Largest *De Novo* Parapharyngeal Pleomorphic Adenoma: A Rare Case Removed Via Minimal Access Approach

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Abstract

Parapharyngeal tumors are relatively rare tumors of head and neck. In general, pleomorphic adenoma is one of the most common benign tumor of the parapharyngeal region. Various approaches have been described in the literature for removal of parapharyngeal tumor with mandibulotomy generally carried out for large tumors. Here, we describe removal of a large parapharyngeal pleomorphic adenoma transcervically without mandibulotomy which subsequently turned out to be one of the largest ever reported in the literature and describe how large tumors of parapharyngeal can be removed with minimal invasive approach with mandibulotomy kept as a backup thereby avoiding complications associated with mandibulotomy.

Keywords: Mandibulotomy, parapharyngeal, pleomorphic adenoma

Introduction

Parapharyngeal tumors of the head and neck space account for 0.2% of the head and neck neoplasms, of these 70%–80% are benign and 20%–30% are malignant.[1]

Parapharyngeal space tumors generally keep on enlarging through the distensible inferior and medial boundaries of the space without any visible external neck swelling thereby leading to delay in diagnosis, which can allow the tumors to become very large and cause obstructive and compressive symptoms in an anatomically difficult area. Here, with this case report, we describe the largest parapharyngeal *de novo* pleomorphic adenoma ever removed in toto without a mandibulotomy approach. In our experience, the pleomorphic adenomas being well-circumscribed lesions, removal of such tumors without performing mandibulotomy could be a better option thereby avoiding complications associated with mandibulotomy with a backup of a more invasive approach if needed.

Case Report

A 25-year-old male presented to ENT outpatient department with chief complaints of swelling on the left side of the neck for 6 months, snoring since for 5 months and nasal twang in voice for 4 months, and breathlessness which was exacerbated for 10 days [Figure 1].

To our surprise, on examination of oral cavity, a huge bulge was seen arising from the left pharyngeal wall pushing the tonsillar fossa and uvula medially, completely obscuring the posterior pharyngeal wall making indirect laryngoscopy impossible. The swelling on the neck was 12 cm × 10 cm in size, extending from ramus of mandible superiorly, till level of thyroid cartilage inferiorly, till anterior border of trapezius posteriorly, and till anterior belly of digastric anteriorly. The swelling was firm, nontender, mobile in horizontal direction, and skin was free leading to a provisional diagnosis of a benign lesion.

For tissue diagnosis, multiple site fine needle aspiration cytology was done which showed the mass cytology to be consistent with pleomorphic adenoma. Contrast-enhanced computed tomography (CT) oral cavity and neck were done

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for surgical planning purpose, especially regarding the route of access. The computerized tomography showed the monstrous mass extending superiorly till skull base, inferiorly till hyoid, medially swelling was crossing midline. The mass was also seen to abut and obscure great vessels on the left side [Figure 2]. The mass on CT scan was huge as compared to the external visible swelling. Due to this abutment, a CT angiography was done to rule out vessel involvement, which showed only narrowing of the vessels but no sheath involvement further confirming the benign and nonvascular nature of the lesion.

The decision was taken to remove the mass under general anesthesia through transcervical route with paramedian mandibulotomy as a backup. Preoperative investigations included routine blood work, chest X-ray, and orthopantomogram for dentition.

Under general anesthesia, a horizontal skin crease incision was given and plane deepened till capsule of tumor and extracapsular dissection was done to fully delineate the tumor and made free from all attachments. After delineating, the tumor from all around, the superior limit of the tumor was initially dissected bluntly and after gaining some space by retraction of the tumor, endoscope was introduced, and careful dissection was done from skull base. The endoscope was also further used to look for any residual mass if any remaining after the removal of tumor. The final specimen size when measured was 13 cm × 15 cm × 8 cm and the tumor weighed in at 420 g [Figures 3 and 4] making it the largest pleomorphic adenoma ever removed in toto in the literature and ensues a debate regarding minimal invasive approach with paramedian mandibulotomy as a backup for such tumors. The huge cavity remaining after removal of the tumor was closed in two layers. [Figure 5]. The patient remains on follow up and has no residual lesion or feeding difficulties yet [Figure 6]. The histopathological examination of the specimen confirmed it to be pleomorphic adenoma [Figure 7].

