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Case Report

Retropharyngeal lipoma as a treatable cause of severe obstructive sleep apnea in a middle-aged male

Sugandha Singh*, Pallavi Tripathi, Gaurav Khatri, Kumud K. Handa, Aru C. Handa

Department of Otorhinolaryngology and Head and Neck Surgery, Medanta- the Medicity, Gurugram, Haryana, India

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***Correspondence:**
Dr. Sugandha Singh,
E-mail: drsugandhasingh23@gmail.com

ABSTRACT

Authors present the rare case of a 38-year-old male with severe obstructive sleep apnea (OSA) caused by a large retropharyngeal lipoma. The patient, previously reliant on continuous positive airway pressure (CPAP) therapy for over eight years, presented with persistent snoring, daytime fatigue and a posterior pharyngeal bulge on clinical examination. Imaging confirmed a retropharyngeal lipoma compressing the airway, extending from the clivus to C6 vertebra. A combined transoral and transcervical surgical excision was performed, achieving complete tumor removal and resolution of OSA symptoms. Postoperative recovery was uneventful, with no recurrence or further need for CPAP. This case underscores the importance of thorough evaluation and imaging in patients with unexplained OSA to identify rare causes such as deep neck space lipomas. Surgical excision remains the definitive treatment, offering excellent outcomes and significantly improving quality of life.

Keywords: Head and neck tumours, Lipoma, Otorhinolaryngology, Obstructive sleep apnea, Retropharyngeal lipoma, sleep disorders

INTRODUCTION

Lipomas are the most common benign mesenchymal neoplasms, arising from the adipose tissue, with about 13% occurring in the head and neck region primarily in the posterior neck.[1] Lipomas occurring in the deep neck spaces are extremely rare and only few cases have been reported in literature till date.

Retropharyngeal lipomas often present diagnostic challenges due to their deep anatomical location and the potential for asymptomatic presentation until they reach a considerable size and cause dysphagia, dyspnea and obstructive sleep apnea (OSA) syndrome as they enlarge and exert pressure on adjacent anatomical structures.

Authors present the case of a middle-aged man suffering from severe obstructive sleep apnea as a result of undiagnosed retropharyngeal lipoma successfully treated with surgical excision.

CASE REPORT

A gentleman in his late 30's presented to our out-patient clinic with the complaints of progressively increasing snoring, frequent awakening at night, day-time sleepiness and fatigue since 10 years. He was obese with a BMI of 28.2 Kg/square metres.

Patient was diagnosed as having severe obstructive sleep apnea with an Apnea- Hypapnea Index (AHI) of 56 at another tertiary care centre and the patient was advised to use continuous positive airway pressure machine regularly. Patient had been using a continuous positive airway pressure (CPAP) machine for about 8 years. Upon consulting us, a thorough examination was done which revealed a bulge in the posterior pharyngeal wall with smooth and intact overlying mucosa. Fiberoptic laryngoscopy was performed and a significant bulge in the posterior pharyngeal wall causing significant

narrowing of the oropharyngeal airway was noted. Bilateral vocal cords were mobile (Figure 1).

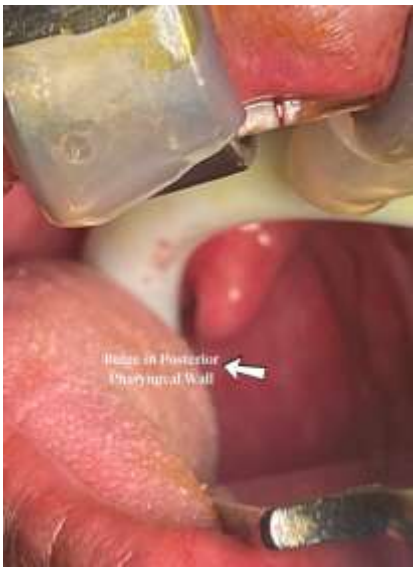

Figure 1: Intraoperative image showing bulge in posterior pharyngeal wall.

