

Triangles of Submandibular Region- A Must to Know Entity!

Sakthivel P*, Thirumeni G, Singh CA and Sharma CS

Department of Otorhinolaryngology & Head and Neck surgery, All India Institute of Medical Sciences, New Delhi

***Corresponding author:** Pirabu Sakthivel, MS, DNB, ENT, Department of Otorhinolaryngology & Head and Neck surgery, All India Institute of Medical Sciences, New Delhi, India, Tel: 9958744547, E-mail: pirabusakthivel@gmail.com

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1. Abstract

The neck is a distinct anatomical area that lends itself to anatomical geometry, such as triangles. Though there are many known triangles in the neck, there are few unknown, forgotten triangles in the submandibular region. The purposes of this article is to clearly depict the existence of such triangles in neck and to discuss their surgical significance.

2. Keywords: Submandibular triangle; Neck; Triangle

3. Introduction

In the paired submandibular triangle, there exists three smaller triangles namely Beclard's, Lesser's, and Pirogoff's triangles. Knowledge of these triangles, their contents, and relationships to other structures of the neck could be of paramount important for cranio-facial, oral, general, and neurosurgeons who operate within the neck. We herein describe the surgical anatomical boundaries along with its surgical implications.

3.1. Beclard Triangle (Figure 1)

This triangle is named after the French anatomist Pierre A. Beclard (1785–1825).

Boundaries:

Inferior leg- The greater cornu of the hyoid bone

Superior leg- Posterior belly of digastric

Posterior leg (base of the triangle) - Posterior border of the hyoglossus

Beclard's triangle is also known as the posterior triangle of the lingual artery, and contains the lingual artery (ligated structure in **Figure 1**) and the hypoglossal nerve (arrows). This triangle has also been used to aid in ligating the external carotid artery.

3.2. Lesser's Triangle (Figure 2)

This triangle is named after the German surgeon Ladislaus Leo Lesser (1846–1925).

Boundaries:

Superior border- Hypoglossal nerve as it courses deep to the mylohyoid

Inferior border (base of triangle) -The anterior belly and intermediate tendon of the digastric

Posterior border- Posterior margin of the mylohyoid muscle

3.3. Pirogoff Triangle (Figure 3)

This triangle is named after the Russian surgeon Nikolai I. Pirogoff (1810–1881). Pirogoff's triangle is actually the posterior continuation of Lesser's triangle.

Boundaries:

Superior border- Hypoglossal nerve

Inferior border (base of triangle) -Intermediate tendon of the digastric muscle

Anterior border- Posterior margin of the mylohyoid muscle

Isolation of the hypoglossal nerve for neurotization procedures, identification of the lingual artery for ligation and site for microvascular anastomosis during free vascularised tissue transfer in reconstructive head and neck surgery, especially in the maxillofacial area are just few examples of uses of the triangles described herein.



Figure 1: Beclard's triangle and its contents. The lingual artery is ligated and arrows indicates hypoglossal nerve.



Figure 2: Lesser's triangle.



Figure 3: Pirogoff triangle.

4. Conclusion

Additional anatomical landmarks within neck may be useful to cranio-facial, oral, general and neurosurgeons who operate within the neck. A thorough knowledge of these uncommon triangles will help minimize surgical morbidity and aid in the efficiency of surgical dissections.