Unusual Parapharyngeal Lipoma

Pooja Pal · Bikramjit Singh · Arvinder Singh Sood

Received: 29 October 2014 / Accepted: 8 November 2014 / Published online: 13 November 2014
© Association of Otolaryngologists of India 2014

Abstract Lipomas of the parapharyngeal space (PPS) are extremely rare. CT scan and MRI are indispensable tools to investigate these hard to access tumors. PPS lipomas are confined to either the prestyloid or post styloid compartments. We report an unusual parapharyngeal lipoma involving both the compartments of the PPS.

Keywords Lipoma · Parapharyngeal space · Transcervical approach

Introduction

Parapharyngeal space (PPS) tumors account for less than 1 % of all head and neck tumors, salivary gland tumors forming the majority, followed by tumors of neurogenic origin [1].

Although lipomas are the commonest benign mesenchymal tumors of the head and neck, they are rarely encountered in the PPS [2].

Most lesions of the PPS are approached transcervically, while larger lesions are accessed via a combined

transcervical-transmandibular or infratemporal fossa approach. Lipomas of the PPS reported in literature are described as confined to either the prestyloid or poststyloid compartments. We describe an unusual lipoma involving both the compartments of the PPS.

Case Report

A 40 year-old female presented in our OPD with complaints of foreign body sensation in the right side of throat since 4 months, change in voice since one month and difficulty in swallowing solids since 1 week.

On intra-oral evaluation, a 7×5 cm smooth, soft, spherical bulge was noted over the right lateral wall of the oropharynx, displacing the tonsil medially and reaching the nasopharynx superiorly (Fig. 1). Indirect laryngoscopy showed the lesion reaching up to vallecula.

The CT scan revealed a well-defined homogenous mass with low fat attenuation density and few thin septae within the lesion. The mass involved the entire PPS, superiorly from the base skull to the tip of epiglottis inferiorly, extending into the carotid space laterally (Fig. 2). A provisional diagnosis of lipoma was made, differentiating it from a liposarcoma based on well-maintained planes with adjacent structures.

The patient underwent excision of the lesion by a transcervical approach under general anesthesia. A horizontal incision was made in the neck crease 2 fingerbreadth below the mandible. A level II dissection was done to expose the carotid sheath contents and delineate the hypoglossal nerve (Fig. 3). The facial vessels were ligated and submandibular gland mobilized anteriorly. The stylohyoid muscle and posterior belly of the digastric were divided to facilitate exposure superiorly till the skull base. The lesion was

P. Pal (✉) · A. S. Sood
Department of Otolaryngology and Head Neck Surgery, Sri Guru Ram Das Institute of Medical Sciences and Research, 25, Guru Nanak Avenue, Phase II, Majitha Road, Vallah, Amritsar 143001, Punjab, India
e-mail: drpoojapal@gmail.com

A. S. Sood
e-mail: drarvindsinghsood@gmail.com

B. Singh
Department of Surgical Oncology, Government Medical College, Amritsar 143001, Punjab, India
e-mail: drsinghbj@gmail.com

dissected from adjacent tissues by a combination of blunt and sharp dissection, retracting the carotid vessels anterolaterally and hypoglossal nerve superiorly. Histopathological evaluation showed mature adipocytes interspersed with fibrous tissue, confirming the diagnosis of Lipoma (Fig. 4).

Post-operatively, the patient exhibited slight deviation of the angle of the mouth to the opposite side and tongue to the same side, presumably due to traction applied on the marginal mandibular and hypoglossal nerves during dissection. This however improved over time, and 9 months postoperatively the patient remains symptom-free with complete recovery of neuromuscular function.

Discussion

PPS tumors account for 0.5–0.8 % of head and neck tumors. The PPS is anatomically like an inverted pyramid

Fig. 1 Showing right parapharyngeal space lesion producing a smooth bulge in the lateral wall of oropharynx

Fig. 2 Sagittal section of CT scan showing a homogenous low-attenuation mass extending from the skull base superiorly to the tip of epiglottis inferiorly

Fig. 3 Intraoperative photograph showing the lipoma (black arrow) posterior to the carotid sheath extending up to the carotid bifurcation inferiorly (white arrow)

Fig. 4 Histopathology showing sheets of mature adipocytes, confirming the diagnosis of a lipoma (magnification $\times 10$)

with the skull base as base and apex at greater cornu of hyoid [3]. The styloid process divides it into an anterior prestyloid compartment and posterior poststyloid compartment. The prestyloid compartment is a potential space, which may contain salivary tissue from either the deep lobe of parotid or accessory salivary tissue, and lymph nodes [4]. The poststyloid or neurovascular compartment contains the internal carotid artery, internal jugular vein, IX, X and XI cranial nerves, and cervical sympathetic chain.

