10 MHz.

Assesment

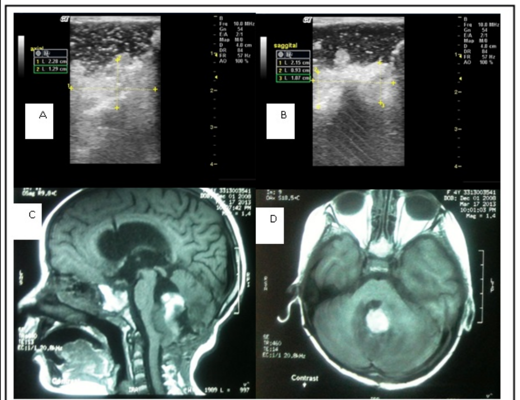
Twelve patients have been operated so far. A surgeon oriented quesionnaire was designed to assist IOUS efficacy. Patients had IOUS scans done at several stages: **During craniectomy, before durotomy, during tumor resection and finally to determine the residual lesion.** MRI with contrast was done to compare the residual lesion with that detected by IOUS.

Application of IOUS to dura.

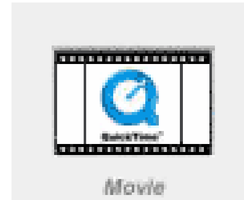
Results

IOUS helped modifying the **craniectomy and Trajectory of intraoperative corridor** in 7 patients. Localization of tumor and site of durotomy was achieved in all cases. There was no statistical significant difference between **residual volume** detected by IOUS and post operative scan with P= 0.266.

Comparison of residual part detected by IOUS and post operative MRI from case 3



A: Saggital cut of residual part IOUS images, with measurements
B: Axial cuts of residual part IOUS Images, C: Saggital MRI with contrast for residual part
D: Axial MRI with contrast for residual part



Conclusions

IOUS is a promising utility for posterior fossa tumors resection and can a **feasible alternative to intraoperative MRI in devoping nations as Egypt.**