Investigations

Contrast enhanced MRI of the neck was performed which showed a large well defined homogenous fat signal intensity mass lesion in retropharyngeal space consistent with lipoma extending from inferior surface of clivus, anterior to Cl vertebra till upper part of C6 vertebra resulting in significant compression and narrowing of naso, oro and hypopharyngeal airway and compressing soft palate, epiglottis and larynx. Laterally, the lesion was seen extending posterior to carotid, jugular vessels, right sternocleidomastoid muscle, merging with fat of deep intermuscular space of neck (Figures 2 and 3).

Figure 2: Contrast enhanced CT scan showing lipoma in retropharyngeal space, coronal cut.

Figure 3: Intraoperative image showing fat prolapse after incising the posterior pharyngeal wall.

Treatment

Combined approach lipoma excision was performed that included both intra-oral removal and removal from neck through an external incision. Vertical incision was made over the posterior pharyngeal wall exposing the alar fascia. Tumour was visualized after exposing the retropharyngeal space and excised (Figure 4).

Figure 4: Contrast enhanced CT scan showing lipoma in retropharyngeal space, sagittal cut.

Transverse skin incision was made two finger breadth below the angle of mandible. Sub- platysmal flaps were elevated and reflected superiorly and inferiorly. After adequate soft tissue dissection, tumour was delineated from the surrounding structures and excised. Wound was closed in layers after placing a drain. Temporary tracheostomy was done owing to the intraoral edema and subsequent airway compromise. Ryle's tube was inserted to facilitate feeding. The postoperative histopathology

report confirmed the diagnosis of lipoma. Oral trial was started and Ryle's tube was removed after two days. Decannulation done after settling of oral oedema. Patient was discharged after observing for one day after decannulation.

Follow up

The patient was reviewed one-week post-surgery. The oral wound showed good healing, oral edema had subsided and external neck sutures were removed. There were no persistent symptoms of sleep apnea and the patient did not require CPAP. On follow-up after one month, the improvement remained consistent, with no need for CPAP use.

DISCUSSION

Lipomas are the most common benign mesenchymal neoplasms, with about 13% occurring in the head and neck region, primarily in the posterior neck.[1] Most lipomas have a diameter of two centimeters and rarely grow beyond 10 centimeters. A "giant lipoma" has a size that is greater than 10 cm in at least one dimension or weighs over 1000 grams.[2] Lipomas may be located in any part of the body and may be classified anatomically as superficial or deep.[3] In the head and neck region, lipomas deep to the platysma or muscles of facial expression are considered deep.[4]

Lipomas occurring in the deep neck spaces are extremely rare and only few cases have been reported in literature till date. The diagnosis of retropharyngeal lipoma is often delayed owing to its location and slow growth rate. The sign and symptoms are noted at a late stage as the size increases leading to dysphagia, hoarseness, throat discomfort, episodes of apnea and sleep disturbances. As highlighted in the cases by Ehlers et al and Alnami et al these lipomas can grow significantly before causing symptoms, often being detected incidentally during imaging studies conducted for other reasons.[5,6] The case by Gupta et al further demonstrates the challenges in diagnosing these tumors clinically, as the patient presented with symptoms only after rapid growth over a short period.[7]

Retropharyngeal space lipomas (RSLs) are more common in males and are typically diagnosed in the fifth to sixth decade of life. A systematic review of 79 cases revealed that the most prevalent symptom is dysphagia (65.2%), followed by snoring (37.9%) and dyspnea (34.8%).[8] The diagnostic approach to retropharyngeal lipomas primarily involves imaging studies. Computed tomography (CT) and magnetic resonance imaging (MRI) are the most commonly used modalities. CT imaging typically shows a homogeneous hypodense mass with negative attenuation values (−50 to −150 HU), which is indicative of a lipoma. MRI offers superior soft tissue contrast and can delineate the extent and nature of the tumor more precisely.

