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Supraglottic Spindle Cell Lipoma Presenting as Foreign Body Sensation

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Abstract

A spindle cell lipoma (SCL) is a variant of lipoma that accounts for approximately 1.5% of all lipomas; its prevalence within the larynx is rare. We present the case of a female patient whose foreign body sensation was ultimately attributed to an SCL that was emanating from the supraglottis and we review the literature on the natural history of supraglottic SCLs as well as their histological features and options for excision.

A 59-year-old female patient presented with foreign body sensation in the throat. An oesophagogastroduodenoscopy and flexible laryngoscopy both revealed a large submucosal mass in the right supraglottic region which impeded visualisation of the vocal cords.

Following Head and Neck multi-disciplinary team recommendation, the patient underwent orotracheal intubation and endoscopic excision of the mass via microlaryngoscopy. Histological analysis of the lesion concluded it as being a spindle cell lipoma; assessment of morphological features and cytological testing helped to rule out the main differential diagnosis of liposarcoma.

The patient exhibited a successful recovery following the operation and follow-up flexible endoscopy revealed absence of any residual disease with normal vocal cords.

SCL is a rare variant of lipomatous tumour and its existence within the larynx is even rarer. There are a number of ways in which a SCL can manifest clinically, however, once seen, it should be excised under direct vision ideally and undergo robust histological assessment to clearly distinguish it from more aggressive neoplasms such as a liposarcoma in order to help guide further management.

Keywords: Spindle Cell Lipoma; Supraglottic; Foreign Body Sensation; Vocal Cords; Microlaryngoscopy; CD34 Expression; MDM2 Amplification

Introduction

Lipomas are a group of benign adipocytic mesenchymal neoplasms that most frequently arise from areas in which subcutaneous fat is prominent such as the trunk and limbs, however, 13-15% do arise in the head and neck region [1]. They are typically asymptomatic unless their growth impedes on neighbouring structures to such an extent as to cause symptoms [2]. Only 0.6% of lipomas are found in the larynx [3]. A spindle cell lipoma (SCL) is a specific variant of lipoma that contains mature adipose tissue, ropey collagen and bland spindle-shaped cells [4]. SCLs typically presents as a benign lipomatous neoplasm on the back or posterior neck of elderly males and account for approximately 1.5% of all lipomas [5]; their prevalence within the larynx is rare [6].

We discovered twelve previously published cases of SCL originating from within the larynx, all of which were resected via a range of surgical approaches. We present the case of a female patient whose foreign body sensation was ultimately attributed to an SCL that was emanating from the supraglottis. We review the literature on the prevalence, presenting features and diagnostic workup of SCLs, as well as the histological features that help to differentiate them from the malignant variant of liposarcoma and the various management strategies employed for excision.

Case Presentation

In July 2023, a 59-year-old female patient was referred to the Gastroenterology Department through the two-week-wait upper gastrointestinal (GI) pathway due to a history of progressive foreign body sensation and constant throat clearing. Notably, the patient did not report any voice changes, shortness of breath or weight loss. An oesophagogastroduodenoscopy revealed a large and smooth submucosal mass in the right supraglottic region (see Figure 1A), with the rest of the endoscopic examination being unremarkable. Subsequently, the patient was referred to the Ear, Nose and Throat (ENT) Department on a two-week-wait pathway in order to conduct further investigations of this mass.

