

# Anatomical Assessment of the Digastric Branch of the Facial Nerve as a Landmark to Localize the Facial Nerve Trunk

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## Introduction

Localization of the facial nerve trunk (FNT) (i.e., the extratemporal segment of the facial nerve between the stylomastoid foramen [SMF] and pes anserinus) may be required during various surgical interventions such as, parotidectomy, hypoglossal-facial anastomosis, paragangliomas resections, among others. Several landmarks have been proposed for efficient identification of the FNT. This study sought to assess the anatomical features of the digastric branch of the facial nerve (DBFN) and its potential to be used as a landmark to identify FNT.

### **Methods**

Five cadaveric heads (10 sides) were dissected to localize the DBFN. The relevant anatomical features of DBFN including its point of origin relative to SMF, length, and important relationships, as well as the distance between the insertion point on the digastric muscle and mastoid tip were recorded.

#### Results

DBFN was found in all specimens with and average length of  $13.7 \pm 1.9$  mm. In all specimens, the DBFN inserted on the superomedial aspect of the posterior belly of the digastric muscle (PBDM). It universally originated from the post-foraminal facial nerve. In 4/10 specimens, DBFN was accompanied by the stylomastoid artery on its medial side. Average distance between the mastoid tip and nerve insertion point on PBD was  $12.4 \pm 1.3$  mm.

# **Learning Objectives**

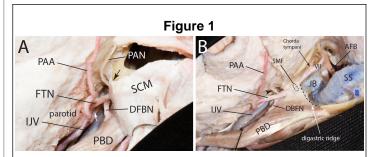
- (1)Understanding different anatomical landmarks to localize the extratemporal segment of the facial nerve
- (2)Describing the major anatomical features and relationships of the digastric branch of the facial nerve
- (3) Naming the relative advantages and disadvantages of using the digastric branch of the facial nerve as a landmark to find the facial nerve

#### References

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# **Conclusions**

The DBFN is a reliable landmark for identifying FNT. It could be constantly found within 13.7 mm of the mastoid tip on the superomedial aspect of the PBD. DBFN may be used as a standalone or supplementary landmark for efficient localization of the FNT.



A, Oblique view of the left mastoid region with exposure of PAA, PAN, and DBFN. DBFN originates from the FNT distal to the stylomastoid foramen. Important medial relationships of the DBFN include the IJV and the stylomastoid artery (white arrow). Please note that limited mastoidectomy has been performed in this specimen. Mastoid tip is marked by black arrow. B, mastoidectomy and translabyrinthine approach have been completed and full course of Digastric Branch of the Facial Nerve15 the facial nerve is exposed from the cerebellopointine angle to the parotid region. PAN (black arrowhead) and DBFN arise from the extratemporal segment of the facial nerve. AFB = acousticofacial bundle; DBFN = digastric branch of facial nerve; FNT = facial nerve trunk; IJV = internal jugular vein; JB = jugular bulb; PAA = posterior auricular artery; PAN = posterior auricular nerve; PBD = posterior belly of digastric muscle; SCM = sternocleidomastoid; SMF = stylomastoid foramen; SS = sigmoid sinus.