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Case Report

An unusual massive lipoma in anterior neck, partially engulfing the carotid artery and internal jugular vein: a case report with review of literature

Gaveshani Mantri[1]*, Monalisa Patsani[1], Rahul Mohanty[2], Aishwarya Aparajita[1]

[1]Department of ENT and head and neck surgery, SCB Medical College and Hospital, Cuttack, Odisha, India
[2]SCB Medical College and Hospital, Cuttack, Odisha, India

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***Correspondence:**
Dr. Gaveshani Mantri,
E-mail: gaveshani_gr8@yahoo.com

ABSTRACT

A lipoma is a benign mass, but when big in size and present at an unusual location, it can pose major diagnostic and therapeutic challenges. We report a rare case of a big lipoma in the neck which partly engulfed the internal jugular vein (IJV) and carotid artery. The lipoma was removed in toto and the patient was followed up. This mass was unusual due to its size, behaviour and location. The report also includes a literature review about the unusual behaviour of lipomas at such rare sites and the management options available.

Keywords: Lipoma, Neck, Surgery, Radiology, Complications

INTRODUCTION

Lipomas are benign formations of mesenchymal origin, usually present in the subcutaneous tissues.[1,2] Head and neck lipomas are extremely rare and it is challenging to differentiate large lipomas from other conditions with graver prognosis.[1,2] Our case shows the diagnostic and therapeutic challenges faced while dealing with such massive, unusual masses, especially when they engulf vital structures.

CASE REPORT

A 52 years old male patient presented to our department with a 7 year history of a left sided neck swelling. The swelling was insidious in onset and gradually progressed to the present size. There was no concomitant neck pain, sudden increase in size of the swelling, restricted neck movements, dyspnea, dysphagia, dysphonia, neurological or constitutional symptoms. He did not suffer from any other comorbidities and denied having any recent injuries.

Head and neck examination revealed a single, large, well defined submandibular swelling measuring about 10x 8 cm, extending superiorly from left parotid area in-front of left ear lobule, till 3 cm above left clavicle inferiorly and medially from thyroid notch to posterior border of the left sternocleidomastoid laterally, not involving the posterior triangle of neck (Figure 1 A and B) However, the swelling did not cross the midline (Figure 1 C) The swelling was soft with smooth surface, non-tender, mobile, non-fluctuant, non-pulsatile, non-compressible, non-reducible and did not move with deglutition. Skin over the swelling was normal and pinchable with no local rise of temperature. There was no tracheal deviation. Voice of the patient was normal. Surrounding structures were normal, no regional lymph nodes were palpated. There was no restriction in neck movements or neurological deficit in the upper limbs. There were no other similar swellings in the body.

