

Introduction

To investigate clinical value of virtual reality technology in surgery of patients with tumors cross petrosal crest.

Methods

36 patients with tumor extending from middle cranial fossa into posterior fossa were enrolled in the experiments. The imaging data of patient heads obtained from computerized tomographic angiography (CTA), magnetic resonance angiography (MRA) etc. was loaded into the Dextroscope workstation. After co-registration of the different modalities of imaging data and segmentation of the temporal veins and tumor and brainstem, the dissection of the tumors was simulated. Surgery approaches depended on the anatomical features of Labbé veins and extension range of tumor.

Results

Anatomical feature of Labbé veins in 36 cases: 31 cases belonging to fore-placed type (with distances less than 10 mm) and 3 cases post-placed type (with distances more than 10 mm), 2 absent. Surgery approaches: 3 cases used modified pterion approaches, 30 cases by subtemporal transtenterium approach and 3 by combined approach of suboccipital retrosigmoid approach and subtemporal transtenterium approach. The anatomical features of Labbé veins in presurgical plan coincided with surgery.

Conclusions

Dextroscope can provide neurosurgeons more intuitive anatomy of Labbé veins, thus help to make reasonable decision in selecting surgery approaches for patients with tumor crossing petrosal crest.

Learning Objectives

Yes,our research was objective.

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