

# Pterional Approach

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**Abstract.** The pterional approach is a workhorse in neurosurgery, to the point where perfect knowledge of its execution is essential in neurosurgical daily practice. The pterional transsylvian corridor is used to treat aneurysms involving anterior circulation, basilar apex, the proximal segment of the superior cerebellar and posterior cerebral artery, arteriovenous malformations and cavernous hemangiomas of the basal forebrain, anterior and middle skull base tumors, gliomas of the frontal, parietal, and temporal opercula, insula, mediobasal temporal region, cerebral peduncles, interpeduncular fossa, and also orbital lesions. We herein overview the core technique and variations of the pterional approach aimed at broadening surgical freedom and decreasing the risk of approach-related complications. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** Intracranial Aneurysms; Neurovascular Surgery; Pterional Approach; Skull Base Tumors; Sylvian Fissure.

## Introduction

Introduced by Yasargil in the 1970s, the pterional or frontotemporosphenoidal approach is the most used approach in neurosurgery (1-3). Its critical point lies in the drilling of the lateral most part of the greater sphenoid wing to access the entire anterior and middle skull base.

The pterional approach has several vascular targets, namely the internal carotid artery (ICA) with its branches, middle cerebral artery (MCA), anterior communicating artery (ACoA), basilar tip, P1 segment of the posterior cerebral artery (PCA), and proximal segment of the superior cerebellar artery (SCA). Anterior and middle skull base lesions and intra-axial tumors of the frontal, temporal, and parietal opercula, uncus, insula, basal ganglia, lateral ventricle, and interpeduncular fossa may be reached through the pterional transsylvian route. The pterional approach may be also used to treat orbital tumors.

The present article reports the core technique and variations of the pterional approach. Hints and tips to maximize surgical freedom and avoid complications are also discussed.

## Indications

The pterional approach allows access to the supratentorial basal cisterns and uppermost and median infratentorial cisterns. Accordingly, it is the approach of choice for most extra-axial lesions involving the anterior and middle skull base and a large proportion of intra-axial lesions affecting the basal forebrain and anterior midbrain.

Regarding the neurovascular pathology, the pterional approach is indicated in most anterior circulation aneurysms and selected median and paramedian aneurysms involving the upper part of the posterior circulation.