# A Minimally Invasive Approach to Basilar Apex Aneurysms: Technical Note and Quantitative Analysis

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## Introduction

Basilar apex aneurysms have been one of the most challenging tasks in neurosurgery.

Drake and Yasargil pioneered different routes to tackle this formidable task. Drake championed the

subtemporal route while Yasargil advocated the pterional trans-sylvian approach with drilling of the

posterior clinoid, which increases the access but puts the oculomotor nerve at risk. A minimally invasive

approach with quantitative assessment is presented here.

## Methods

Seven silicon-injected cadaver heads were used. On one side sphenoid ridge keyhole (SRK)craniotomy through a 2 inches skin incision was performed. Partial removal of the upper part of the zygomatic arch and the lateral orbital rim increased the temporal exposure, coupled with endoscopic endonasal extradural posterior clinoidectomy (EEPC). Contralaterally, an orbitozygomatic(OZ)approach with intradural posterior clinoidectomy (IPC)was performed.Quantitative analysis of exposed surface area and length of exposure along the basilar trunk was done using Optotrak 3020.

## Results

There was no statistical difference comparing SRK and OZ surface area (P=0.979). The SRK plus EEPC surface area was larger than that OZ plus IPC and that achieved statistical significance(P<0.001).The median length of exposure along the basilar trunk for OZ plus IPC and SRK plus EEPC was 9.4mm and 13.7 mm respectively.

## Conclusions

The minimally invasive approach described here is equally effective in exposing the basilar apex compared to orbitozygomatic approach plus intradural posterior clinoidectomy. Added advantages are greater length along basilar trunk as the whole dorsum sellae can be removed and being safer for the 3rd cranial nerve.

## Learning Objectives

To know the current approaches to basilar tip aneurysm

To introduce an alternative minimally invasive approach

To compare the exposure area offered by the suggested approach to the mainstream approaches

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