Retro-Parapharyngeal Lipoma Causing Dysphagia: Radiological Findings And Surgical Management

E Ferri, F Ianniello, E Armato, S Cavaleri, I Shariat Razavi, A Gongolo

Abstract

Lipomas of the retro-parapharyngeal space are rare, slow-growing tumours and do not cause symptoms until they reach a large size. Computed tomography (CT) and magnetic resonance (MR) imaging are the essential investigations for the preoperative diagnosis. Surgical excision is the treatment of choice; the surgical approach is variable, depending on the size, location, vascularization and malignant potential of the lipoma.

INTRODUCTION

Lipomas are the most common benign tumours of mesenchymal origin. Only 13% of these tumours arise in the head and neck and parapharyngeal space involvement is uncommon. Usually, lipomas are encapsulated subcutaneous or submucosal lesions that occur in the posterior region of the neck. Rarely they develop in the anterior region of the neck, infratemporal fossa, in or around the oral cavity, parotid gland, tonsillar area, hypopharynx, larynx and nasopharynx (1,2,3,4,5,6,7,8,9,10). Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are the investigations of choice and help in definitive diagnosis preoperatively, although final histological confirmation is essential. Surgical excision is the treatment of choice. The surgical approach is based on the location, size, vascularization and malignant potential of the tumour (11).

A rare case of a right parapharyngeal space lipoma extended to retropharyngeal area, causing dysphagia in a 52-year-old woman is reported. The clinical and radiological findings and the surgical management are discussed.

CASE HISTORY

A 52-year-old woman presented at ENT Department of General Hospital of Dolo (Venice) with a 8-month history of progressive dysphagia and pharyngeal globus, without dyspnea. She was otherwise healthy. Physical examination of oropharynx showed a large mass, soft on palpation, covered by normal mucosa, that began behind the right tonsil and extended medially, upward to the nasopharynx and downward to the hypopharynx. There was no palpable lymphoadenopathy of the neck. There was no abnormal motility of the larynx. The remaining routine physical examination was normal. A full blood count and erythrocyte sedimentation rate were normal. Chest radiography did not show abnormalities.

A Computed Tomography (CT) scan of the head and neck (with and without intravenous contrast) showed a well defined, homogeneous, hypodense (-119 Hounsfield Units), non-enhancing mass in the right parapharyngeal space, extended to retropharyngeal area, measuring 4x3x7 cm, at C1-C4 levels, displacing muscle plane and narrowing the airway, compatible with large benign lipoma. The mass extended from the rhinopharynx and the palatal plane to the hypopharynx at the level of the arytenoid plane (fig. 1).
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Figure 1
Figure 1: Preoperative axial TC scan with intravenous contrast shows a well defined, homogeneous, hypodense (-119 Hounsfield Units), non-enhancing mass in the right parapharyngeal space, extended to retropharyngeal area, measuring 4x3x7 cm, at C1-C4 levels.

Magnetic Resonance Images (MRI) confirmed the presence of hyperintense mass on T1 and T2-weighted spin-echo images with a remarkable signal loss on the fat-suppressed image. The margins of the tumour were well sharped. The vessels of the carotid sheath were not compressed and the surrounding structures (adjacent muscles and veins) were displaced but not infiltrated (figs. 2-3-4).

Figure 2
Figure 2: Preoperative axial T2-weighted MR image shows a hyperintense, well-defined mass in the right parapharyngeal space, compatible with lipoma. The mass narrows the airway; the surrounding structures (vessels and muscles) are displaced but not infiltrated.
Figure 3
Figure 3: Preoperative axial fat-suppressed T1-weighted MR image. The high signal of the T1-weighted image is suppressed by the frequency selective “fat-suppression” sequence. This sequence confirms the diagnosis of lipoma.

Figure 4
Figure 4: Preoperative sagittal T1-weighted MR images. The mass extends from the C1 level (rhinopharyngeal plane) to the C4 level (arytenoid plane), measuring 4x3x7 cm.

The patient underwent surgical excision of the retro-parapharyngeal lipoma through a combined transoral-transcervical approach (fig. 5). A transitory tracheotomy was performed. The excised specimen showed a well-encapsulated, yellow colored tumour, with a soft consistency, measuring of 4x3x7 cm (fig. 6). On cut section, it had a typically lobulated lipomatous appearance. Histopathological examination showed uniformly rounded cells with peripheral nuclei, confirming the preoperative diagnosis of lipoma.
Figure 5
Figure 5: Transcervical surgical approach: the lipomatous mass (LIP) closes with the internal jugular vein (VGI) and external carotid artery (ACE).

Figure 6
Figure 6: The surgical specimen: it is a well-encapsulated, yellow colored tumour, with a soft consistency, measuring of 4x3x7 cm.

Figure 7
Figure 7: Postoperative sagittal T1-weighted MR image shows a complete excision of the mass and demonstrates the absence of residual tumour.

DISCUSSION
The tumours of the retro-parapharyngeal space represent 0.5% of all neoplasms of the head and neck. Of these, 50% are of salivary gland origin, 30% are neurogenic tumours (schwannomas, neurilemmomas, meningiomas), and 5% are malignant lymphomas; the others are sarcomas (liposarcoma, fibrosarcoma, neurofibrosarcoma), metastasis and miscellaneous of different unusual tumours. Other causes of parapharyngeal masses include asymmetrical pterygoid venous plexus, abscess, and atypical second branchial cleft cyst. \(^{(12,13,14)}\) Lipomas of the parapharyngeal space are very rare and few cases have been described in the index literature. These tumours compose only 1 or 2% of all tumours of the parapharyngeal space in reported series \(^{(10,15,16)}\).

