

Surgical Resection of Rare Giant Cervical Lipoma

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Abstract: Lipoma are benign tumors originates from fat tissue. They mostly arise on the trunk and extremities. Giant cervical lipoma is unusual presentation of lipoma. They are divided into 3 types: superficial lipomas, deep lipomas, and periosteal lipomas. Lipoma constitute approximately 5% of all soft tissue tumors. Local recurrence of lipomas following marginal excision is generally less than 5%, although it may be somewhat more common with infiltrating intramuscular lipomas. Giant lipomas located on the anterior neck are extremely rare. They are typically present as a uniform, hyperechoic mass. MRI is preferred examination. We report a 32-year-old male with cervical giant lipoma for 5 years, he underwent surgery with favorable outcome. Our case report focus on a rare effected location. Differential diagnosis of lipoma is liposarcoma should always kept in mind. The treatment is surgical removal. After undergoing surgery to remove a massive neck lipoma, there is a possibility of experiencing various complications, including vascular injury (involving the subclavian vessels), nerve damage (involving the brachial plexus and potential vagus nerve dysfunction), hematoma formation, wound infections, fat embolism, and the development of unsightly keloid scars. Lipomas can manifest as multiple growths, reappear over time, or attain larger sizes when linked to conditions.

Keywords: Giant Cervical Lipoma, Lipoma, Cervical, Tissue

1. Introduction

Lipomas constitute approximately 5% of all soft tissue tumors. They have the potential to develop in various regions of the body, but they most commonly arise on the extremities and trunk. In 1856, Sir James Paget authored the first description of a lipoma situated within the trapezius muscle. In 1925, Bufalini originally characterized the radiographic attribute of lipomas as a region of radiolucency within soft tissues, a phenomenon later referred to as the "Bufalini sign." In 1926, Moriconi introduced a classification system for deep lipomas, differentiating them into intermuscular and intramuscular categories [1]. A lipoma is classified as giant when it exceeds 10 cm in size or weighs more than 1000 g [2]. While lipomas of the head and neck are more prevalent in men, solitary lipomas in other locations are more

frequently observed in women [3].

2. Case Report

A 32-year-old male patient was referred to our hospital with a palpable mass at the back of the neck for 5 years. The patient had no history of head and neck surgery or trauma and did not have any systemic diseases. He had a history of slow-growing mass without any signs of inflammation or decreasing in size. There was some discomfort and limitation of head movement caused by the tumor. Physical examination revealed a soft, mobile, painless giant tumor filling the posterior cervical region. CT scan showed a lipomatous tumor extending from upper thoracic vertebrae to

occipital bone and located subcutaneously at the back of the neck. It was well-circumscribed with a capsule and there was no infiltration into surrounding muscles (Figure 1). Patient was operated under general anesthesia with preliminary diagnosis of lipoma. Encapsulated lipoma was excised in piecemeal fashion. One Jackson-Pratt drain was placed to prevent hematoma and it was removed next day. No postoperative complication has been seen (Figure 2) and the pathology report confirmed preliminary diagnosis. There was no recurrence and the patient was symptom-free at his 12-month follow-up.

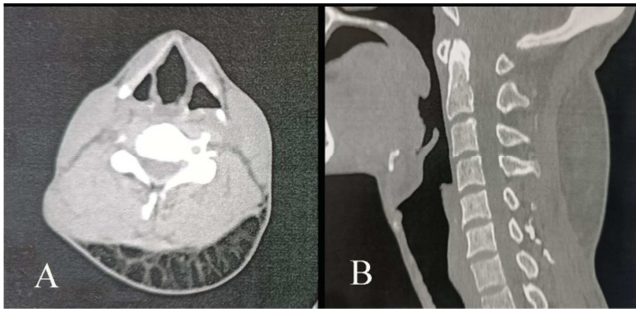


Figure 1. CT-scan of the neck revealed lipoma in the cervical region.



Figure 2. Photo of the patient after one month from surgery.

3. Discussion

Lipomas are non-cancerous growths consisting of mature adipocytes (fat cells) encapsulated by a thin layer of fibrous tissue [4]. It has been estimated that approximately 13% of lipomas occur in the head and neck [5]. A lipoma is considered to be giant when it is greater than 10 cm in size or weighs over 1000 g [6]. Most giant neck lipomas tend to grow slowly and exhibit no noticeable symptoms, primarily causing cosmetic concerns for the patients. Lipomas represent the most prevalent soft tissue tumor found in adults, with the highest occurrence typically observed between the

ages of 40 and 60 years, while they are rarely encountered in children [6]. Lipomas can manifest as multiple growths, reappear over time, or attain larger sizes when linked to conditions like Madelung disease, Dercum disease, familial lipomatosis, or adiposis dolorosa. Conditions such as Cushing disease and certain antiretroviral treatments for HIV can also lead to the development of substantial accumulations of fatty tissue in the neck [7].

3.1. Histopathology

Lipomas consist of lobules comprising uniform, fully developed adipose (fat) tissue enveloped by a thin fibrous capsule. In some instances, there may be relatively notable fibrous tissue (referred to as fibrolipoma), or exceptionally rare occurrences of metaplastic bone and/or cartilage. Additionally, fat necrosis and various reactive changes are commonly observed within these growth [8]. Cytogenetically, lipomas often contain alterations of chromosomes 12q, 6p, and 13q. Approximately two thirds of lipomas show alterations in 12q13-15, a segment containing the HMGIC gene [9]. Despite their substantial size and appearance, these lipomas rarely lead to respiratory difficulties, except in cases where a portion of the lipoma protrudes into the airway, particularly with para- or retropharyngeal lesions. The exact causes and mechanisms leading to the development of lipomas remain unclear. However, it has been proposed that genetic, endocrine, and traumatic factors may play a role in their etiology and pathogenesis [10].

