



ORIGINAL RESEARCH PAPER

General Surgery

POSTERIOR BELLY OF DI-GASTRIC MUSCLE – THE LANDMARK TO IDENTIFY FACIAL NERVE IN PAROTIDECTOMY

KEY WORDS: Facial nerve, Parotidectomy, posterior belly of digastric muscle

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ABSTRACT

Objective:-To document Posterior belly of Di-gastric Muscle –The landmark to identify Facial Nerve in Parotidectomy. **Methods:-** In this study, relationship between posterior belly of digastrics and facial nerve trunk recorded in 21 patients who undergone Parotidectomy in our Institute. Results:-In all patients, Facial Nerve trunk was identified above the posterior belly of Di-gastric muscle with range of 5 to 10 mm. **Conclusion:-**This study confirmed that posterior belly of Di-gastric muscle in the landmark in identification of Facial nerve trunk in Parotidectomy.

INTRODUCTION:-

Parotidectomy is basically identification, Anatomical dissection and preservation of Facial Nerve which traverses through the Parotid gland. Since Facial nerve injury is the most common complication of parotidectomy, identification and preservation Facial nerve is important. To identify the Facial Nerve, So many landmarks are discussed but in our study, Posterior Belly of Digastric muscle is “the landmark”.

Material and methods:-

21 consecutive surgeries of Parotidectomy was recorded since June 2016 to Jan 2020. Posterior belly of digastric muscle was identified in each patient, then facial nerve trunk was identified above muscle. The Facial nerve relation with respect to posterior belly of di-gastric muscle and distance between trunk of facial nerve and tendon of posterior belly of Di-gastric muscle were recorded in millimeter. Side of parotidectomy was also noted.

Results:-

21 parotidectomies were done in total. 12 right side and 9 left side surgeries were recorded.

Table 1:- Side of Protidectomy

side	No of cases
Right side	12
Left side	9
Total	21

Table 2:- Distance (in millimeters) of Facial nerve trunk above posterior belly of di-gastric muscle

Case No	Distance in mm	Case No	Distance in mm	Case no	Distance in mm
1	10	8	8	15	10
2	8	9	6	16	10
3	5	10	10	17	5
4	10	11	5	18	8
5	8	12	8	19	7
6	5	13	7	20	5
7	5	14	5	21	8
				Average	7.3mm

DISCUSSION:-

Facial nerve injury is the most common complication of parotid surgery as the two structures are intimately related to each other. This is because of the fact that during embryogenesis, the parotid gland entraps mesenchymal structures which later develops into the facial nerve. The facial nerve however is said to divide the gland into a deep and superficial lobe but this concept is not anatomically based. The facial nerve along with the accompanying vessels creates a potential plane which lies in between the deep and superficial lobes of the parotid gland. Dissection in this plane

is never possible until and unless the surgeon identifies the nerve and proceeds along the nerve and its branches.

In absence of facial nerve monitor, facial nerve is generally located by means of anterograde or retrograde dissection methods. Retrograde dissection is the less commonly used technique with the surgeons preferring this method mostly during revision parotidectomy. Anterograde dissection or proximal surgical identification technique is aimed at identifying the facial nerve at its point of exit from the stylomastoid foramen and is the preferred method of dissecting the facial nerve.

Commonly used landmarks for identification of nerve are Posterior Belly of Digastric muscle, Tragal Pointer, tympano mastoid suture line, Mastoid process and transverse process of axis(4).

In our Patients, Digastric muscle is easily identified by retraction of sterno-cleido mastoid muscle laterally. The facial nerve trunk lies approximately 5mm to 10mm above and parallel to the upper border of the digastric muscle near its insertion at the mastoid tip in all patients. There was no difficulty in identification of nerve in all patients. There was no failure of facial nerve identification. This is consistent landmark, so we can take it as “the landmark”.

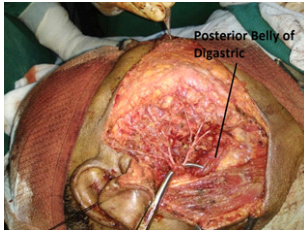
Table 3 Comparison of present study with similar studies published in literature

Clinical studies	Distance from Posterior belly of Digastric muscle
Annals of Anatomy (Vol. 192, Feb' 2010) Rea et al. [4]	5.5 ± 2.1 mm
Surgical and Radiologic Anatomy (Vol. 28, Nov' 2005) Pather and Osman [5]	9.7–24.3 mm
The Laryngoscope (Vol. 115, April' 2005) Witt et al. (7)	12.4 mm (cad) – 1.8 mm (cad)
Somnath Saha et al. (2)	6–9.5 mm (cad)
Our Study	5 -10 mm

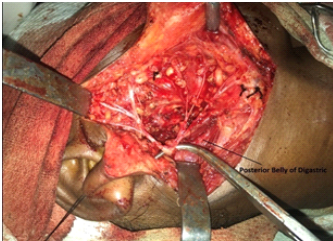
We are presenting per-operative pictures of different cases below.



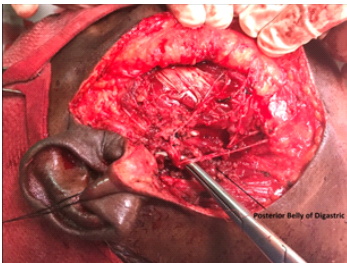
Case-1-Facial nerve 1 cm above the Posterior belly of Digastric muscle



Case-2-Facial nerve 8mm above the Posterior belly of Digastric muscle



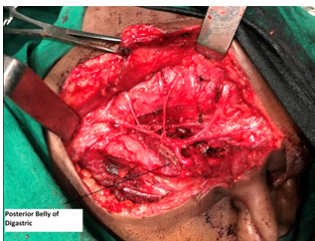
Case-3-Facial nerve 5mm above the Posterior belly of Digastric muscle



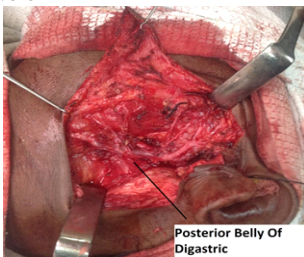
Case-4-Facial nerve 1 cm above the Posterior belly of Digastric muscle



Case-5-Facial nerve 8mm above the Posterior belly of Digastric muscle



Case-6-Facial nerve 5mm above the Posterior belly of Digastric muscle



Case-7-Facial nerve 5mm above the Posterior belly of Digastric muscle

CONCLUSION:-

Parotidectomy is a demanding surgery since presence of facial nerve which traverses through parotid gland. Facial Nerve identification and preservation is the main challenge to the operative surgeon in most of Parotidectomies. To prevent injury to nerve to nerve, Systematic approach is essential for identification of Nerve. From above study, Posterior belly of Digastric muscle is consistent, reliable, easy identifiable landmark for identification of Facial Nerve by the all the surgeons, so it is "the land mark" for Nerve Identification.

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CONFLICT OF INTERESTS

Declare none

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