CASE REPORT

Lipoma of right pyriform sinus

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SUMMARY

We present a case of large mass arising from the right pyriform sinus extending inferiorly to the postcricoid area and superiorly to the right aryepiglottic fold causing a foreign body sensation and obstructive symptoms, its histological examination following the endoscopic surgical excision showed a lipoma. We are also describing the endoscopic, radiological and intraoperative findings with a brief literature review.

BACKGROUND

Lipomas of the larynx and hypopharynx are very uncommon tumours. Only about 100 cases have been reported in the literature. Less than 15% of lipomas occur in the head and neck which usually happens in the posterior neck subcutaneous tissue. A solitary lipoma in the hypopharynx makes a clinical diagnosis more difficult and remains undetectable until it achieves a considerable size affecting deglutition, speech progressively and eventually may cause respiratory distress.

CASE PRESENTATION

A 58-year-old policeman was seen at ear-nose-throat (ENT) clinic with a 1-year history of progressive voice change; he had the typical 'hot potato voice.' He developed recently paroxysmal coughing spasms during his meals with swallowing difficulty

of solids and sensation of foreign body in the throat. However, there was no stridor nor aspiration or any respiratory distress.

He was a non-smoker and non-alcoholic. His medical history was unremarkable except having type 2 diabetes for which he takes metformin twice daily. Flexible laryngeal endoscopic examination showed a large mass covered by smooth looks like normal mucosa, occupying the right supraglottic area obscuring glottic gap visualisation and causing narrowing of both the hypopharynx and larynx. The clinical impression was that of a retention cyst or an internal laryngocele (*figure 1A–E*).

Contrast-enhanced CT scan of the head and neck showed a well-defined large oval shaped non-enhancing, more likely fluid-filled cystic lesion measuring 43×27×71 mm, seen in supraglottic region, extending to postcricoid area, in continuity with right laryngeal ventricle and causing mild compression of airway (*figure 2A–D*). These features are suggesting internal laryngocele or retention cyst.

Once the CT scan is quicker and more readily available and its report included same our clinical differential diagnosis and did not mention the possibility of other pathologies especially rare ones, we did not request a further radiological investigation like MRI of the neck which could had been of great importance in adding another

Figure 1 (A–E) Rigid and flexible laryngoscopy views showing the mass occupying the right supraglottic area obscuring glottic gap visualization and causing narrowing of both the hypopharynx and larynx. AC, anterior glottis; E, epiglottis; LA, left arytenoid cartilage; LAE, left aryepiglottic fold; RAE, right aryepiglottic fold; 1, right vocal cord; 2, left vocal cord.

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Figure 2 (A–D) Contrast-enhanced CT scan of the neck shows non-enhanced, well-defined and encapsulated oval mass (white arrows), involving the right piriform sinus, extending superiorly to occupy the supraglottic area and inferiorly to post cricoid area.

possible rare diagnosis like lipoma as we will see in the discussion below.

Due to its potential to obstruct the airway, the mass was immediately treated by microscopic debulking using direct laryngoscope and microscissors and forceps. A nasogastric tube was inserted at the end of procedure ensuring its position through the right piriform sinus and was kept for 5 days. The gross description of surgical specimen was multiple pieces of brownish-yellow fatty tissue altogether weighing 25.5 gm. The largest piece measures $3.0 \times 2.5 \times 0.5$ cm and smallest piece measures $1.5 \times 0.3 \times 0.2$ cm (figure 3). The histopathological examination showed mature adipose tissue consistent with a lipoma.

Figure 3 Surgical specimen.

The patient was discharged from the hospital after an uneventful postoperative recovery period with the resumption of oral feeding after 6 days. Flexible laryngeal endoscopic examination 1 month postoperatively revealed the absence of any residual disease and patent airway (figure 4).

The patient has regular ENT clinic appointments for follow-up.

INVESTIGATIONS

Flexible and rigid laryngoscopy: to view vocal cords mobility, airways patency and to investigate the symptoms cause

CT Scanning with contrast of the neck: to confirm the endoscopic findings, see the airways patency and planning of surgery.

DIFFERENTIAL DIAGNOSIS

Due to the rarity of these tumours, our differential diagnosis included only an internal laryngocele or retention cyst; we did not consider lipoma in the working diagnosis, especially these lesions have the same endoscopic view, and they are also causing the same symptoms. However, lipoma has a significant appearance in CT scan, but the radiologist also did not mention it in his differential diagnosis. Finally, whatever was our first impression of diagnosis, the treatment plan was the same.

TREATMENT

Due to its potential to obstruct the airway, the mass was immediately treated by microscopic debulking using direct laryngoscope and microscissors and forceps. We consider before the surgery the possibility of surgical tracheostomy to secure the airways in case of failure of intubation, but it was not necessary after successful awake fiberoptic intubation.

The mass was accessible through the endoscopic approach which allowed us to remove it totally, keeping in mind the potential risks in such endoscopic approach. We hold the mass by microforceps then we start to dissect and debulk it laterally to medially alongside the tumour borders, taking in consideration to stay always within the laryngeal framework due to the slight proximity of this lesion to the internal carotid artery on both sides and to respect as possible the laryngeal and hypopharyngeal mucosa to prevent causing postoperative aerodigestive fistula.

