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The Thyrolinguofacial Venous Trunk during Selective Cervical Lymph Node Dissection: An Intraoperative Case Report

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Abstract

Thyrolinguofacial vein (Farabeuf's trunk) is a constant and crucial anatomical landmark during cervical dissections. However, its morphological variations are frequent and expose the surgeon to an increased risk of hemorrhage. We report the intraoperative imaging of a highly branched (plexiform) anatomical variant of the thyrolinguofacial vein (Farabeuf's trunk), discovered incidentally during a selective cervical lymph node dissection during a total laryngectomy for laryngeal cancer classified as stage III according to the TNM classification. Knowledge of these variations is essential for safe dissection of the carotid triangle.

Keywords

Thyro-Linguo-Facial Trunk, Internal Jugular Vein, Selective Cervical Dissection, Anatomical Variant, Gabriel Touré University Hospital

1. Introduction

Cervical lymph node dissection, whether radical or selective, requires a thorough understanding of the anatomy of the cervical vascular system. [1]. The thyro-linguo-facial venous trunk (TTLIF), or Farabeuf trunk, classically arises from the confluence of the superior thyroid, lingual and facial veins before emptying into the internal jugular vein (IJV) [2].

Beyond its drainage role, it serves as a key landmark for locating the hypoglossal nerve (XII), which crosses it medially [3]-[6]. In this particular context, analyzing anatomical pitfalls remains a priority to reduce iatrogenic complications. The aim of this article is to present a rare anatomical variant with a multi-branching configuration and to discuss its surgical implications.

2. Observation: Intraoperative Description

This was a 57-year-old male patient who underwent bilateral selective jugulocarotid neck dissection (levels II, III and IV) during a total laryngectomy for laryngeal cancer classified as stage III according to the TNM classification. The elective cervicotomy approach allowed for elevation of the musculocutaneous flap, dissection of the sternocleidomastoid muscle, exposure of the jugulocarotid artery, and methodical resection of the lymph node tissue (Figure 1). Meticulous exposure of the Farabeuf triangle during our surgery revealed remarkable venous anatomy: The internal jugular vein (IJV) had a normal caliber and course, serving as a reference point. The thyrolinguofacial trunk, contrary to the classic arrangement, presented an unusual "plexiform" or "tree-like" configuration, characterized by an early, multi-branched division of its branches forming a common trunk that empties into the IJV (Figure 2). The facial, lingual, and pharyngeal veins converged into this particularly large and horizontal common trunk, partially obscuring the underlying carotid artery. The common carotid artery was meticulously dissected (Figure 3). Rigorous dissection allowed isolation of the accessory nerve, the hypoglossal loop, the vagus nerve, and the deep cervical plexus (Figure 4).

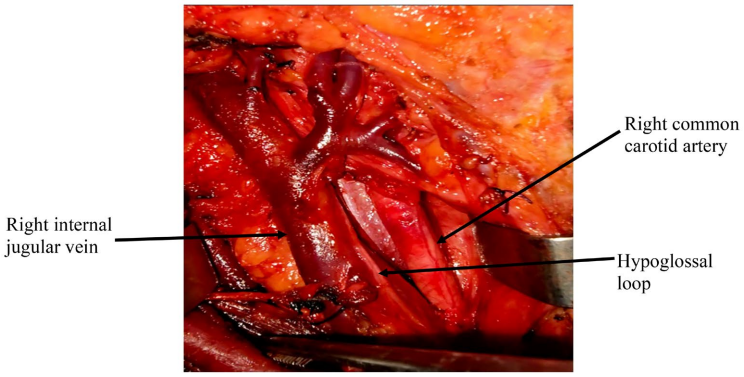

Figure 1. Intraoperative view of the right carotid triangle: dissection of the sternocleidomastoid muscle, the internal jugular vein, the hypoglossal loop, and the common carotid artery.

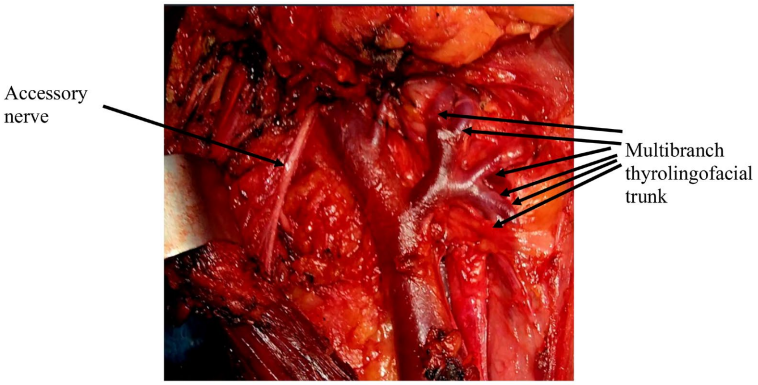

Figure 2. Intraoperative view of the right carotid triangle: highlighting the multibranching variant ("plexiform or tree-like") of the Farabeuf trunk draining into the internal jugular vein.