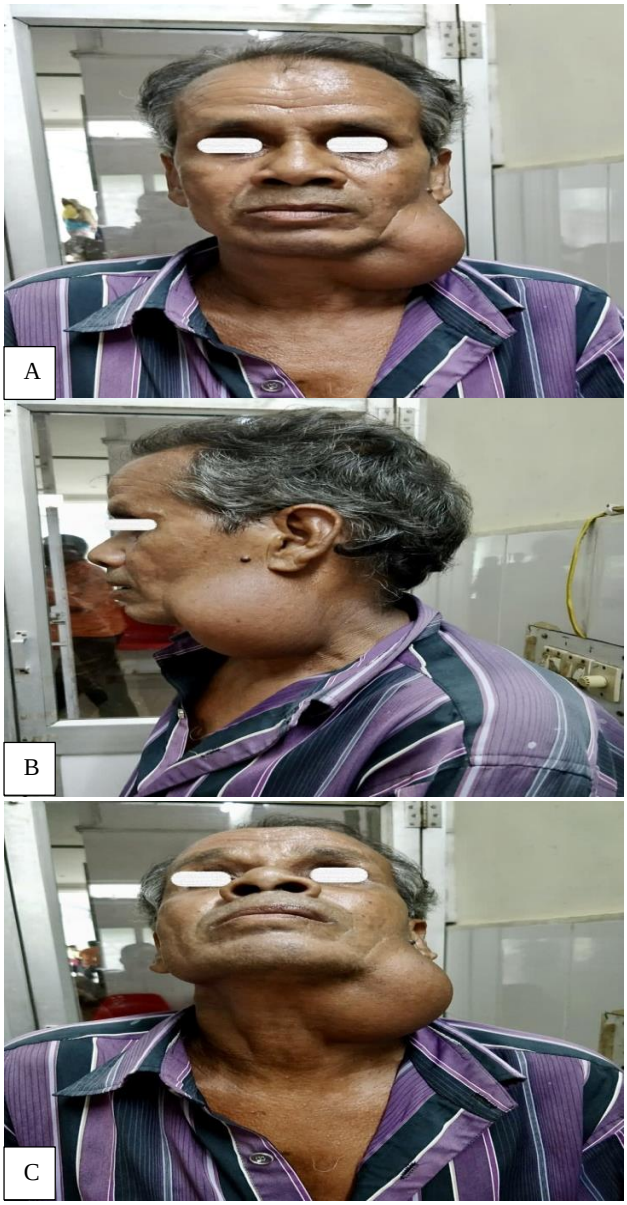

Figure 1 (A-C) Massive swelling involving left chin, in front of the left ear, grossly extending to the neck. Lateral view showing a huge swelling roughly 8x10 cm extending superiorly from left earlobe, till 2cm above the clavicle inferiorly and medially from 2 cm away from the left angle of mouth, till the left sternocleidomastoid laterally, not encroaching into the posterior triangle. Extended neck view showing lower part of swelling touching the midline but not crossing it at any point.

Flexible nasopharyngolanryngoscopy was unremarkable. Hematological parameters were within normal limits. CECT neck showed a well defined fat attenuating hypodense lesion in the subcutaneous plane in left parotid and submandibular regions involving inferior pole of parotid and extending inferiorly upto left side of neck, suggestive of lipoma. Bilateral submandibular glands showed normal density and enhancement patterns (Figure 2 A-C).

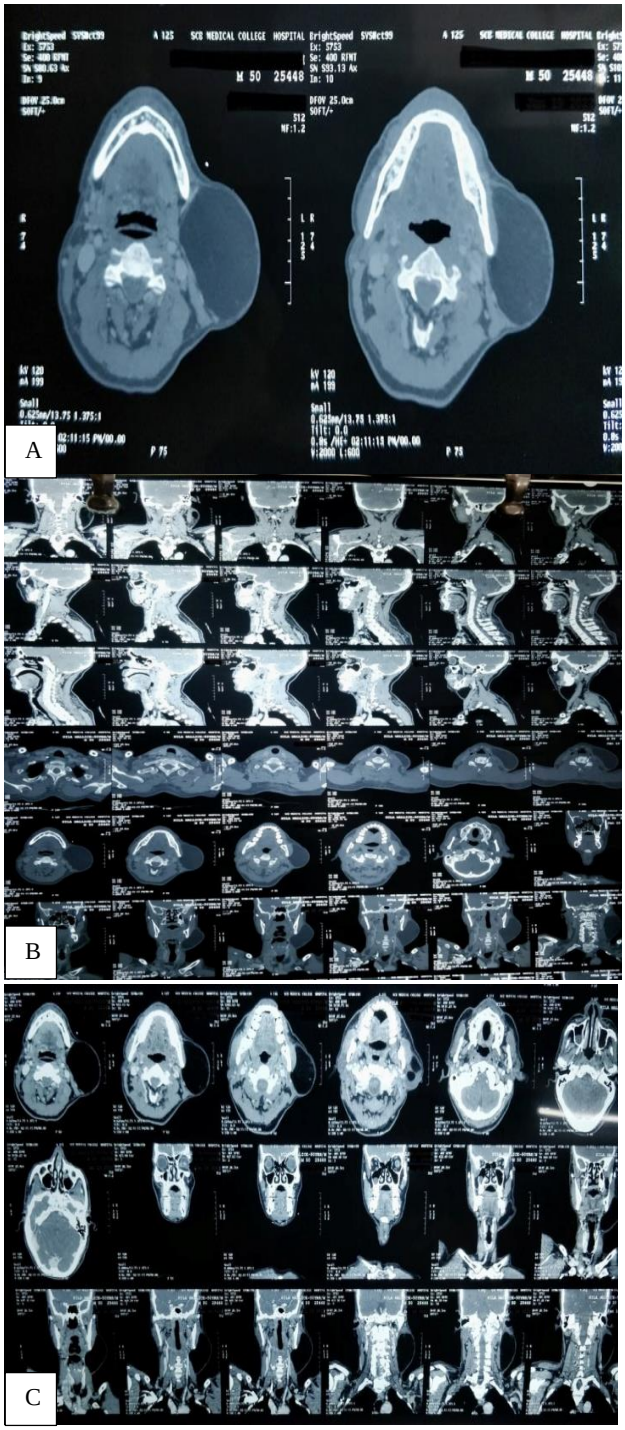

Figure 2 (A-B) CECT neck showing a well defined fat attenuating hypodense lesion in the subcutaneous plane in left parotid and submandibular regions involving inferior pole of parotid and extending inferiorly upto left side of neck, suggestive of lipoma. Bilateral submandibular glands showing normal density and enhancement pattern. Thyroid showing normal appearance, having no connection with the mass.