Ehlers et al illustrated the importance of CBCT in detecting incidental findings, while Gupta et al and Alnami et al highlighted the use of CT and MRI in assessing the tumor's full extent and planning surgical management.[5-7]

Ehlers et al reported a case involving a 66 years old female who was incidentally found to have a large retropharyngeal lipoma during a pre-implant cone beam computed tomography (CBCT) scan. Despite the tumor's significant size, the patient was asymptomatic. The lipoma was detected as a well-defined, low-attenuation soft tissue lesion extending from the posterior left pharyngeal wall, occluding two-thirds of the airway from the C2 to C4 vertebrae. The initial diagnosis was made using CBCT and confirmed with laryngoscopy, MRI and contrast-enhanced multi-detector computed tomography (MDCT). Surgical excision was performed successfully and the histopathological evaluation confirmed the diagnosis of a benign lipoma. This case emphasizes the importance of comprehensive imaging evaluations even in asymptomatic individuals to prevent potential airway obstructions.[5]

Gupta et al described a 65 years old male with a retropharyngeal lipoma extending from the skull base to the clavicle.[7] The tumor had been present for approximately 20 years but had grown rapidly in the past 2-3 years, causing significant symptoms, including respiratory obstruction, dysphagia and dysphonia. Clinical examination revealed a large swelling in the left lateral neck, shifting the laryngopharynx and trachea to the opposite side. The diagnosis was confirmed with CT imaging, showing a well-encapsulated lipomatous mass. Surgical removal was challenging due to the distorted anatomy but was ultimately successful, preserving the surrounding structures. This case underscores the potential for retropharyngeal lipomas to cause severe complications over time and the technical difficulties associated with their surgical management.

As in this case, surgical excision remains the definitive treatment for symptomatic retropharyngeal lipomas, especially in cases where the tumor causes significant airway obstruction or dysphagia. The choice of surgical approach depends on the size and location of the lipoma.

Transoral approach

Preferred for smaller, encapsulated lipomas due to lower postoperative morbidity.

Transcervical approach

Indicated for larger lipomas or those with significant parapharyngeal extension.

In a case report by Aydin et al a 24 years old male with a giant retropharyngeal lipoma causing severe OSA syndrome underwent successful transoral excision.[10]

Postoperative MRI confirmed complete removal of the mass and the patient experienced a significant improvement in apnea-hypopnea index (AHI) from 96.8 to 10. Another systematic review found that 93.6% of the patients underwent surgical excision, with the transcervical approach being the most common (50.7%) followed by the transoral approach (38.4%).[8]

In the present case report, authors went ahead with a combined approach to effectively and completely remove the tumor and thus subsequently relieving the obstruction caused by it. Most patients with retropharyngeal lipomas who undergo surgical treatment experience complete resolution of symptoms and an excellent prognosis with no recurrence. In a comprehensive review of 73 surgically treated cases, 75.9% of patients achieved complete recovery post-surgery.[8] The case report by Dilek et al demonstrated that retropharyngeal lipomas should be considered in the differential diagnosis of patients presenting with unexplained OSA syndrome, particularly when other laryngeal or pharyngeal pathologies have been ruled out.

As was the case in this patient, it took many years to reach the correct diagnosis and surgical excision resulted in complete resolution of symptoms and resulted in decreased morbidity associated with dependance on CPAP machine resulting in better quality of life. Hence it can be concluded that in patients with obstructive sleep apnea, especially in patients having high index of suspicion, radiological imaging and thorough clinical evaluation should be done to rule out the possibility of lipoma involving the deep neck spaces which is, although a rare clinical entity.

CONCLUSION

Retropharyngeal lipoma, though an uncommon benign tumor, can present as a reversible cause of severe obstructive sleep apnea when it results in significant upper airway obstruction. This case underscores the importance of maintaining a high index of suspicion and utilizing detailed imaging in patients with persistent or unexplained OSA, as early identification of such rare etiologies can dramatically alter management and prognosis. Surgical excision remains the definitive treatment, offering complete symptom resolution and freedom from CPAP dependence. By highlighting retropharyngeal lipoma as an overlooked but treatable cause of OSA, this report expands current understanding of deep neck space pathologies contributing to sleep-disordered breathing and reinforces the role of multidisciplinary evaluation in optimizing patient outcomes.

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