The clinical history of retro-parapharyngeal lipoma is that of a slow-growing mass, and deep lesions may go undiagnosed for years because patients may become habituated to their symptoms or the symptoms may be attributed to another source. Owing to the slow growth and relatively inaccessible site of these tumours, most of them are quite large by the time of presentation. In relation to the site and the size of the tumour, it may reveal itself by dysphagia, swallowing, pharyngeal globus or foreign body sensation, hoarseness, noisy respiration or dyspnea, a painless neck mass, or obstructive sleep apnea. The presence of pain, trismus or a...
neurological deficit is suggestive of malignancy (13,16). Rarely the tumour may extend into the nasopharynx causing Eustachian tube orifice obstruction, which may result in serous otitis media or glue-ear (19). Sometimes a large lipoma may also compress the carotid sheath resulting in compromised blood flow through the ipsilateral carotid artery and jugular vein (15).

Histologically, lipomas are composed of mature adipose cells separated by fibrous trabeculae and surrounded by a thin capsule of connective tissue. Terms such as fibrolipoma, hemangiolipoma and myxolipoma are used when additional histologic components are apparent. Spindle cell lipoma and fibrolipomas are morphologically similar because both have a stroma rich in collagen fibrils; they can easily be mistaken for a liposarcoma. Lipomas are benign neoplasms but, clinically, their locally invasive behavior has been associated with recurrences. They are known to recur in 5% cases. Among the lipomas, angiomatous features are seen in 5-17% of the cases and are composed of lipocytes with vascular proliferation. Liposarcomas mostly arise de novo but a few cases of malignant change in lipomas have been described (20,21). Fine-needle aspiration cytology cannot be relied upon to differentiate benign from malignant lipomatous lesions. Although CT and MRI are suggestive, histopathological examination is essential for the diagnosis (22).

CT was helpful in making the diagnosis of the lipoma without the necessity of an invasive procedure and with a 75-90% of accuracy rate. On CT scans, lipomas appear as homogeneous, hypoattenuated masses with a CT number ranging from –60 to –120 HU (Hounsfield Units) and they typically do not show contrast enhancement. In some cases, centrally enhanced areas, corresponding to lipomatous lesions with inflammatory cell infiltration, have been identified (13,22,23).

MRI is now considered the imaging modality of choice for pre-operative diagnosis and characterization of lipomatous tumours. On MR images, lipomas have a typical signal intensity. They tend to demonstrate high signal intensity on T1-weighted images that reduces with progressive T2-weighted images. This high signal is suppressed by the frequency selective fat-suppression sequence. Lipomas are generally homogeneous masses with a thin but sharp capsule, with internal trabeculae; lipomatosis are not well defined, often infiltrating and do not demonstrate internal septation. Gadolinium enhancement is not useful in the diagnosis of benign lipoma; it can detect irregular vascularization or nodule with associated soft tissue component and can aid in the diagnosis of malignancy, especially when the possibility of sarcomatous degeneration is considered. The multiplanar capability of MRI, especially in sagittal plane, can clearly show the plane of cleavage between the lipoma, muscle and vessels (11,23,24).

The treatment of choice of retro-parapharyngeal lipomas is surgical excision. Many surgical approaches have been described for the treatment of parapharyngeal lesions. The goal of parapharyngeal surgery is to obtain adequate tumor visualization to ensure complete tumor removal with preservation of the surrounding nerves and vessels and to control any haemorrhage (25). There are five surgical approaches to parapharyngeal region: the transoral, transcervical, transparotid, transcervical-transmandibular and lateral skull base approaches. The choice of surgical approach is dictated by the size of the tumor, its location, the relation of the major vessels and the malignant potential (11,26). The transoral approach offers a direct route to tumors presenting in the oropharynx but it does not provide a control of the great vessels. Small lipomas not extending to the styloid process are usually excised transorally. The poor exposure of the tumor offered by this approach cause a high rate of recurrence (27). The transcervical approach is considered the best access route to remove the large tumors of parapharyngeal space. This approach provides direct access to the parapharyngeal space, with adequate exposure of neurovascular structures and reduces the risk of nerve injury. When tumours are larger than 8 cm or extend to the skull base, or when larger exposure of the neurovascular structures is needed, the combined transcervical-transmandibular approach is useful. For this approach, a transitory tracheotomy and mandible primary repair is required (28). In our case, because of the size and location (extension to the retropharyngeal area) of the lipoma, we used a combined transoral-transcervical approach with a complete removal of the lesion, a good control of great vessels and easy dissection from surrounding tissues.

CORRESPONDENCE TO

Dr. Emanuele Ferri Otorhinolaryngology Unit - Surgical Department ULSS 13 - Hospital of Dolo Riviera XXIX Aprile, 2 30031 – DOLO (VENICE) – Italy Tel. +39-041-5133237 - Fax +39-041-5133362/396 e-mail: emaferr@libero.it
References

Author Information

Emanuele Ferri, M.D.
ENT Unit - Surgical Department, ULSS 13 - Hospital of Dolo

Ferdinando Ianniello, M.D.
ENT Unit - Surgical Department, ULSS 13 - Hospital of Dolo

Enrico Armato, M.D.
ENT Unit - Surgical Department, ULSS 13 - Hospital of Dolo

Stefano Cavaleri, M.D.
ENT Unit - Surgical Department, ULSS 13 - Hospital of Dolo

Iradj Shariat Razavi
Radiology Unit, ULSS 13 - Hospital of Dolo

Alfredo Gongolo, M.D.
Radiology Unit, ULSS 13 - Hospital of Dolo