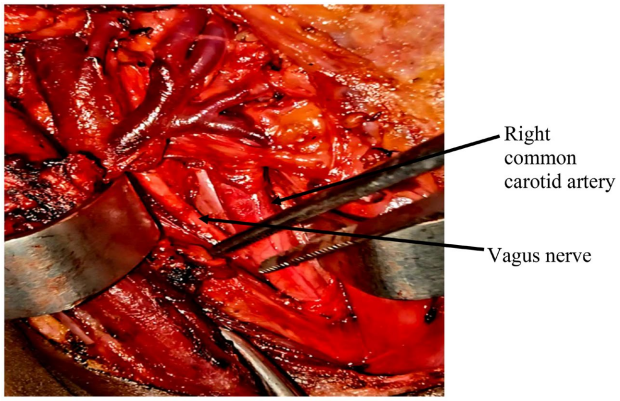

Figure 3. Intraoperative view of the right carotid triangle: dissection of the vagus nerve.

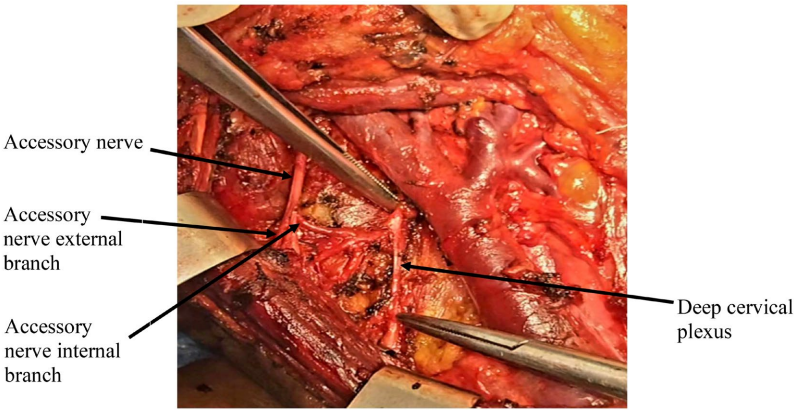

Figure 4. Intraoperative view of the right carotid triangle: dissection of the accessory nerve, the deep cervical plexus and the internal jugular vein.

No hemorrhagic or neurological incidents were reported thanks to a step-by-step skeletonization of the Farabeuf trunk.

3. Discussion

The Farabeuf trunk is a classic landmark, but its standard anatomical configuration (simple confluence of three veins) is found in only about 60% to 70% of cases according to large dissection series [7] [8]. Variations can include the complete absence of a trunk (separate junctions directly into the internal jugular vein) or, conversely, hyper-confluences like the one observed on our surgical radiographs [2] [7]-[9].

This "multi-branching" variant offers three advantages for the ENT and cervico-facial surgeon:

- Increased Hemorrhagic Risk: The volume and fragility of the walls of this spread trunk considerably increase the risk of tearing during retraction of the IJV or lymph node dissection of level II.
- Topographical Trap: Its spread-out configuration can completely mask the carotid bifurcation and alter the classic relationships of the hypoglossal nerve, increasing the risk of iatrogenic neurological injury.

- Reliability of the Reference Frame: This observation reminds us that the Farabeuf truncation should be considered as a "dynamic" reference frame which should be dissected carefully rather than used as an immutable fixed constant.

Our findings at the Gabriel Touré University Hospital are consistent with international literature: constant vigilance regarding vascular anomalies is key to reducing hospital morbidity in cervicofacial surgery [2]-[9].

4. Conclusion

Anatomical variations of the thyrolinguofacial trunk are common, but they are rarely as demonstrative and complex as those seen in these images. A thorough understanding of these variations helps prevent major vascular complications, ensuring both the oncological efficacy of the lymph node dissection and the patient's neurological safety.

Ethical Approval Statement, Informed Consent

It was a purely scientific work aimed at improving the grip of the in charge in the field of otology, the ethical standards have been strictly for each study participant with their informed consent, and respect for anonymity.

Author Contributions

Concept-N'faly Konate; Design-N'faly Konate; Mamadou Sidibé, Kassim Diarra; Boubacary Guindo; Supervision-Kassim Diarra; Boubacary Guindo; Djibo Mahamane Diango, Mohamed Keita; Resources-N'faly Konate; Kassim Diarra; Sidibé Mamadou; Materials-N'faly Konate; Sidibé Mamadou; Mohamed Keita; Data Collection and/or Processing-N'faly Konate; Kassim Diarra; Moussa Bourama Keïta; Analysis and/or Interpretation-N'faly Konate; Literature Search-N'faly Konate; Kassim Diarra; Writing Manuscript-N'faly Konate; Critical Review-N'faly Konate; Kassim Diarra; Boubacary Guindo; Siaka Soumaoro; Djibo Mahamane Diango, Mohamed Keita.

Conflicts of Interest

The authors have declared no conflict of interest.

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