3.2. Clinical Examination

In conventional classification, lipomas are categorized into three main types: superficial, deep, and periosteal lipomas. The clinical manifestations of lipomas are contingent on the size and location of the lesion, and in some cases, the rate at which the lesion grows. It typically manifests as a painless, soft-tissue lump. When touched, superficial lipomas feel doughy and can be easily moved. In contrast, deep lipomas are often larger and may create a sense of fullness or unevenness compared to the opposite extremity. These deep lipomas can occur between muscles (intermuscular) or within them (intramuscular). Intramuscular lipomas will shift along with muscle contractions, while superficial lipomas remain mobile even during muscle movement. In some cases, lipomas can cause irritation to nearby anatomical structures [1].

3.3. Imagery

Radiographs of small or subcutaneous lipomas may appear unremarkable. However, for larger tumors situated beneath the fascia, radiographs can reveal a distinct, well-defined soft-tissue mass with a density similar to subcutaneous fat. Occasionally, mineralization within these tumors can be observed. On ultrasonography, lipomas typically present as a uniform, hyperechoic mass. MRI is the preferred imaging modality for diagnosing lipomas, especially when dealing with deep masses or subcutaneous lesions larger than 5 cm.

Lipomas consistently exhibit a uniform signal intensity that is isointense to fat across all MRI sequences. In some cases, they may contain thin fibrous septae (less than 2 mm), but they rarely show enhancement after the administration of gadolinium [11]. MRI findings mentioned earlier, eliminating the need for a biopsy before treatment. However, if MRI findings indicate heterogeneous signal intensity, a lack of isointensity compared to subcutaneous fat, post-contrast enhancement, or the presence of necrosis, the clinician should consider alternative diagnoses. Lipoma variants and atypical lipomatous tumors may exhibit post-contrast enhancement, and it's important to include them in the list of potential diagnoses. When soft-tissue masses show significant heterogeneous signal intensity, failing to match the isointensity seen in subcutaneous fat, it is advisable to consider a biopsy to rule out the possibility of sarcoma [9]. For patients who cannot undergo MRI due to medical reasons, performing a CT scan with and without contrast is a suitable alternative diagnostic option.

3.4. Differential Diagnosis

Accurately distinguishing between giant lipomas and liposarcomas holds significant importance in medical evaluation. Unlike lipomas, liposarcomas are well-defined tumors but lack a true encapsulation [12]. Preoperative MRI or CT imaging can be beneficial in accurately assessing the extent of the tumor and its relationship with surrounding tissues. The primary differential diagnosis for lipoma primarily involves atypical lipomatous neoplasms (WDL) and various lipoma variants. When assessing the characteristics of a lipomatous lesion, certain features such as small clusters of unremarkable spindled cells, myxoid alterations, and coarse collagen formation should raise suspicion of spindle cell lipoma (SCL). If there are accumulations of tiny blood vessels resembling capillaries along with fibrin microthrombi, the condition can be diagnosed as angiolipoma [5].

3.5. Management

Lipomas are benign growths that do not pose a risk of turning into malignancies, and as such, there is usually no need for a referral to an oncologist. In cases where an asymptomatic lipoma is detected, it can be managed conservatively through observation. However, if the lipoma is increasing in size, causing cosmetic concerns, or causing symptoms, it can be surgically removed through a marginal excision. When lipomas are incidentally discovered during planned standard procedures, the same surgical indications apply. For superficial masses smaller than 5 cm, an excisional biopsy may be performed without the need for a prior MRI. For masses either larger than 5 cm or situated deep within tissues, diagnostic MRI findings, as described earlier, are necessary before determining the appropriate treatment approach. If surgical intervention is chosen, it is crucial to adhere to oncologic principles, employing a longitudinal incision along an extensile approach for lesions

located on the extremities [13]. Alternative approaches for treating lipomas have been suggested, including liposuction-assisted extraction, steroid injections, the squeeze delivery method, and the "pot-lid" technique. The latter, designed for smaller cervicofacial lipomas, offers the benefits of a smaller incision and reduced operative time [14]. The consensus among the majority of authors in the literature is that these techniques are ill-suited for giant lipomas, primarily due to the extensive nature of the lesions and their proximity to major nerves and blood vessels in the neck. Local recurrence of lipomas following marginal excision typically remains below 5%, though it may be somewhat more prevalent in the case of infiltrating intramuscular lipomas. Achieving complete excision of the lipoma, encompassing its capsule, is associated with exceedingly rare occurrences of recurrence and also enables the acquisition of a definitive histopathological diagnosis [15]. After undergoing surgery to remove a massive neck lipoma, there is a possibility of experiencing various complications, including vascular injury (involving the subclavian vessels), nerve damage (involving the brachial plexus and potential vagus nerve dysfunction), hematoma formation, wound infections, fat embolism, and the development of unsightly keloid scars [16].

4. Conclusion

Gigantic lipomas found on the front of the neck are exceptionally uncommon. In such instances, it is advisable to conduct a preoperative biopsy and histopathological confirmation. Complete surgical removal with a broad exposure is essential to reduce the chances of recurrence and prevent harm to critical structures in the neck. Complete local excision is curative. By contrast, intramuscular lipomas are characterized by a high incidence of local recurrence that can be avoided only by complete removal of the involved muscle.

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Declarations

Ethics Approval and Consent to Participate

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this review.

Consent for Publication

All authors consent to publication.

Contributions

Conception and design: YD. Acquisition of data: ML. Analysis and interpretation of data: YD. Drafting the article: YD. The patient was operated by: MK, NO. Approved the final version of the manuscript on behalf of all authors: all

authors. Study supervision: FM, NO, MK. “All authors have read and approved the manuscript.”

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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