



Introduction

Surgery in and around the cavernous sinus (CS) is safer nowadays. Paraclinoid aneurysms continue to best be treated with microsurgical clipping. This is enhanced by obtaining proximal control which is a challenge in some patients when the aneurysms are large and obstruct the clinoidal segment of the internal carotid (IC). Although obtaining proximal control from the cervical carotid is an option, it is not devoid of morbidity and an extra incision to the patient. We describe our experience in obtaining proximal control at the level of the distal horizontal segment of the cavernous carotid artery using few additional steps to the surgical approach with significant advantage and minimal to no morbidity.

Methods

Using the pretemporal extradural approach, the anteromedial aspect of the lateral wall of the CS is exposed. The space between V1 and V2 is used to control bleeding from the CS by injecting fibrin glue. This step neutralizes bleeding from the sinus and allows sharp dissection of the 4th nerve at the apex of Parkinson's triangle to expose the distal cavernous IC artery for the application of temporary clips.

CTA Reconstruction of a superior paraclinoid aneurysm

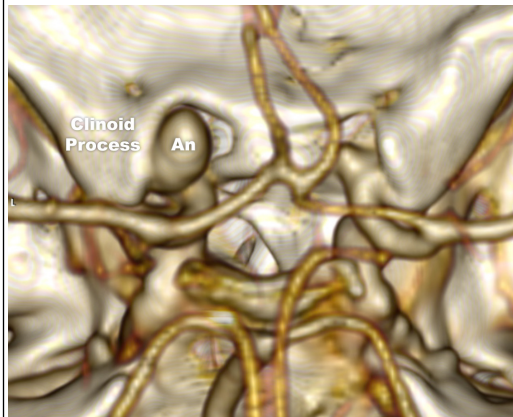


Fig. 1: This is a superiorly projecting superior paraclinoid aneurysm indenting into the anterior clinoid process. There is a risk of aneurysm rupture while drilling the anterior clinoid process



Video showing the opening of the infratochlear triangle to get proximal control of the cavernous ICA while treating the paraclinoid aneurysm shown in Fig. 1

Results

The approach was used in no less than 5 complex paraclinoid aneurysms. Proximal intracavernous control allowed the safe drilling of the anterior clinoid process when part of the clinoid was eroded by the aneurysm. It was also used for patients with large very proximal ophthalmic type aneurysms that obstructed the view of the clinoidal segment of the IC. It was also advantageous in transitional type aneurysms that involve the dural ring region with intracavernous and intardural component of the aneurysms obliterating the clinoidal segment.

Conclusions

Intracavernous IC proximal control increases the safety and surgical maneuverability for clipping complex paraclinoid aneurysms. It saves the patient from an additional surgical procedure with its potential surgical risks.

Learning Objectives

To describe a novel method of obtaining proximal control using the horizontal segment of the cavernous carotid artery.

Cavernous Carotid Artery Proximal Control

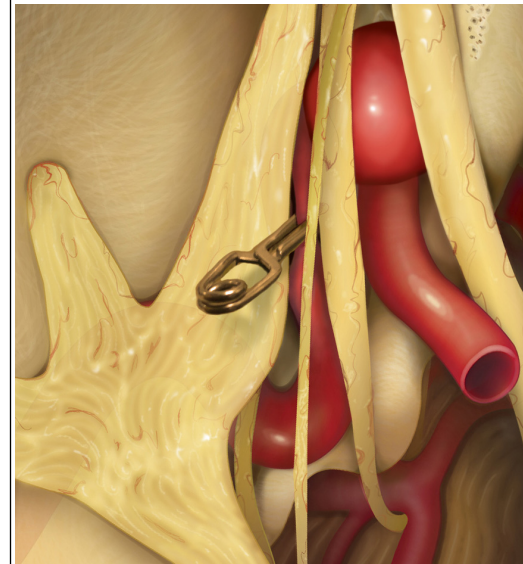


Fig. 2: The infratochlear triangle is opened, and the horizontal segment of the ICA is used to get proximal control while treating complex paraclinoid aneurysms