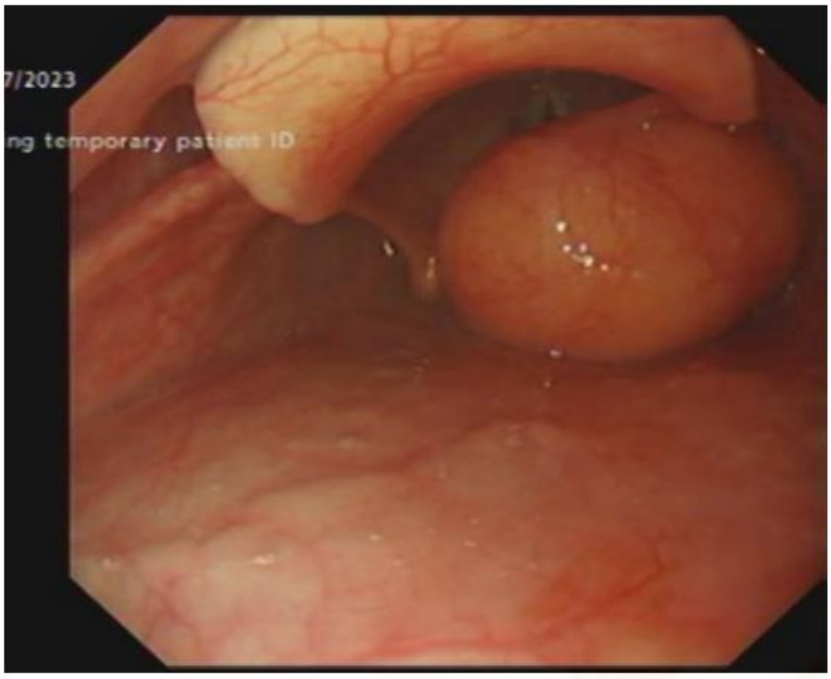

Figure 1A: OGD demonstrating right supraglottic mass obscuring laryngeal inlet and vocal cords. Only the anterior commissure of the true vocal cords can be visualized

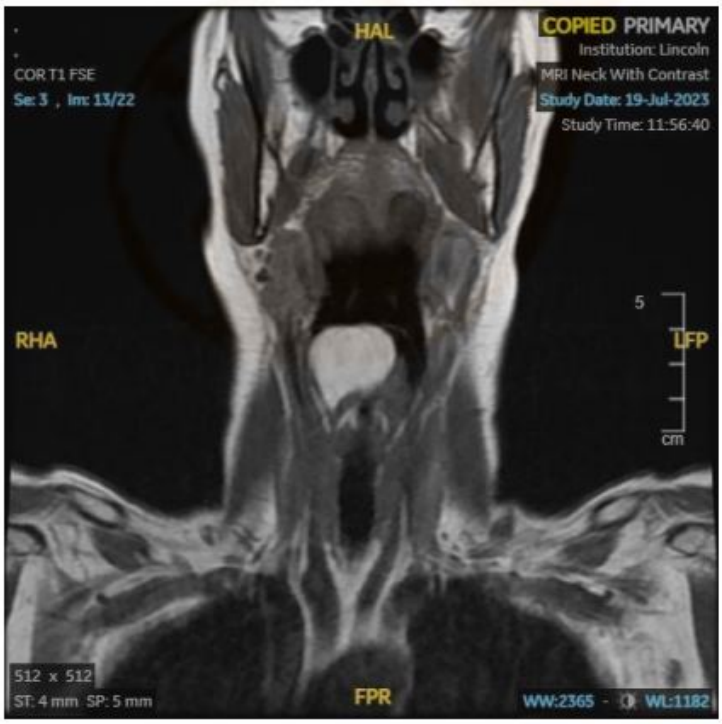

Figure 1B: MRI Neck with Contrast T1 weighted Coronal View showing a hyperintense lesion 266 situated in the right supra-glottic region and crossing the midline of the laryngeal inlet