Discussion

The parapharyngeal space (PPS) is described as an inverted pyramid-like space whose base is at the skull base and apex at the greater cornu of the hyoid bone.[2] This complex space is anatomically surrounded by numerous structures[3] and divided by the styloid process into the pre- and post-styloid spaces.[4] The rationale behind this subdivision is that the different structures occupying these subspaces can be the source of various tumors with an anatomic space of origin suggestive of their nature.[5]

Large PPS tumors have been previously reported in literature, but these tumors often originate from the deep lobe of the parotid gland, which extends into the PPS through the stylomandibular tunnel. It is rare to diagnose *de novo* pleomorphic adenoma in the PPS,[6] and it has been previously suggested that this may be secondary to displaced or aberrant salivary gland tissue.

The treatment of these tumors is the most challenging part to the head and neck surgeon because of the difficult location of

Figure 1: External swelling of the patient

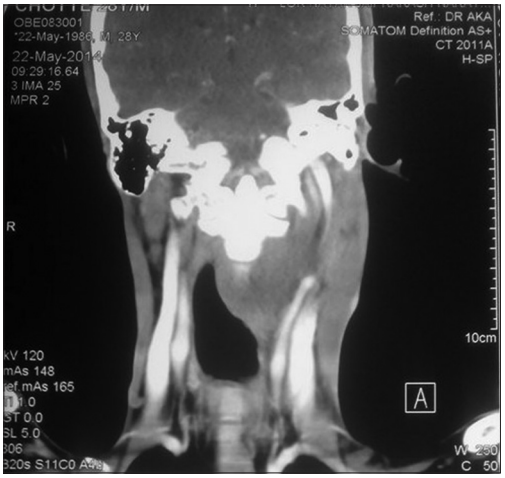

Figure 2: Coronal computed tomography scan showing the extent of the tumor

Figure 3: The mass removed in toto

the tumor with very important structures nearby such as large vessels of the neck, sympathetic chain, lymph nodes, and lower cranial nerves.[7] It is also mentioned that any of these vital structures can be involved with major or minor trauma resulting in undesired consequences.[7] Another challenge faced with large tumors of this region is of securing the airway, with tracheostomy being the most preferred method which was also followed in this case. Often large tumors of PPS having an oral bulge as in our case exclude normal or fiber-optic intubation as there is no space for the endotracheal tube to be passed orally.

Figure 4: The postoperative specimen weighing 0.42 kg

Figure 5: Cavity seen after removal of tumor

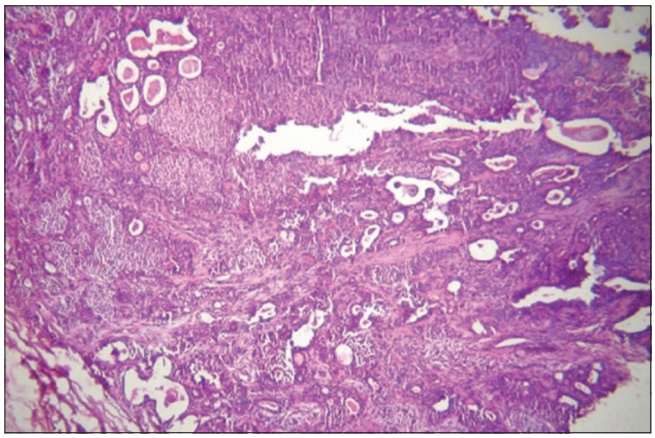

Figure 6: Histopathological image showing mixture of epithelial and mesenchymal components typical of pleomorphic adenoma

Figure 7: Post operative picture of the patient after six months follow up

Various surgical approaches have been described for parapharyngeal tumors such as transcervical, transparotid, transoral, and combinations of above. For more extensive tumors, a mandibulotomy approach has been described which provides adequate access to the PPS and its contents.[8] However, the more extensive the incision and manipulation, the more the consequences. The complications associated with mandibulotomy include malunion or nonunion of the mandible, facial asymmetry, and masticatory difficulty. Mandibulotomy if avoided surpasses all such complications and benign tumors of parapharyngeal region which are being approached transcervically should always be attempted with minimally invasive approach of avoiding mandibulotomy, as benign tumors in this region are generally well encapsulated and with mandibulotomy being kept as a backup can always be resorted to whenever required. A transcervical incision though cosmetically acceptable should only be advocated if the surgeon is well conversant with anatomy and comfortable with using accessory visualization techniques such as the endoscope and if the tumor is benign in nature and not involving the great vessels.

The *de novo* pleomorphic adenoma in the PPS we report is largest in dimensions and weight, removed completely without mandibulotomy than previously reported. Thus, we would like to reiterate that even large tumors of the PPS, if histologically benign, and not involving the great vessels, can be approached with relative ease using a minimal invasive approach, thus avoiding the complications and often significant morbidity associated with a mandibulotomy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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