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Case Report

A case report of minimal access approach to a giant parapharyngeal space tumor

Quang V. Le, Duy Q. Ngo*, Quy X. Ngo

Vietnam National Cancer Hospital, 30 Cau Buou Street, Thanh Tri District, Hanoi, Vietnam

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ABSTRACT

Tumors of the parapharyngeal space (PPS) are rare, accounting for less than 1% of all head and neck neoplasms, of which 70–80% are benign and 20–30% are malignant. The main treatment for this condition is surgical excision of the mass via a transcervical or transparotid-transcervical approach, or via a mandibilotomy in the case of large extensive tumors.

We report the case of a 57-year-old male with a very large PPS tumor, 102 × 85 × 80 mm in size, and with a 14-month history of breathing difficulty and dysphagia. The clinical manifestations included a mass in the oropharynx, a neck mass and Eustachian tube obstruction. Endoscopy showed a bulging, in the left parapharyngeal space, extending into the oropharynx, and causing a noticeable obstruction of the respiratory tract. The patient was operated on with a minimal invasive transcervical approach, and not via mandibulotomy, which was a challenging technique. This approach allowed us to avoid the complications and significant side effects such as infection, temporomandibular joint dysfunction, non-union of tissues, plate extrusion, and tooth loss that is often associated to mandibulotomy. Histological examination revealed a pleomorphic adenoma from a deep lobe of the parotid.

In conclusion, surgery is the mainstay of treatment for tumors of the parapharyngeal space. Here, we describe the removal of a large parapharyngeal pleomorphic adenoma transcervically with a minimally invasive approach without mandibulotomy.

The following case report has been reported in line with the SCARE criteria [1].

1. Introduction

Tumors of the parapharyngeal space (PPS), which is a space extending from skull base to the great cornu of hyoid bone, accounts for less than 1% of all head and neck neoplasms. Approximately 20–30% of these tumors have been reported as malignant, while the remaining often tend to be benign [2,3]. Most PPS tumors originate from salivary glands or neurogenic tissues, however, they have often been reported with variety of phenotypes including metastatic forms, as well as lymphoreticular or miscellaneous lesions and masses [2,4].

PPS tumors develop in deep layers of the neck leading to difficulties in diagnosis and surgical treatment. Their symptoms and clinical manifestations are diverse and relate to the prestyloid and poststyloid compartments. On physical examination, PPS tumors have been primarily detected as neck or oropharyngeal masses, and patients claim to have no symptoms [2,3]. However, a massive PPS lesion may result in dysphagia, dyspnea or obstructive sleep apnea [5]. In order to relieve airway obstruction in such cases, tracheostomy is commonly recommended [5]. In addition, cranial neuropathies are reported to be another consequence of PPS enlarged lesions with symptoms of hoarseness, dysarthria, and dysphagia caused by the compression of CNs IX, X, XI, or XII [4].

Complete surgical excision is a mainstay of treatment, however, the surgical management of the tumor remains challenging due to its complicated anatomical site. The common surgical approaches are transcervical and transparotid-transcervical, with mandibulotomy for cases of massive or extensive tumors [4–6].

2. Presentation of cases

We present a case study of a 57-year-old male patient with a 14-month history of breathing difficulty and dysphagia.

The clinical manifestations included a non-tender mass palpated in oropharynx and neck at the same time, as well as obstruction to the Eustachian tube. The patient had no further history of any medical illness recorded. Endoscopic finding showed

* Corresponding author.
E-mail addresses: lequang@hmu.edu.vn (Q.V. Le), duyyhn@gmail.com (D.Q. Ngo), ngoxuanquy1979@gmail.com (Q.X. Ngo).

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a tumor in the left parapharyngeal area, expanding to the oropharynx and causing an apparent obstruction of the airway. A magnetic resonance imaging of the neck and oral cavity revealed a giant tumor on PPS which was located on prestyloid space (Fig. 1).

The patient was operated by a transcervical approach which allowed direct access to the PPS. At the level of the hyoid bone and two fingerbreadths below the mandible, a transverse incision was performed. Post incision, the carotid artery and internal jugular vein were identified, after which the entrance to the mass was exposed by retracting the digastric and stylohoid muscles, as well as submandibular gland, and the tumor was successfully resected, without the need for mandibulotomy or tracheostomy (Fig. 2).

Histological examination further revealed a pleomorphic adenoma from a deep lobe of the parotid (Fig. 3). The patient was discharged on the seventh day post the operation, and recovery was seen without any complications.

The recovery was uneventful without any complication (Fig. 4).

