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Parapharyngeal lipoma

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Abstract
Lipomas of the parapharyngeal space provide both a diagnostic and therapeutic challenge. They are extremely rare with only a few cases having been reported. We present the case of a right parapharyngeal space lipoma in a 69-year-old man that was excised via a transcervical approach.

Key words: Neck; Pharynx; Lipoma

Introduction

Neoplasms arising in the parapharyngeal space constitute 0.5 per cent of all head and neck tumours. The majority of these are benign (70 per cent) and 45 per cent are of salivary gland origin (Batsakis and Sneige, 1989). Lipomas involving this space are extremely rare, with single cases usually reported (Kennedy *et al.*, 1990; Higashi *et al.*, 1992; Elango and Bharu, 1995; Abdullah *et al.*, 1997), Liposarcoma, the main differential diagnosis, is also rare (Prince *et al.*, 1997). We present the case of a 65-year-old man with a large parapharyngeal lipoma, and discuss the possible presenting features, the investigate procedures and treatment options available.

Case report

A 69-year-old man presented to the department with a seven-month history of a painless mass in the right parotid region. He was convalescent from his third myocardial infarction two months previously, and was dyspnoeic even on mild exertion. He reported no dysphagia nor history suggestive of upper airway problems. On examination there was a soft fullness in the parotid gland and neck. Cranial nerve function remained intact. The working diagnosis was of fatty infiltration of the parotid gland.

A fine needle aspiration was performed and a computed tomography (CT) scan arranged. The aspirate revealed scanty material with mature adipose tissue only and no salivary gland tissue. The CT scan showed a low density mass in the right parapharyngeal space extending from the skull base to the level of the true vocal folds and extending into the parotid gland with few septae. No evidence of lymphadenopathy was seen (Figure 1). The radiologist reported the lesion to be a parapharyngeal lipoma.

As he was unfit for major surgery due to his unstable cardiac status, he was kept under close review. One year later he underwent a double vessel coronary artery bypass graft. He was anticoagulated with warfarin post-operatively, and made an excellent recovery with his exercise tolerance being restored to almost normal.

On review in October 1997, 17 months after his initial presentation, the mass appeared to have grown in size. After his level of anticoagulation was temporarily reduced, he underwent excision of the lesion via a transcervical approach. A large fatty tumour was encountered extending into the neck, anteriorly to the submandibular gland, inferiorly to the level of the thyroid cartilage, deep to the parotid gland, superiorly to the base of the skull and into the parapharyngeal space. The mass was excised by a combination of blunt and sharp dissection from the parotid gland, the major vessels, and the posterior belly of the digastric to the skull base. It was then enucleated from the parapharyngeal space. The facial nerve was not encountered. The patient made an uneventful post-operative recovery.

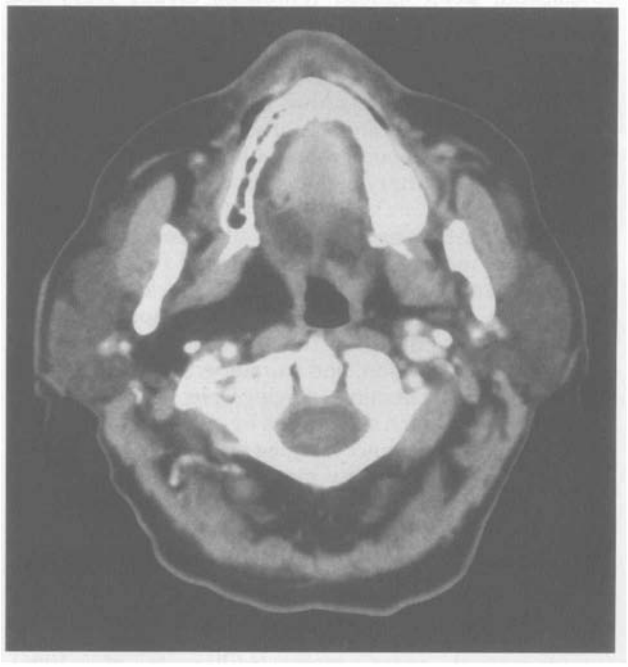

Fig. 1
An axial contrast CT scan at the level of the tonsillar pillar. It shows a low attenuation mass occupying the right parapharyngeal space displacing the deep lobe of the parotid gland laterally.

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Histological examination

Grossly, the specimen consisted of a piece of adipose tissue with an irregular, lobulated, yellow appearance measuring 16 × 4.5 × 1.5 cm. Microscopically, the lesion consisted of a portion of parotid salivary gland, two small reactive lymph nodes and mature adipose tissue consistent with a lipoma. No inflammation, granulomata or malignancy were seen.

Discussion

The parapharyngeal space is funnel-shaped and extends downwards from the base of the skull to its apex at the greater cornu of the hyoid bone. It is bounded medially by the buccal fascia overlying the superior constrictor, posteriorly by the prevertebral fascia and laterally by the parotid gland and medial pterygoid (Batsakis and Sneige, 1989).

Neoplasms arising in this space are rare, constituting 0.5 per cent of all head and neck tumours, and lipomas make up only one to two per cent of this group in reported series Maran *et al.* (1984) one out of 73, Miller *et al.* (1996) one out of 51, Pensak *et al.* (1994) two out of 123 and Som *et al.* (1984) two out of 104.

A lipoma is a tumour composed of mature fat and represents by far the most common mesenchymal neoplasm. They may be single or multiple and may occur as a superficial or deep-seated tumour (Enzinger and Weiss, 1995). Thirteen per cent of lipomas arise in the head and neck and of these, most occur subcutaneously and posteriorly in the nape of the neck (Kennedy *et al.*, 1990; Abdullah *et al.*, 1997).