Nearly 13 % of lipomatous tumors occur in the head and neck making them the most common benign mesenchymal tumors [5]. In the PPS, however, they account for just 1–2 %, and are usually restricted to either the prestyloid or poststyloid compartment [2].

Initially asymptomatic, PPS lipomas produce a bulge in the lateral oropharyngeal wall resulting in medial prolapse of the ipsilateral tonsil once they reach a size of 3.0 cm, since the PPS is limited by unyielding bony structures, while tumors are free to expand medially [5]. Other features include swelling below the angle of the mandible,

Table 1 Summary of various approaches to the parapharyngeal space

Sr. no.	Approach	Advantages	Disadvantages	Use
1	Transoral	Direct approach to the tumor in oropharynx	No control on neurovascular structures	Small prestyloid tumors
2	Transparotid	Good exposure of facial nerve	No control on neurovascular structures	Prestyloid tumors specially arising from deep lobe of parotid
3	Transcervical	Excellent exposure of PPS till skull base Good control of neurovascular structures Can be combined with other approaches for increased exposure	Decreased view of PPS posteriorly, superiorly and medially in large tumors	PPS tumors up to 8 cm in size
4	Transcervical transmandibular	All advantages of transcervical approach, with enhanced exposure in larger tumors	Facial incision with lip split Morbidity associated with mandibulo-tomy	Tumors larger than 8 cm
5	Preauricular infratemporal	Excellent exposure of lateral skull base	Facial paralysis Conductive hearing loss	Jugular foramen lesions

dysphagia due to mass effect, respiratory distress and obstructive sleep apnea [2]. Eustachian tube obstruction may result in serous otitis media and conductive hearing loss. Compression of lower cranial nerves resulting in hoarseness, tongue deviation, and Horner's syndrome, and trismus due to infiltration of medial pterygoid are features of malignant disease.

The evaluation of these tumors poses a significant challenge. Fine needle aspiration cytology (FNAC) of these deep seated difficult to assess lesions is tough and often inconclusive [2]. However, imaging modalities such as CT and MRI are often diagnostic.

Lipomas appear as typically homogenous, non-enhancing low-density areas on CT scan. MRI scan with gadolinium injection is the imaging of choice due to its multiplanar capability and superior soft tissue delineation. Lipomas exhibit high signal intensity on T1 weighted sequences and T2 weighted fast spin echo sequences with internal septations and sharp margins [2]. In addition, fat suppression T1 weighted sequences obtained provides better contrast with the surrounding soft tissue.

The surgical approach depends on size, vascularity, and the compartment of the PPS involved. The transcervical approach, with retraction or removal of the submandibular gland, is the most popular approach to the PPS suitable for tumors as large as 8 cm [3]. Larger lesions are generally approached via a combined transcervical-transmandibular approach for exposure of skull base and lower cranial nerves, or an infratemporal fossa approach to access the lateral skull base. However, as can be seen in the present case, the transcervical approach permits excellent exposure of the PPS up to the skull base, and any morbidity experienced is usually temporary. A summary of various approaches is given in Table 1.

Conclusion

Parapharyngeal space lipomas are very rare lesions often missed in early stages due to lack of specific symptoms. CT scan and MRI forms the mainstay of diagnosis and evaluation for further surgical treatment. The present case, to our knowledge, is the only report available in literature describing a lipoma involving both the prestyloid and poststyloid compartments of the PPS. The transcervical approach is a valuable approach to these tumors providing excellent exposure of the neurovascular structures up to the skull base.

Acknowledgments The authors would like to state that the manuscript has been read and approved by all the authors, that the requirements for authorship as stated earlier in this document have been met, and that each author believes that the manuscript represents honest work.

Conflict of interest The authors have no conflict of interest to disclose.

References

1. Carrau RL, Myers EN, Johnson JT (1997) Management of tumors of the parapharyngeal space. *Oncology* 11:633–640
2. Ulku CH, Uyar Y (2004) Parapharyngeal lipoma extending to skull base: a case report and review of the literature. *Skull Base* 12:121–125
3. Smith JC, Snyderman CH, Kassam AB (2002) Giant parapharyngeal space lipoma: case report and surgical approach. *Skull Base* 12:215–220
4. Singh PP, Sharma A, Gupta N (2004) Parapharyngeal space lipoma. *Ind J Otolaryngol Head Neck Surg* 56:152–154
5. Abdullah BJJ, Liam CK, Kaur H, Mathew KM (1997) Parapharyngeal space lipoma causing sleep apnea. *Br J Radiol* 70:1063–1065