3. Discussion

The parapharyngeal space, one of the most anatomically complex compartments of the head and neck, is a potential space imagined as an inverted pyramid with its base consisting of the skull base and its apex inferiorly pointing to the greater cornu of the hyoid bone. This area is separated into two subdivisions, the prestyloid and poststyloid compartment, by a tensor veli palatini muscle. The prestyloid compartment contains the deep lobe of the parotid as well as minor structures, including lymph nodes, the internal maxillary artery and small nerves. The posteromedical or poststyloid space consists of the more significant structures such as the cranial nerves (CN IX, X, XI, XII), the carotid artery, the jugular vein and the cervical sympathetic chain [2–4].

Tumors of the parapharyngeal space (PPS) are uncommon, accounting for less than 1% of all head and neck neoplasm, of which

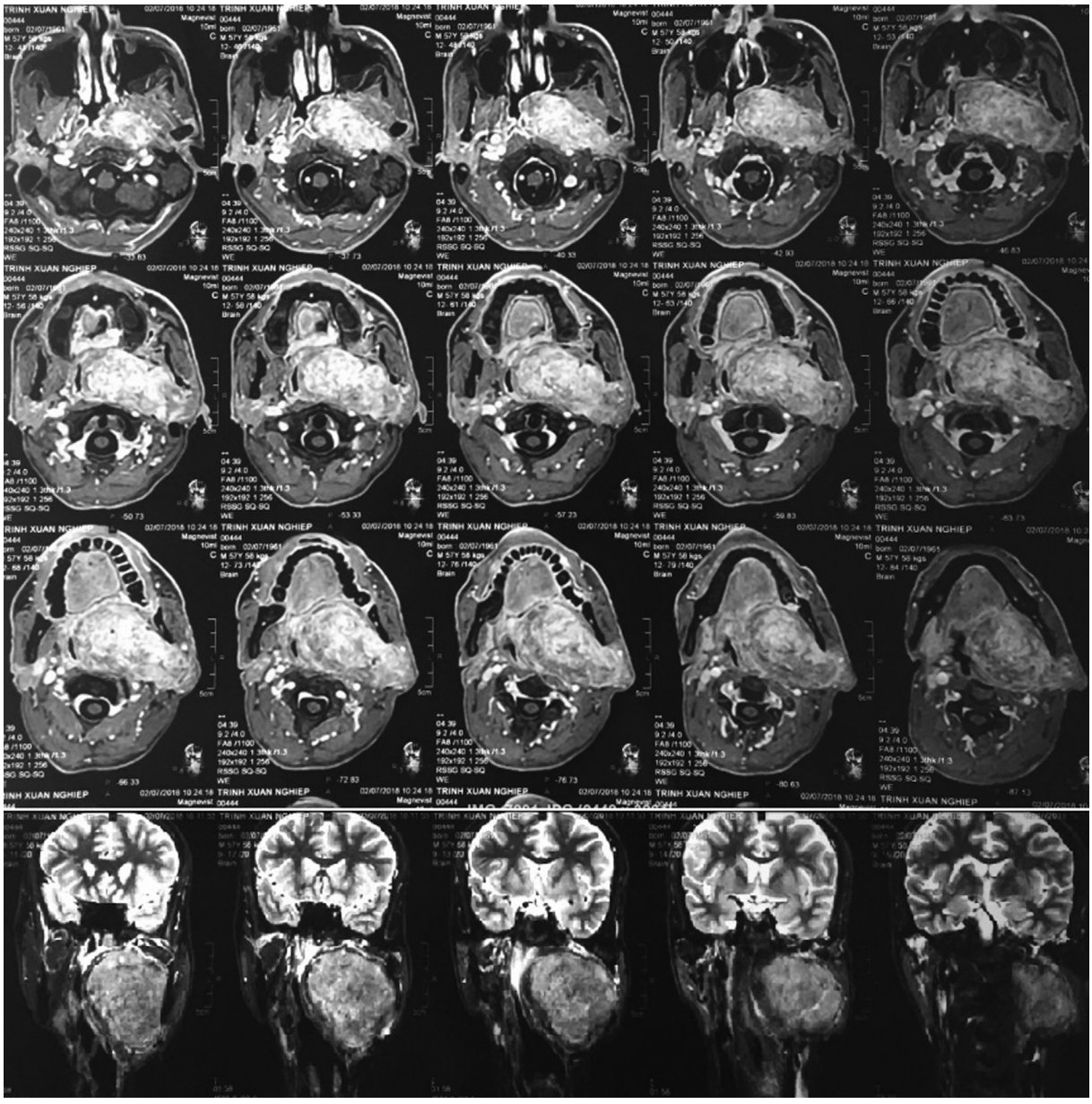

Fig. 1. The MRI of the neck and oral cavity.