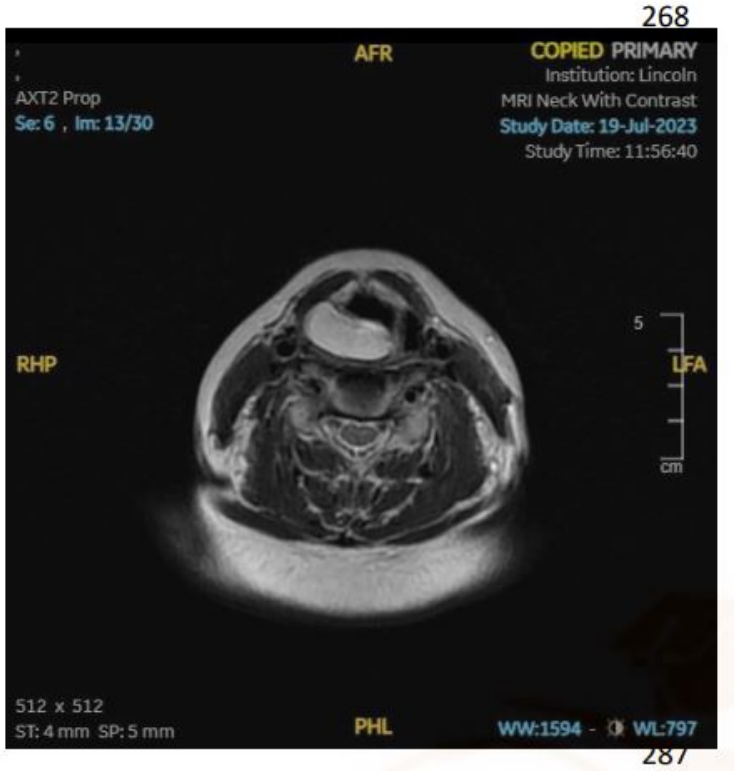

Figure 1C: MRI Neck with Contrast T1 weighted Axial View showing a hyperintense lesion situated at the level of the right supraglottis

The patient's past medical history included coeliac disease, herpes zoster keratouveitis of the left eye, and an undisplaced fracture of the right radial head. There was no history of smoking; alcohol consumption was reported at 6-8 units per week.

Transnasal flexible laryngoscopy revealed a large, round, and smooth mass situated over the right supraglottic area, covered by healthy mucosa. The origin of the mass could not be identified, and visualization of the vocal cords in their entirety was impeded due to the mass. A subsequent magnetic resonance imaging (MRI) scan of the neck with contrast delineated a well-defined, non-enhancing, fat-containing lesion in the right supraglottic region and was reported as measuring 2.9 cm in its widest dimension (see Figures 1B & 1C).

This lady's case was subsequently discussed in the Head and Neck multi-disciplinary team meeting in order to deliberate possible diagnoses and surgical options. A general consensus of a likely lipoma was made for the diagnosis, and to proceed with laryngoscopy and endoscopic removal for the surgical option.

In November 2023, the patient underwent orotracheal intubation and endoscopic excision of the mass via microlaryngoscopy under general anaesthesia with a stepwise approach (see Figures 2A, 2C & 2D).The true and false vocal cords were fully visualised and seen to be healthy (see Figure 2B).The fatty mass was nearly completely resected using a cold steel technique assisted by endoscopy. Minimal bleeding was observed during the operation and no postoperative complications occurred.

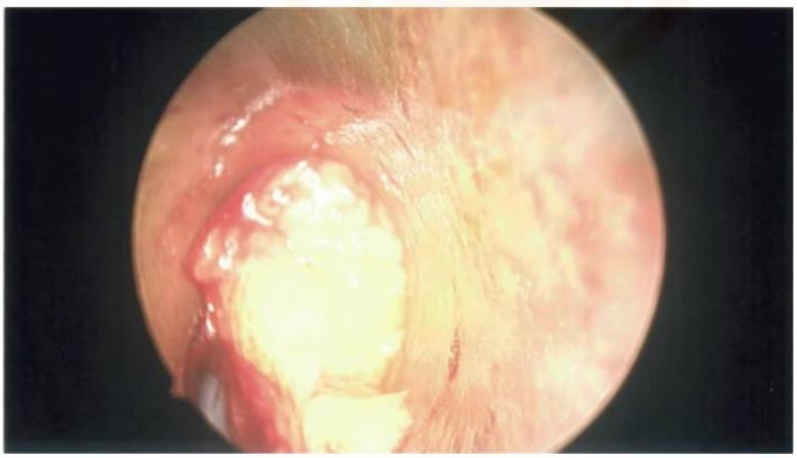

Figure 2A: Laryngoscopy showing a lipomatous lesion within the right supraglottis