These lesions typically present as painless asymptomatic masses and only after having attained a size of 3 cm can they be clinically detected as a bulge of the lateral pharyngeal wall. Symptoms reported include airway obstruction, sleep apnoea (Abdullah *et al.*, 1997) and dysphagia (Kennedy *et al.*, 1990) as well as pressure effects on adjacent structures. These can include extension into the nasopharynx causing Eustachian tube orifice obstruction which may result in serous otitis media (Elango and Bharu, 1995). A tumour may also compress the carotid sheath resulting in a compromised blood flow through the ipsilateral carotid artery and jugular veins (Kennedy *et al.*, 1990).

When investigating lipomas, fine-needle aspiration (FNA) may not yield cells representative of the whole of the mass and cannot, therefore, be relied upon to differentiate benign from malignant lesions. Physical examination of lesions in the parapharyngeal space is limited by their location, and so radiographical imaging is critical in their evaluation. Angiography and tomograms have now largely been superseded by modern imaging with CT or magnetic resonance imaging (MRI). CT will reveal a non-enhancing low density mass and nodules or streaks within the mass will raise the possibility of a liposarcoma, that radiologically is the main differential diagnosis (Som *et al.*, 1984).

A 75 to 90 per cent accuracy rate for CT has been reported, but most authors recommend MRI as the study of choice with an accuracy of 95 per cent in delineating a parapharyngeal space mass (Miller *et al.*, 1996). T1-weighted images demonstrate tissue/fat interfaces and most parapharyngeal space lesions may be differentiated from each other by their MRI appearances (Miller *et al.*, 1996).

Liposarcoma presents in patients over the age of 30 as a painless mass, thought to arise denovo and not from a pre-existing lipoma, and treatment is by complete surgical excision (Prince *et al.*, 1997). Although FNA and CT/MRI may be suggestive, histology is essential to differentiate from a lipoma and will vary considerably depending on the histological type (Enzinger and Weiss, 1995).

Several surgical approaches for the management of parapharyngeal masses have been described included transcervical, transcervicosubmaxillary, transmandibular, transparotid, transoral and infratemporal (Carrau *et al.*, 1990). The transcervical approach is used in the majority of tumours up to 8 cm in size, with the advantage of adequate exposure of the neurovascular structures, and reduced risk to the facial nerve as it avoids removal of the parotid gland (Som *et al.*, 1981; Kennedy *et al.*, 1990; Miller *et al.*, 1996). Its disadvantage is the limited exposure medially, superiorly and posteriorly in larger tumours (Som *et al.*, 1981).

As we were unsure as to the nature of any parotid involvement, a transcervical approach seemed favourable in our patient as this gave us the option to extend this to a formal parotid exploration should this have been necessary.

Conclusion

We present a rare case of a lipoma arising in the neck and parapharyngeal space that was diagnosed pre-operatively with a reasonable level of certainty through a combination of history, examination, FNA and CT appearances. This allowed our patient's treatment to be safely and confidently deferred until his cardiac status was more suitable for surgery. A transcervical approach allowed complete excision of the lesion without compromise to facial nerve function. Caution, however, must still be exercised as only histology will finally define the mass as a benign lipoma.

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References

Abdullah, B. J. J., Liam, C. K., Kaur, H., Mathew, K. M. (1997) Parapharyngeal space lipoma causing sleep apnoea. *British Journal of Radiology* **70:** 1063–1065.

Batsakis, J. G., Sneige, N. (1989) Parapharyngeal and retropharyngeal space diseases. *Annals of Otology, Rhinology and Laryngology* **98:** 320–321.

Carrau, R. L., Meyers, E. N., Johnson, J. T. (1990) Management of tumours arising in the parapharyngeal space. *Laryngoscope* **100:** 583–589.

Elango, S., Bharu, K. (1995) Parapharyngeal space lipoma. *ENT Journal* **74:** 52–53.

Enzinger, F. M., Weiss, S. W. (1995) *Benign Lipomatous Tumours*, 3rd Edition, Mosby, St Louis, Missouri, pp 381–430.

Higashi, K., Sarashina, N., Okamoto, T., Matsuki, C., Heim, S. (1992) Supernumerary ring marker chromosome as a secondary rearrangement in a parapharyngeal lipoma with t(10;12)(q25;q15) as the primary karyotypic abnormality. *Cancer Genetics and Cytogenetics* **64:** 163–165.

Kennedy, K. S., Wotowic, P. J., James, N. (1990) Parapharyngeal fibrolipoma. *Head and Neck* **12:** 84–87.

Maran, A. G., Mackenzie, I. J., Murray, J. A. (1984) The parapharyngeal space. *Journal of Laryngology and Otology* **98(4):** 371–380.

Miller, F. R., Wanamaker, J. R., Lavertu, P. Wood, B. G. (1996) Magnetic resonance imaging and the management of parapharyngeal space tumours. *Head and Neck* **18:** 67–77.

Pensak, M. L., Gluckman, J. L., Shumrick, K. A. (1994) Parapharyngeal space tumours: An algorithm for evaluation and management. *Laryngoscope* **104:** 1170–1173.

Prince, M. E. P., Nasser, J. G., Fung, B. R., Broderick, I. (1997) Liposarcoma of the retropharyngeal space: Review of the literature. *Journal of Otolaryngology* **26:** 139–142.

Som, P. M., Biller, H. B., Lawson, W. (1981) Tumours of the parapharyngeal space preoperative evaluation, diagnosis and surgical approaches. *Laryngoscope* **90:** 3–15.
Som, P. M., Biller, H. F., Lawson, W., Sacher, M., Lanzieri, C. F. (1984) Parapharyngeal space masses: An updated protocol based upon 104 cases. *Radiology* **153:** 159–166.

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