

Endoscopic Anatomic Study for Infratemporal fossa

An Essay

Submitted for Partial Fulfillment of M.Sc. degree in
Otorhinolaryngology

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**Faculty of Medicine
Cairo University
2010**

Keywords:

- Infratemporal fossa
- Endoscopic approach
- External approaches
- Anatomy

Abstract:

Although the anatomy of the paranasal sinuses has been well documented for endoscopic sinus surgery, little has been published on the endoscopic anatomy of the anterior skull base. This anatomical information is critical when removing tumors that breach the bony limits of the sinuses as major neurovascular structures lie on the dorsal side of the skull base.

*To my parents, my brothers and to my dearest
friend who helped me a lot in this work.*

Peter magdy

ACKNOWLEDGEMENTS

Above all, I would like to thank GOD who made all things possible. He was always there for me throughout my life. Without him, I could not have completed this work.

I would like to acknowledge and extend my heartfelt gratitude to the following persons who have made the completion of this work possible.

This work would not have been possible without the help, support and patience of my principal supervisor, Prof. Dr. Mohamed hegazy, Professor of Otolaryngology, Faculty of Medicine, Cairo University. Not to mention his advice, vital encouragement and support.

The good advice, support and friendship of my second supervisor, Dr. Ahmed Shawky, lecturer of Otolaryngology, Faculty of Medicine, Cairo University, has been invaluable on both an academic and a personal level, for which I am extremely grateful.

I want to thank my dear friend, Elhamy for his personal support and great patience at all times. Also *my parents* have given me their obvious support and love throughout my life for which my mere expression of thanks does not suffice.

I also thank all the professors in the Otolaryngology Department, Faculty of Medicine, Cairo University, for their support and assistance

Last, but by no means least, I would like to thank my colleagues and my friends for their kindness, friendship, encouragement and support.

I hope that readers will very much enjoy this work as well as find it educative.

For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely my own.

Thank you all.

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List of abbreviations

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(ITF): infratemporal fossa

(PPF): pterygopalatine fossa

(JNA): juvenile nasopharyngeal angiofibromas

(BPP): base of pterygoid process

(GWS): greater wing of sphenoid

(FO): foramen ovale

(FS): foramen spinosum

(FL): foramen lacerum

(CC): carotid canal

(JF): jugular foramen

(FM): foramen magnum

(IMA): internal maxillary artery

(V2): maxillary nerve

(PC): pharyngeal canal

(VC): vidian canal

(FR): foramen rotundum

(SS): sphenoid sinus

(PPG): pterygopalatine ganglion

(GPN): greater palatine nerve

(ION): infraorbital nerve

(PSAA): posterior superior alveolar artery

(IOA): infraorbital artery

(LBr): lateral pterygoid branch of IMA;

(TM): temporalis muscle

(LPM): lateral pterygoid muscle

(V3): mandibular nerve

(MMA): middle meningeal artery

(FO): foramen ovale

(BB): bony bridge

(FS): foramen spinosum

(BS): bony spine

(ICA): internal carotid artery

(EAC): external auditory canal

(MCF): middle cranial fossa

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Figure 4: Left temporalis: the zygomatic arch and masseter have been removed. Note the changing orientations of the muscle fibres, from vertical anteriorly to horizontal posteriorly. [P.14]

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Masseter has been removed (with the exception of a small inferior portion). The zygomatic arch has been removed. [P.19]

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Figure 13: Diagrammatic anterior view of the sphenoid bone including its pterygoid process and greater wing (GWS). The base of the pterygoid process (BPP) forms the posterior boundary of the pterygopalatine fossa. Three foramina open into the back wall of the fossa. These are the pharyngeal canal (PC) most medially, the vidian canal (VC) immediately lateral to this in the base of the pterygoid process, and the foramen rotundum (FR) superolateral to VC. The dashed arrow represents the course of endoscopic dissection on the pterygoid base and then along the infratemporal surface of the GWS towards the foramen ovale. The yellow and red arrows on the right side depict the course of the maxillary nerve (V2) and the tortuous internal maxillary artery (IMA) in the pterygopalatine fossa. [P.55]

Figure 14: Endoscopic view after removal of the left posterior and posterolateral maxillary wall. PC, posterior choana; VC, vidian canal; SS, sphenoid sinus; PPG, pterygopalatine ganglion; GPN, greater palatine nerve; V2, maxillary nerve; ION, infraorbital nerve; IMA, internal maxillary artery; PSAA, posterior superior alveolar artery; IOA, infraorbital artery; LBr, lateral pterygoid branch of IMA; TBr, branch of IMA to the deep belly of temporalis muscle (TM); LPM, lateral pterygoid muscle with its two heads partially separated from the lateral surface of the pterygoid base and the infratemporal surface of the greater wing of sphenoid bone (GWS). [P.57]

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Figure 17: Endoscopic view of the left infratemporal fossa posterolateral to the base of the pterygoid process (BPP). The labeled structures have been confirmed by an open lateral approach. **(A)** The lateral pterygoid muscle (LPM) is dissected of the lateral surface of the BPP and of the infratemporal surface of the greater wing of the sphenoid bone (GWS). The mandibular nerve (V3) and the middle meningeal artery (MMA) are identified. BPP, base of pterygoid process; FR, foramen rotundum; VC, vidian canal; MC, mandibular condyle in its articular fossa. **(B)** A closer view showing the V3 emerging from the foramen ovale (FO). Posterolateral to the FO is a bony bridge (BB) separating the latter from the foramen spinosum (FS) that transmits the MMA. Of note also is the bony spine (BS) at the posterolateral edge of the FS, MC, and mandibular condyle. [P.62]

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