

Endoscope-assisted transoral approach to parapharyngeal space tumor

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Introduction: Parapharyngeal space tumors are 0.5% of Head and neck tumors. For which the surgical approaches differ widely. The comparison of endoscope-assisted transoral approach with the traditional approaches is required.

Objective: To present an endoscopic, transoral approach to a benign prestyloid PPS tumor

Study design: Case report and review of the literature.

Patient: A 35 year old female came for an evaluation of right tonsillar fossa swelling of 1 year duration. The CT was showing mixed density nodular lesion occupying in right parapharyngeal space.

Surgical intervention: Endoscope-assisted transoral approach to removal of PPS tumor.

Results: The patient was discharged to home on postoperative Day 1 in stable condition. There have been no complications with 8 months of follow-up.

Conclusion: Endoscopic assisted transoral approach should be one of the primary surgical options for benign tumor not involving the critical structures in PPS.

Keywords: Parapharyngeal space tumors; endoscope; transoral approach

Introduction

Parapharyngeal space tumors are extremely rare and it is about 0.5% of Head and neck tumor¹. Surgery is often challenging due to limited surgical exposure and morbidity associated with them. There are various ways to reach the parapharyngeal space masses; transoral and external approaches (i.e. transcervical, Transparotid, transmandibular and combined approach). The choice of surgical approach depends on its location i.e. prestyloid or post styloid, on the size of the tumor, vascularity of tumor, its relationship to the great vessels, and suspicion of malignancy^{2,3}. First time transoral approach was described by Ehrlich in 1950 and it was indicated for small, non vascular tumors, as it offers poor exposition and does not give adequate control in the event of haemorrhage⁴. But with advent of endoscope assistance to this transoral approach, has provides direct and magnified visualization, less amount of bleeding, reduced tissue damage, improved cosmetic appearance, and fewer wound-related complications and less post op morbidity.

Case Report

A 35 year old female was referred for an evaluation of right tonsillar fossa swelling of 1 year duration with more noticeable increased in last 2 months. The CT was ordered and showing mixed density nodular lesion occupying in right parapharyngeal space. The patient denied symptoms such as shortness of breath, apnea, dysphasia, and voice changes or globus sensation. No symptoms or signs were suggestive of nerve involvement such as paresis, facial twitching, ear pain and odynophagia. On examination, there was fullness in right peritonsillar fossa, leading to protrusion of adjacent,

tonsil, soft palate, and uvula because of mass effect. There was no pain or tenderness on palpation or by movement of neck. Hematological and biochemical investigations were all within the normal limits. CT scan showed an encapsulated, well marginated, smooth-bordered, mixed density mass in the right parapharyngeal space, and there was no involvement of any vascular or nervous structures. The tumor was 4.0 x 4.0 x 5.0cm and situated in the parapharyngeal space posterior to pterygoid plates and anterior to styloid process. (Fig 1 CT scan parapharyngeal coronal axial and sagittal view) **Surgical technique-** After proper exposure of the oral cavity by using a Boyle-Davis gag, a transoral pharyngotomy was performed by linear-vertical incision through the overlying mucosa, buccopharyngeal fascia and pharyngeal muscle. Dissection had been carried out down to the level of the tumor. It was performed with assistance of 0 and 30 rigid endoscopes. A combination of sharp and blunt dissection was used to expose and completely free the tumor from surrounding structures. Blunt dissection was done on capsule (endoscope assisted) and care has taken not to rupture it. There was no damage to surrounding nervous structures or vasculature. The tumor was dissected en bloc under direct endoscopic visualization and separated from the pedicle. After ensuring there was no residual tumor, the pharyngotomy was repaired in layers. The patient was discharged home on the next day of surgery with total blood loss less than 20 ml. The gross specimen was 6x4x5 cm³ in dimensions and has characteristics of well-demarcated, encapsulated, and uniformly soft with smooth edges. (Fig 2 specimen in two dimension) And confirmed on histopath as pleomorphic

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adenoma. The patient got free from the initial complaints. The follow-up examinations did not reveal any signs of complication or recurrence in 9 month of follow up and still we are following up the patient.

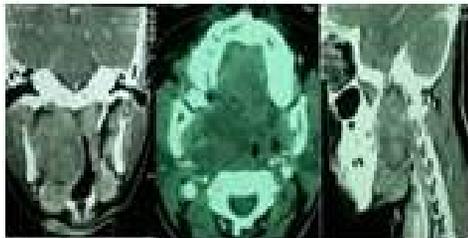


Fig 1 CT scan parapharyngeal coronal axial and sagittal view

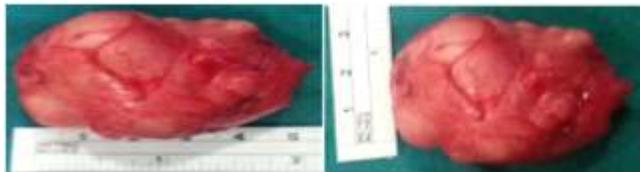


Fig 2 specimen in two dimension

Discussion

Because of complex anatomy and pathology, the appropriate surgical management differs widely. The different surgical approaches to the parapharyngeal space are External approaches and transoral. Each approach has its advantages and pitfalls. Because of its location deep within the neck, the space is difficult to examine by ordinary methods, but can be well demonstrated in the axial section by computed tomography and MRI. ,based on that the approach can be decided. Transoral approach was first described by Ehrlich in 1950 and it was indicated for small, non vascular tumors^{4,5}. In 1963, McElroth et al describe the use of this approach in a study of 112 patients along with ligation of external carotid artery⁶. In 1988 Goodwin and Chandler advocated this approach to give adequate access to the pps. In their study of six cases, there were no surgical complications and blood loss was minor⁷. This approach is essentially the same as a as an extended tonsillectomy. Using an endoscope 0° and angled, provided excellent visualization of areas beyond line of sight and enabled confirmation of adequate hemostasis and complete resection prior to closure, which may potentially decrease the recurrence rate. The improved visualization provided by the endoscope allowed us to take advantage of the low morbidity. Biggest disadvantage is that the neck is not open and the vessels not exposed in the event of injury to the major vessels. Hence this approach requires appropriate patient selection. We believe that the transoral approach is not advised for malignancies, for tumors invading the bony skull base or invading intracranially, for vascular tumors, or for tumors surrounding the facial nerve (such as a dumbbell tumor). In these cases, an open approach may be better suited. In cases that do not require extensive access, however, the transoral approach can offer the least amount of trauma, minimal post-op morbidities and immediate return of function². Hence, lessen the relative scar burden, spare the

patient the risks of facial nerve dissection, and preserving the greater auricular nerve, which could get damaged in traditional transcervical and trans parotid approach. Every case of parapharyngeal tumor should require distinct approach, careful evaluation of risk and benefit ratio of individual case. When there is suspicion of malignancy, involvement of neurovascular structures or reasonably large tumor, then external approach for removal of complete tumor is necessity. As for large tumor that extend into the skull base may require a transcervical transmandibular approach⁸. But when tumor is benign, small, and no complicating factors trans oral endoscopic assisted approach would be more appropriate.

Conclusion- Traditionally surgeons were considering, transoral rout to the parapharyngeal space as poor and unsafe. But with advent of video-assisted endoscope assistance, transoral rout, has provides direct and magnified visualization. This is allowing excision of sizable benign tumors near to critical anatomical structures. Endoscopic assisted transoral approach should be one of the primary surgical options for benign tumor not involving the critical structures.

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