A nasogastric tube was inserted at the end of procedure ensuring its position through the right piriform sinus and was kept for 5 days to preserve the patency of the sinus. The patient was discharged from the hospital after an uneventful postoperative recovery period with the resumption of oral feeding after 6 days. Flexible laryngeal endoscopic examination 1 month postoperatively revealed the absence of any residual disease and patent airway.

OUTCOME AND FOLLOW-UP

Following surgery, the patient was discharged from the hospital after an uneventful postoperative recovery period with the resumption of oral feeding after 6 days. Flexible laryngeal endoscopic examination 1 month postoperatively revealed patent airway and the absence of any residual disease or aspiration, and without any complaint of dysphagia for both liquids and solids. The patient has regular ENT clinic appointments for follow-up which should be for a long time due to the recurrence possibility.

DISCUSSION

Lipomas which arise from mature white fat cells are the most common benign tumours of mesenchymal origin. They are recognised to occur everywhere in the body; however, only

Figure 4 Postoperative flexible laryngoscopy view. E, epiglottis; LA, left arytenoid cartilage; LVC, left vocal cord; LPS, left pyriform sinus; RA, right arytenoid cartilage; RPS, right pyriform sinus; RVC, right vocal cord.

13%–15% of lipomas occur in the head and neck region,^{1,2} most commonly in the posterior triangle of the neck. Other rare locations of lipomas are in the anterior neck, infratemporal fossa, oral cavity, pharynx, larynx and parotid gland.^{3,4} The upper aerodigestive tract is a very rare localisation.^{2,5} Less than 1% of all benign laryngeal lesions are lipomas.⁶ In the literature, about 100 cases have been reported, most of them were listed by Zakrzewski in 1965, in the review of these laryngeal cases, roughly 50% were hypopharyngeal in origin.⁷

Laryngeal and hypopharyngeal lipomas could occur in regions in which fat forms some portion of the subepithelial structure such as false vocal cords, aryepiglottic folds and epiglottis in larynx, at the edge of the aryepiglottic folds, in the postcricoid region, in the pyriform sinus, in the lateral hypopharyngeal wall and in the arytenoid region in hypopharynx.^{3,8} A subglottic lipoma has also been reported,^{2,9} whereas the glottis is the rarest region.^{10,11} Lipomas most likely occur in the fourth to fifth decades of life.¹² Its occurrence is more frequent in males than females.² Diagnosis of laryngeal or hypopharyngeal lipoma is usually challenging because they remain asymptomatic for a long time until they become large enough to cause symptoms like foreign body sensation, change of voice quality, dysphagia, paroxysmal cough and airways obstruction.^{9,13–15} Endoscopic appearance of laryngeal and hypopharyngeal lipomas can vary from a submucosal mass to a pedunculated polyp.⁶ They are encapsulated with a smooth surface and covered by a yellowish-pink mucosa,¹⁵ for that they can frequently be confused with other benign lesions such as mucous retention cyst or laryngocele.^{5,6,16} However, lipoma could be easily distinguished from these lesions using imaging techniques such as CT scan and MRI. CT scan is quicker and more readily available and shows lipoma as a non-enhancing homogeneous well-circumscribed lesion with low ionising radiation attenuation values and a density less than that of water.^{12,6} The accuracy rate of CT is 75%–90%.^{15,17} On MRI, lipoma follows the signal characteristic of fat, which has a high signal on T1-weighted image and fat-suppressed T2-weighted image and a low signal on T2-weighted image.^{6,18–20} In addition, MRI gives good soft tissue differentiation and accurate evaluation of the lipoma margins, especially on sagittal reconstruction.^{20,21}

Learning points

- ▶ Even though the aerodigestive tract lipomas are rare, they should be considered as a possible cause of airway obstruction.
- ▶ The current case highlights the importance of radiological investigations in differentiating between several possible lesions with same endoscopic appearance.
- ▶ We should keep in mind the late possibility of recurrence of such as tumours.

Surgery is the recommended treatment of hypopharyngeal and laryngeal lipomas; the suitable approach depends on the tumour size and site. The three approaches described are endoscopic and transoral robot assisted for small tumours or via external approach through a transverse neck incision using a lateral pharyngotomy, laryngofissure or subhyoid pharyngotomy for large tumours.^{1,2,12,22–24} Regardless of the surgical approach, excision of tumours should function sparing and completely done to avoid any possibility of recurrence which, however, is uncommon, on the order of 5%,^{13,25} but it might be late.^{1,6,12,20,26} Therefore, a regular follow-up for a long time is mandatory.^{2,27}

In conclusion, while lipomas in the head and neck region are very rare, these tumours should be in the differential diagnosis of mass originating in the aerodigestive tract. The imaging modalities are helpful for definite diagnosis and for choosing the suitable surgical technique. Also, we should keep in mind the need of complete excision of these tumours and long-term follow-up to avoid their recurrence.

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