

Case Report

Variable relationship of retro-mandibular vein to the facial nerve, a finding during parotid surgery: a rare case report

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ABSTRACT

Studies describing the anatomical relation and variability of facial nerve and retro-mandibular vein were mostly on cadavers. Intraoperative encounter of variable anatomy in parotid surgery is rarely reported in literature. The usual location of retro-mandibular vein is medial to facial nerve as described in many classical text books is around 88%. Here we present a case with variable anatomy of retromandibular vein. A 55-year-old Indian gentleman presented with history of painless swelling in left parotid region for 5 months. On clinical examination, a 3×3 cm swelling probably arising from left parotid gland was felt. Preoperative ultrasonography described it as parotid cyst arising from inferior pole. Fine needle aspiration cytology described it as benign parotid cyst. A superficial parotidectomy was planned and executed. During surgery, the retro-mandibular vein was found crossing the two trunks of the facial nerve laterally (superficial to facial nerve) in between the division of facial nerve trunk and origin of ramifications. Usually retro-mandibular vein runs medial (deep) to the facial nerve trunks. Anatomical variations between facial nerve and retro-mandibular vein are underreported and not given due importance during training. With this article, we want to emphasize the importance of having awareness regarding anatomical variations related to facial nerve and retro-mandibular vein and be prepared to encounter during surgery there by preventing complications. We are reporting the first case from India.

Keywords: Facial nerve, Parotidectomy, Retro-mandibular vein, Variable anatomy

INTRODUCTION

Thorough understanding of variations in anatomical relationship of retro mandibular vein and facial nerve is crucial for surgeons as well as radiologists. As retro mandibular vein is used by surgeons to expose facial nerve branches during parotid surgery and by radiologists to localize parotid lesions preoperatively.¹ The most feared complication of any parotid surgery is facial nerve injury.¹⁻³ Many anatomy and surgical textbooks described the relation as facial nerve is superficial to the retro mandibular vein but some cadaveric studies showed there is significant incidence of variability.¹ Only two surgical case reports were found in literature till date. Of course,

till now only one cadaveric case report was reported from India.¹ It is very important for a surgeon to know the possible variable relations between the two structures to prevent injury to the facial nerve and its branches. Unexpected anomalous anatomy during surgery may lead to grave complications. In this paper, we report the first surgical case from India describing anomalous relation between retro-mandibular vein and facial nerve, found during superficial parotidectomy for benign parotid cyst.

CASE REPORT

A 55-year-old Indian gentleman presented with history of painless swelling in left parotid region for 5 months. On

clinical examination, a 3×3 cm swelling probably arising from left parotid gland was felt. Preoperative ultrasonography described it as parotid cyst arising from inferior pole. Fine needle aspiration cytology described it as benign parotid cyst. A superficial parotidectomy was planned.

During surgery after identifying the main facial nerve trunk, while tracing the bifurcation and other branches, the retro mandibular vein was found crossing the two trunks of the facial nerve laterally in between the division of facial nerve trunk and origin of ramifications. Usually retro-mandibular vein which is formed by the fusion of maxillary and superficial temporal veins runs medial to the facial nerve trunks. With careful dissection, we preserved all the nerve branches and completed the surgery. The following are the intraoperative pictures describing this rare anatomical variant.



Figure 1: preoperative left parotid gland swelling.



Figure 2: Intraoperative parotid cyst.

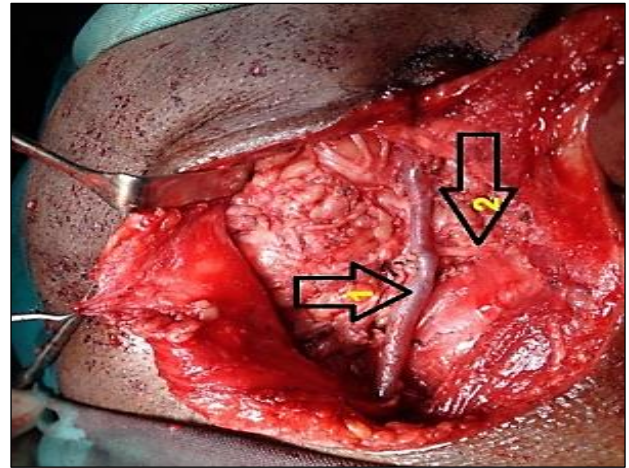


Figure 3: Intraoperative finding; retromandibular vein (1) crossing facial nerve laterally at bifurcation of trunk (2).

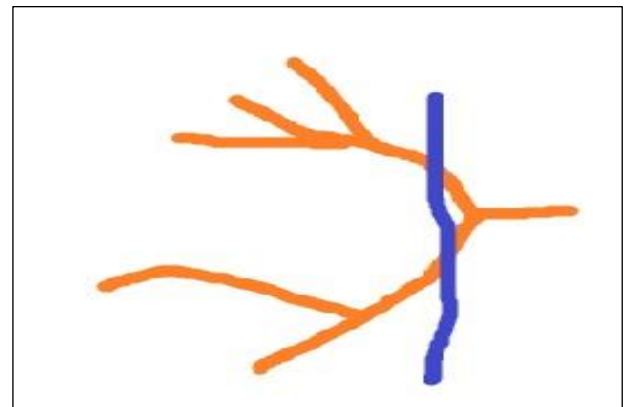


Figure 4: Diagrammatic description of retromandibular vein and facial nerve in this patient.

DISCUSSION

Studies describing the anatomical relation and variability of facial nerve and retromandibular vein were mostly on cadavers. Intraoperative encounter of variable anatomy in parotid surgery is rarely reported in literature. Till now only two surgical case reports were there in literature by Bhattacharya et al and Babademez et al.^{2,4} The usual location of retro-mandibular vein is medial to facial nerve as described in many classical text books is around 88% as mentioned by Piagkou M et al.¹ Toure and Vacher proposed a classification system for this variable anatomy based on their cadaveric study which was later updated by Piagkou et al in their review may help surgeons in reporting these anomalies and using a common international language.^{1,3}

In our case it comes under type II d, and other case reported by Astik et al the only other case report (cadaveric) from India comes under type IV b, according to this classification system.¹ Incidentally the variation

presented by us, is also in left parotid gland like the one reported by Piagkou M, et al.

CONCLUSION

Anatomical Variations between facial nerve and retro-mandibular vein are underreported and not given due importance during training. With this article, we want to emphasize the importance of having awareness regarding anatomical variations related to facial nerve and retro-mandibular vein and be prepared to encounter during surgery there by preventing complications.

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Ethical approval: Not required

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