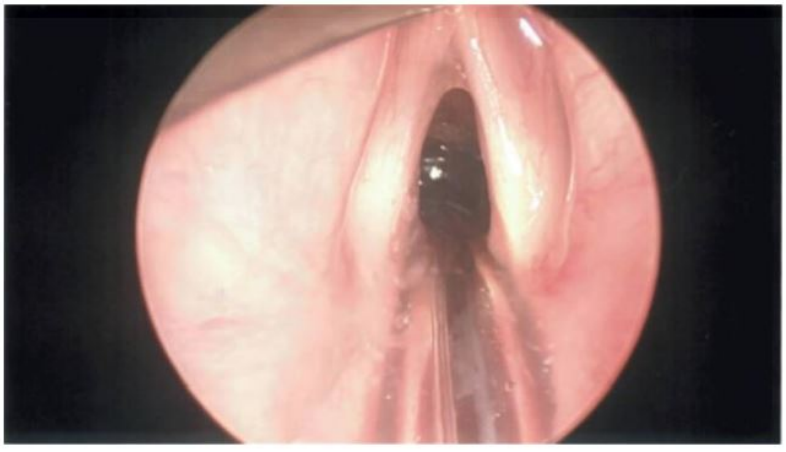

Figure 2B: Laryngoscopy demonstrating normal true and false vocal cords with endotracheal tube in situ

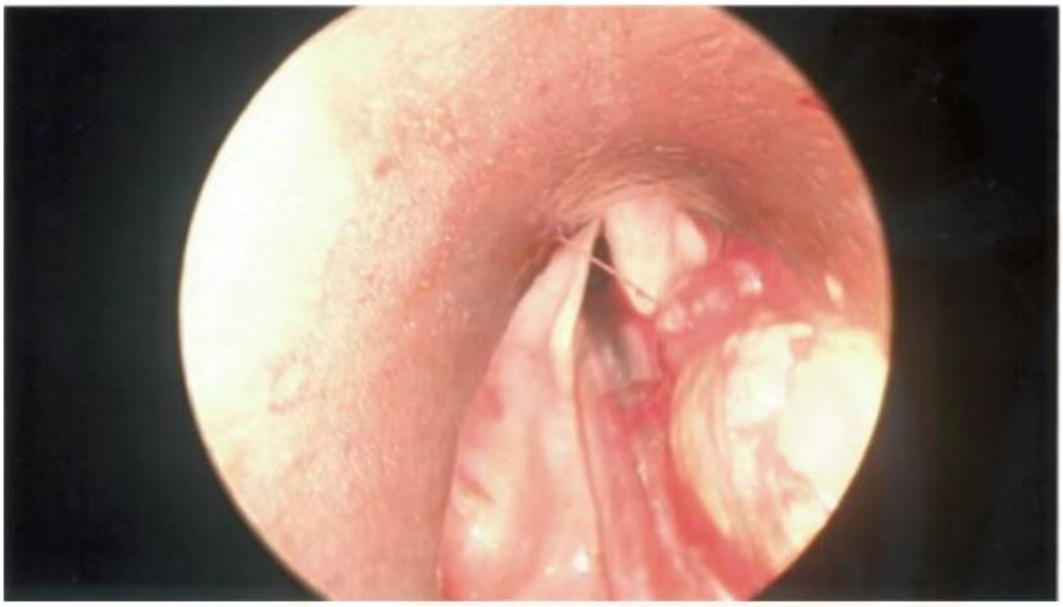

Figure 2C: Laryngoscopy showing the lipomatous lesion in the right supraglottic region encroaching on the endotracheal tube. This was just before excision of the lesion

