BALKAN ORL-HNS

Transcervical Approach for Parapharyngeal Tumor Arising from the Deep Lobe of Parotid Gland: Case Report

CASE REPORT
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ABSTRACT

Tumors of the parapharyngeal space (PPS) are rare, constituting 0.5%-1% of head and neck masses, with most being benign and originating from salivary glands. The PPS, an anatomically complex region, is divided into prestyloid and poststyloid compartments. Management of these tumors is challenging due to their location and potential impact on surrounding neurovascular structures. We report a 75-year-old female patient presenting with dysphagia, transient apnea, and mild conductive hearing loss. Examination revealed a submucosal mass on the left lateral oropharyngeal wall, displacing the soft palate and anterior tonsillar pillar. Magnetic resonance imaging (MRI) identified a 30 × 55 × 62 mm mass arising from the deep lobe of the left parotid gland, confirmed as a pleomorphic adenoma by core biopsy. A transcervical approach was utilized for tumor resection. The procedure involved a transverse incision below the mandible, with careful identification and preservation of the carotid artery, internal jugular vein, and cranial nerves. The tumor was excised in total by dissecting around its capsule, ensuring minimal disruption to surrounding structures. Parapharyngeal space tumors present significant surgical challenges due to their anatomical complexity and proximity to critical structures. Magnetic resonance imaging provides essential preoperative information, guiding the surgical approach. The transcervical approach offers direct access to the inferior PPS, facilitating safe tumor removal and preservation of neurovascular integrity. This case underscores the importance of selecting an appropriate surgical technique based on tumor characteristics and location, with the transcervical approach being a reliable and safe technique.

Keywords: Parapharyngeal tumor mass, pleomorhic adenoma, trans-cervical approach

Introduction

Tumors of the parapharyngeal space (PPS) are rare, accounting for 0.5%-1% of all head and neck masses. Most of these tumors are benign and originate from the salivary glands, specifically the parotid and accessory salivary glands. The PPS is anatomically complex, resembling an inverted pyramid extending from the base of the skull to the hyoid bone. It is bounded by the temporal bone superiorly, the vertebrae and prevertebral muscles posteriorly, the buccopharyngeal fascia medially, and the condyle of the mandible and medial pterygoid muscle laterally. This space is divided into prestyloid (anterior) and poststyloid (posterior) compartments. Tumors arising from the poststyloid compartment can involve critical structures such as the internal carotid artery, internal jugular vein, and various cranial nerves, making surgical management particularly challenging. The prestyloid compartment mainly comprises fat, the deep lobe of the parotid gland, and lymph nodes.[1-3,6]

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Pleomorphic adenoma, the most common histological type of parapharyngeal tumor, represents 34% of primary parapharyngeal lesions and 65% of salivary gland lesions. While typically benign, pleomorphic adenomas can undergo malignant transformation if not adequately treated. Malignant salivary gland tumors, such as adenoid cystic carcinoma and mucoepidermoid carcinoma, represent 23% of all salivary gland lesions. The rarity and complexity of these tumors necessitate precise diagnostic and surgical approaches.[4,5]

Case Presentation

A 75-year-old female presented with a few months' history of dysphagia, transient apnea, and mild conductive hearing loss in the left ear. On examination, a submucosal mass was observed on the left side of the oropharynx, displacing the soft palate and the left anterior tonsillar pillar anteromedially.

Audiometric tests confirmed a mild conductive hearing loss on the left side, with a type "B" tympanogram.

Magnetic resonance imaging (MRI) revealed a mass measuring 30 × 55 × 62 mm arising from the deep lobe of the left parotid gland.

MAIN POINTS

- *The PPS is anatomically complex region. Management of tumors in this region is challenging due to their location and potential impact on surrounding neurovascular structures.*
- *Pleomorphic adenoma, the most common histological type of parapharyngeal tumor, represents 34% of primary parapharyngeal lesions and 65% of salivary gland lesions.*
- *The transcervical approach to parapharyngeal space tumors is a well-established surgical technique, offering several distinct advantages that make it a preferred choice in many cases.*
- *The surgical removal of parapharyngeal tumors, particularly those arising from the deep lobe of the parotid gland, is best managed with careful selection of the surgical approach based on tumor size, location, and relationship with surrounding structures.*

Figure 1. Patient's oropharynx with notable bulging (blue arrow) causing displacement.

A core biopsy identified the mass as a tumor mixtus benignus (pleomorphic adenoma) (Figures 1 and 2).

Surgical Management

Considering the tumor's size and location, a transcervical approach was selected. A transverse incision was made at the level of the hyoid bone, below the mandible. The carotid artery and internal jugular vein were identified, and the digastric and stylohyoid muscles were retracted to allow access to the PPS. Key structures, including the hypoglossal, vagus, and spinal accessory nerves, were carefully preserved. The tumor capsule was

