Minimally Invasive Transpalpebral Approach to MCA Aneurysms

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INTRODUCTION

Minimally invasive neurosurgery is an inexorable tendency. In this sense, the embolization of cerebral aneurysms seems to be the goal to be achieved. However, nowadays, aneurysms of the middle cerebral artery (MCA) has no proper endovascular treatment. Thus , the authors present a minimally invasive alternative for the treatment of aneurysms of the MCA.

Movie

VIDEO 1 - The transpalpebral approach allows a anterolateral view of the anterior and middle cranial fossa

Movie

VIDEO 2 - Lesser Wing of the Sphenoid Bone

METHODS

We describe a modification of transpalpebral approach by resection of the sphenoid wing , which provides the possibility of access to aneurysms located in the MCA.

Movie

VIDEO 3 - While the patient is still awake, the upper eyelid crease is marked across its entire length. Care is taken not to incise deep through the orbicularis oculi muscle. The orbicularis oculi muscle is then lifted with fine forceps, and T\the orbital septum is identified.The periosteum is divided sharply along the midpoint of the orbital rim. A relaxing incision is made just lateral to the supraorbital neurovascular bundle in the periosteum.

Movie

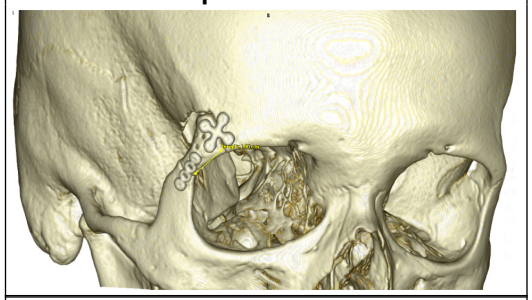
VIDEO 4 - An important step is the selective drillage of the lesser wing of the sphenoid bone. The syslvian fissure can be exposed anteriorly. The aneurysm clippage was performed by combining the use of the microscope and the endoscope. The endoscope was coupled to the IPhone.

MCA Aneurysm

RESULTS

Fifteen patients with incidental MCA aneurysms were submitted to this approach. No patient had any surgical or medical complications . Two patients had the aneurysm rupture during dissection, but were clipped without difficulty . The cosmetical results with 1 year of follow -up demonstrates no visible scars . All patients underwent a post-operative cerebral angiography that did not show residual aneurysm in any case.

Post Operative CT Scan



Postoperative patients' pictures showing that the camouflage of the incision by the overlying lid fold allows excellent cosmesis.

CONCLUSIONS

The modified transpalpebral approach is a minimally invasive alternative for clipping aneurysms of the middle cerebral artery. Despite technical difficulty for the surgeon, this approach is safe and provides adequate cosmetic results.

LEARNING OBJECTIVES

Transpalpebral approach can be an alternative for middle cerebral aneurysm clipping.