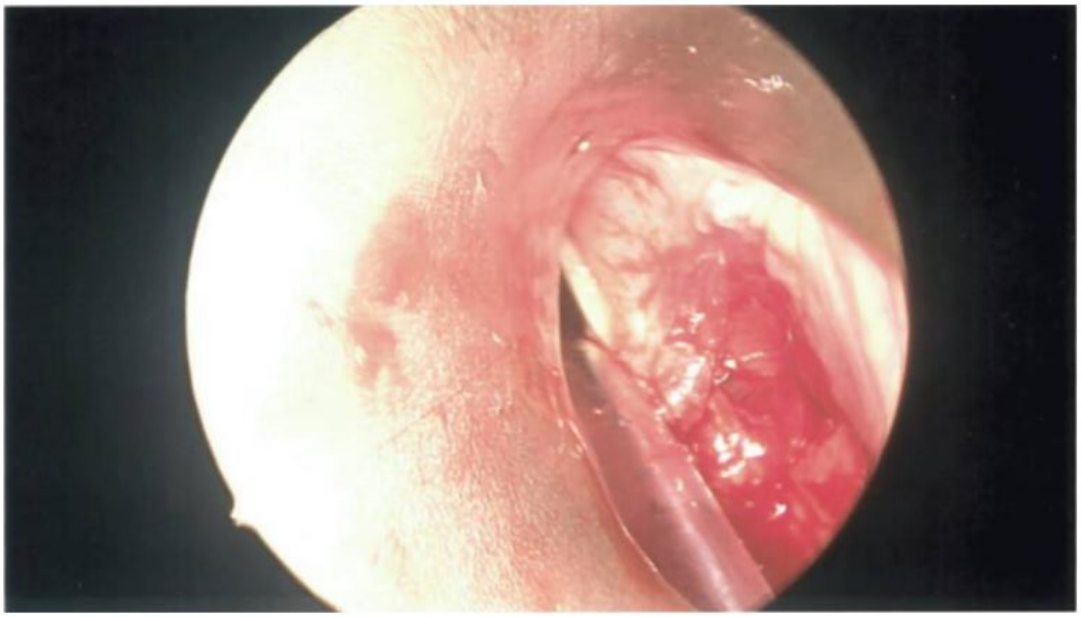

Figure 2D: Laryngoscopy demonstrating the right supraglottic region post removal of the lipomatous lesion

Histopathological examination of our sample revealed multiple fragments of adipose and grey tissue, collectively measuring 45 x 45 x 15mm (see Figure 3).Microscopic analysis identified a lipocytic lesion originating from the laryngeal mucosa. The lipocytes exhibited no significant nuclear atypical, yet specific tumour regions contained spindle-shaped cells within a collagenous matrix. Immunohistochemistry demonstrated robust CD34 expression in both the spindle cell and lipocytic areas. Significantly, mouse double minute 2 homolog (MDM2) amplification was conducted which was negative and as such helped to rule out the more sinister cause of liposarcoma. Therefore, the diagnosis was concluded as being a spindle cell lipoma. Follow-up was recommended for a period of two years with plans for resection of any local recurrence.

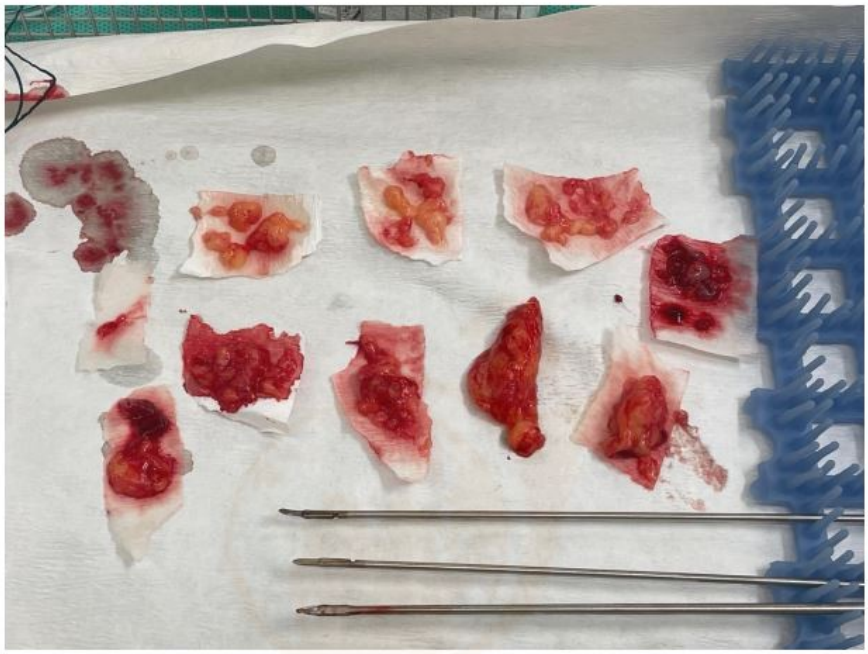

Figure 3: Photograph showing constituent parts of the lipomatous lesion excised

The patient exhibited a successful recovery following the operation. During the one-month follow-up, transnasal flexible endoscopy revealed the absence of any residual disease. The mucosa overlying the excision site was intact and both vocal cords were observed to be bilaterally healthy and mobile. This patient will continue to undergo periodic surveillance over a two-year period as per previous histopathology recommendation.