FNAC from the mass showed normal looking adipose tissue with many capillary sized blood vessels (Figure 3 A and B).

The lack of symptoms suggested that the lipoma would be superficially located. Excision of the mass under general anaesthesia was planned. A 10cm anterolateral cervical incision was given 2 cm below the margin of mandible, extending from the midline medically to the area corresponding to the angle of the mandible laterally. Superficial dissection was done with elevation of subcutaneous flaps superiorly and inferiorly (Figure 4 A) The mass was visible and was about 10x8 cm in size, soft, friable and well encapsulated. It was well delineated superiorly from submandibular and parotid glands and laterally from posterior border of left sternocleidomastoid (Figure 4 B) However, the mass was abutting the left carotid space medially, partially engulfing left carotid artery and left IJV, and left Retromandibular vein laterally. Careful separation of the mass from carotid sheath was done (Figure 4 C). The mass did not have a communication with thyroid gland. The mass was removed in toto preserving the marginal mandibular nerve and all other vital structures (Figure 4 D). Plastic reconstruction was not required. Excess skin was resected and primary closure was done (Figure 4 E).

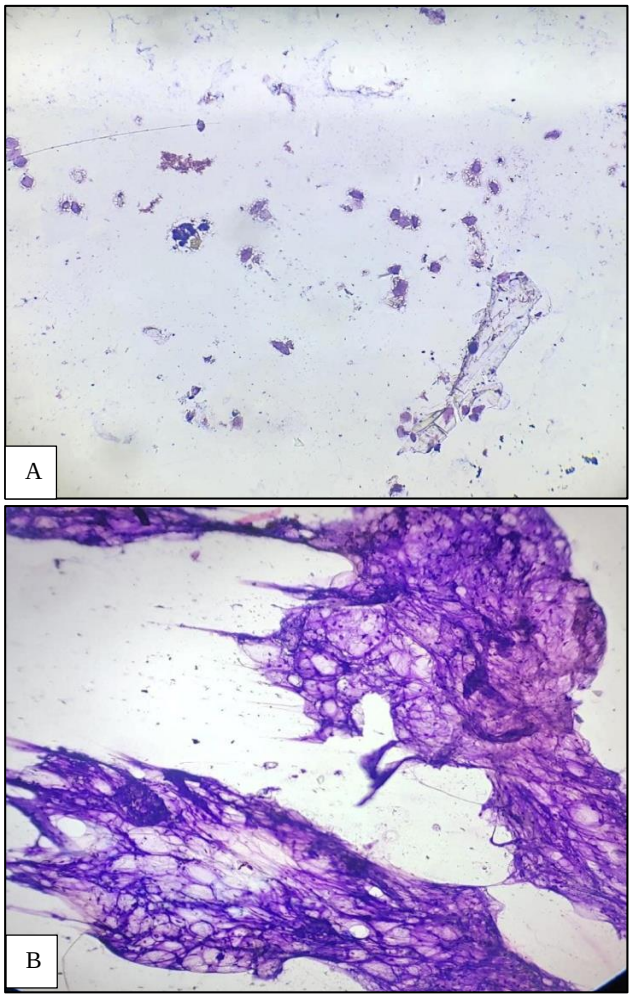

Figure 3 (A and B): FNAC showing normal looking adipose tissue with capillary sized blood vessels. FNAC showing normal looking adipose tissue with capillary sized blood vessels.