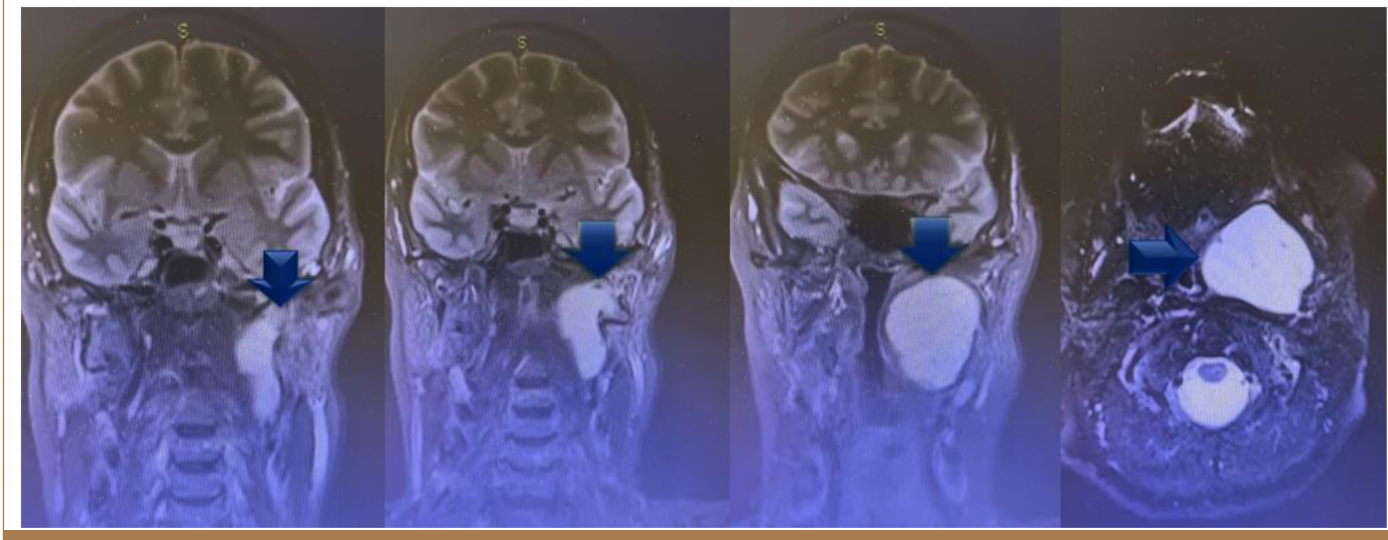

Figure 2. Patient's MRI where the tumor (blue arrows) is seen in T2 sequence with a signal as that of the cerebrospinal fluid.

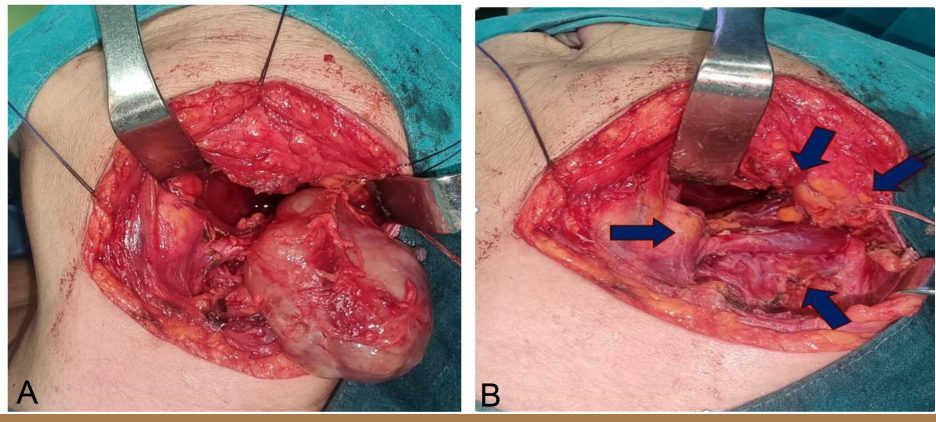

Figure 3. (A) Showing the tumor and its location before extirpation. (B) Arrow showing key surgical landmarks after tumor extirpation.

identified, and a blind dissection was performed to extirpate the tumor from surrounding structures. The surgery was completed without complications, and the tumor was successfully removed (Figures 3A and B, 4).[9,10,11] Written informed consent was obtained from the patient who agreed to take part in the study.

Discussion

The transcervical approach to PPS tumors is a well-established surgical technique, offering several distinct advantages that make it a preferred choice in many cases. This approach involves a transverse incision in the cervical region, providing valuable access to tumors located in various compartments of the PPS. It offers direct access to the inferior and lateral aspects of the PPS, allowing for the identification and careful dissection around critical neurovascular structures, including the carotid artery, internal jugular vein, and cranial nerves (such as CN IX, X, XI, and XII). This enhanced visualization is essential for minimizing the risk of injury to these vital structures during tumor removal. By avoiding direct manipulation through the parotid gland itself, the risk of inadvertent damage to the facial nerve is reduced. Moreover, it is particularly advantageous for tumors of substantial size or those with significant extension into adjacent areas, hence providing extensive exposure and making it suitable for managing large pleomorphic adenomas or other tumors involving the deep lobe of the parotid gland. It avoids the need for extensive mandibular osteotomy or large resections of adjacent structures, which can result in significant postoperative morbidity.[7,8]

The surgical removal of parapharyngeal tumors, particularly those arising from the deep lobe of the parotid gland, is best managed with careful selection of the surgical approach based on tumor size, location, and relationship with surrounding structures. The transcervical approach, as demonstrated in this case, offers a safe and effective method for the management of these complex tumors.

Figure 4. Successfully removed tumor.

Data Availability Statement: *Data regarding the case being discussed is available on request from the corresponding author.*

Informed Consent: *Written informed consent was obtained from the patient who agreed to take part in the study.*

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