Discussion

Spindle cell lipoma was first described in 1975 by Enzinger and Harvey [7] and the first case of an SCL occurring within the larynx was reported in 1993 by Nonaka et al. [8] Irrespective of the location, SCLs are more common in men, with 60 years old being the average age of presentation. Therefore, it was rather more unusual in our case that the patient affected was a 59-year-old woman; indeed, only two previous cases have reported SCLs existing in women, one at 79 years old [9] and the other at 65 years old [5].

SCLs grow painlessly and so can often be asymptomatic, however certain presenting features of a laryngeal SCL can consist of dyspnoea, dysphagia, foreign body sensation and in severe cases, stridor [10]; this will be dependent upon the tumour's exact anatomical location within the larynx and its growth rate.This is why trying to differentiate between SCLs and other diagnoses such as liposarcomas, angiolipomas and neurofibromas is virtually impossible based upon symptoms and clinical presentation alone [10,11]. Six of the previous case reports did specifically quantify the size of the SCL resected [10]. Alongside our case, this gave an average size of 4.1cm; the size of our SCL in was therefore slightly above average.

The histological makeup of an SCL consists of mature adipocytes, spindle cell bundles with low mitotic activity and ropey collagen strands, all within a myxoid matrix. Histological examination is imperative in being able to distinguish SCL from the malignant differential of liposarcoma [12]. Specifically, the immunohistochemistry is important as it has previously revealed CD34 as a primary diagnostic marker for SCL [13]; indeed, robust CD34 expression was seen with our sample. However, CD34 may also be expressed in the other main differential of liposarcoma; therefore, intact retinoblastoma protein (pRb) expression and MDM2 gene amplification by cytogenetic analysis are tests which are carried out as they confer a greater specificity for liposarcoma [14]. Indeed, MDM2 amplification testing was conducted in our sample and the negative result helped to rule out liposarcoma. Liposarcoma can also confirmed by specific morphological features under the microscope, such

as the presence of lipoblasts and prominent "chicken wire" pattern vasculature [15]; these were not present in our sample, thereby making SCL the primary diagnosis.

Although all previously reported laryngeal SCL cases did state flexible laryngoscopy as the primary pre-op investigation for visualisation, only Qin-Ying et al. incorporated MRI into the pre-operative work-up5 with the other cases using CT instead. It has also been seen that all previous cases detailed endoscopic resection as the primary method of tumour excision, except for one case by Lee et al. whereby they excised a hypopharyngeal spindle cell lipoma from the pyriform sinus using transoral robotic surgery [16], giving them the advantage of complete tumour resection via a three dimensional view in a narrow operative field with tremor-free instruments that allowed a greater range of movement to access the tumour [17]. In no previous case did a separate biopsy take place before surgical excision. It is difficult to accurately establish recurrence rates with a laryngeal SCL due to its rare prevalence within clinical practice and as such small follow up rates.

Conclusion

SCL is a rare variant of lipomatous tumour and its existence within the larynx is even rarer. There are a number of ways in which a SCL can manifest clinically, however, once seen, it should be excised under direct vision ideally and undergo robust histological assessment to clearly distinguish it from more aggressive neoplasms such as a liposarcoma in order to help guide further management.

Contributorship

LH contributed to the drafting, editing and reviewing of the manuscript. AA contributed to the editing and reviewing of the manuscript. HS contributed to reviewing the manuscript and supervising.

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Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, or publication of this article.

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Our institution does not require ethical approval for reporting individual cases.

Patient consent was granted for use of their personal information in this case presentation.

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

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