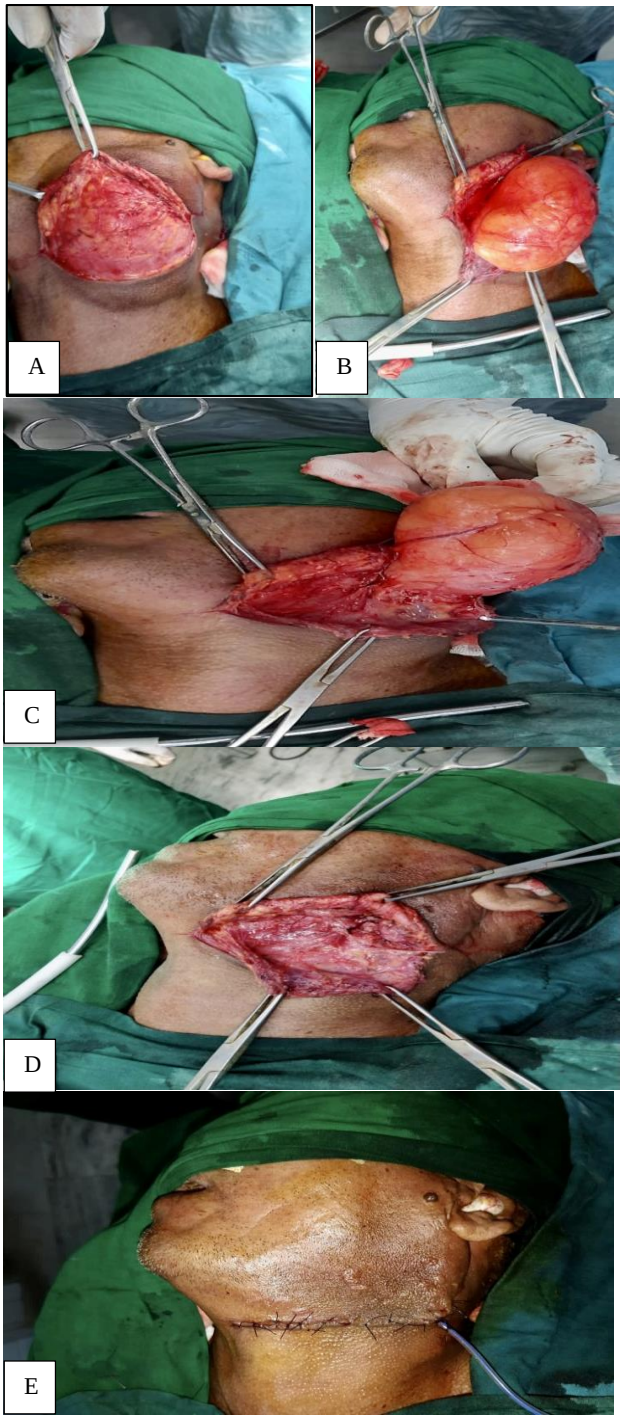

Figure 4 (A-E): The 10 cm anterolateral cervical incision given 2 cm below margin of mandible, extending from midline medically to area corresponding to angle of mandible laterally, superficial dissection done with elevation of subcutaneous flaps superiorly and inferiorly. Mass being well delineated superiorly from submandibular and parotid glands and laterally from posterior border of left sternocleidomastoid. Careful separation of the mass from carotid sheath and retromandibular vein. Mass removed in toto preserving marginal mandibular nerve and all other vital structures. Primary skin closure done with drain *in-situ.*

Histopathology showed mature adipocytes and congested blood vessels, consistent with lipoma (Figure 5).

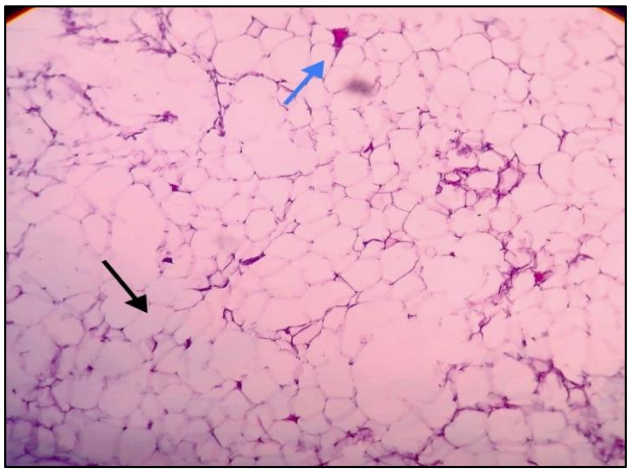

Figure 5: Histopathology showing mature aditocytes (black arrow) and congested blood vessel (blue arrow).

Post operatively, there were no complications and the patient was followed up for five years (Figure 6).

Figure 6 (A and B): Post operative day 7, no complications, post operative day 7 (lateral view).

DISCUSSION

Lipomas are the most common mesenchymal tumours in humans, occurring in 1% of the population.[3,4] They generally occur in adults in the age group of 40-60 years.[3] They are generally present in the torso and extremities.[5] Conventionally, lipomas are of three types: superficial (subcutaneous tissue), deep (deep soft tissue) and periosteal (within the surface of a bone).[3] Rico et al reported that neck lipomas are exceedingly rare. When present, they rarely exceed 5 cm and are mostly present in the posterior neck, external to the superficial cervical fascia.[2] A lipoma is termed as a giant lipoma when it is >10cms in any dimension or >1000 gm.[4] They have increased malignant potential.[5] Liposarcoma is the most common malignancy in long standing lipomas.[5] Out of all the lipomas, only a meager 13% are present in the head and neck region.[2-6]

The exact pathogenesis of lipomas is unknown. However, conditions like obesity, hypercholesterolemia and trauma have been linked to the development of lipomas.[3] Trauma is seen as a potential cause in lipomas of the neck.[7] While few studies have postulated that blunt trauma can cause rupture of the fibrous septae and anchorage connections between the skin and the deep fascia, allowing the adipose tissue to proliferate rapidly, another theory suggests that trauma related fat herniation through tissue planes creates so-called pseudolipomas. Trauma induced cytokine release also triggers pre-adipocyte differentiation and maturation.[5]

Lipomas in the neck are generally slow growing, benign, asymptomatic masses. Symptoms, when present, may be of pain, paraesthesia or weakness in upper limb, dysphagia, dyspnea or dysphonia.[2,6] Cosmetic concern is a major issue which drives the patient to the surgeon.[6]

Differentiating between lipoma and liposarcoma may be challenging but important, as treatment plans for the two are radically different.[1] Dedifferentiation is the most important histopathological evidence of malignant transformation.[7] Jones et al mentioned special criteria that make a liposarcoma more likely, including evidence of calcifications, size greater than 10 cm and irregularly thickened septae.[8] In anterior masses, association with thyroid should be excluded.[1] Other differentials include lymphadenopathy, laryngocele, lymphangioma, branchial cyst, epidermal cyst, nodular fasciitis, metastatic disease, pleomorphic adenoma, nodular subcutaneous fat necrosis, sarcoidosis etc.[3,6,7] Hereditary conditions associated with lipomas like Dercum's disease and Gardner's disease should be excluded.[3] Some unconventional forms of lipoma, including chondroid lipoma, angiolipoma, pleomorphic and dysplastic lipoma may be observed. Dysplastic lipomas do not exert MDM2 gene amplification but overexpress p53 and may demonstrate abnormalities in RB1, hence some cases may be associated with other tumours like retinoblastoma.[1] Diagnosis of lipoma is of exclusion.[4]

The mass should be subjected to extensive preoperative radiology to rule out conditions with a graver prognosis.[6] The size of the mass, its location and relation with adjacent structures needs to be delineated precisely, warranting the need for advanced modes of investigations like CT and MRI.[2] In CT, generally, lipomas appear to have intensity in the range of -50 to -150 HU. They are homogenous, low in density and do not show enhancement with contrast.[3] Lipomas generally appear T1 hyperintense, T2 intermediate to hyperintense on MRI, showing hypointense fat suppression in STIR sequences. Ultrasonography showing a circumscribed solid echogenic mass is consistent with lipoma.[1,2] FNAC from the mass should be conducted.

Majority of asymptomatic cervical lipomas can be managed by close follow up.[6] Therapeutic options include excisional or non-excisional approaches. Typically, surgical excision with pre-operative cross-sectional radiology and pathology is preferred. The mass should be sent for histopathology which typically shows collagen forming spindle cells which are CD34 positive.[7] Surgical strategies of cervical lipoma can be variable and should be adapted as per the size of the mass, its location, imaging, experience of the surgeon, patient age and health status.[6] Normal structures like the artery, vein or muscle may be displaced, thus a good knowledge of anatomy is important.[7] Non excisional options include corticosteroid injections which cause fat atrophy, or liposuction.[3]

Complications related to excision include hematoma, seroma, ecchymosis, infection, deformity, injury, scarring, fat embolus and local recurrence.[3] Carotid rupture preoperatively may require a graft.[6]

CONCLUSION

Our case illustrated the need for a full preoperative work-up even on lipomas. The mass, however benign, was unusual and demonstrated a good operative dissection with a favourable post operative outcome even without 3D imaging to guide neck dissection. This case report is an isolated one. It was a rare benign tumour that required a formal anterolateral neck dissection. The need for a pre-operative CT scan cannot be overemphasized as an aid in delineating the mass from its contiguous vital anatomical structures. We recommend that surgical management of this kind of lipoma, though benign, should be reserved for experienced surgeons well versed in formal deep neck dissection and capable of managing surgical complications.

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