Spindle cell lipoma of the occipital region: A case report

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ABSTRACT

Spindle cell lipoma (SCL) is a slow-growing tumor and a rare histological variant of benign lipomatous tumors. Cytology and histology along with clinical presentation are paramount in arriving at the correct diagnosis of SCL. Herein, is a case of a 31-year-old male who presented with a swelling in the left occipital region, on which previously two attempts for excision were made and aborted due to uncontrolled bleeding. The high-resolution sonographic findings suggested arteriovenous component in the lesion, whereas, non-contrast computed tomography of the head was suggestive of a lipoma. The histopathological analysis confirmed the diagnosis of SCL. We describe this case to highlight the classic location and differential diagnosis of the lipoma variants present commonly in this anatomic region. In addition, we review the role of pre-operative imaging in scalp soft-tissue tumors in assisting the surgeon in establishing the diagnosis and designing the surgical approach.

Key words: *Lipoma, Scalp, Spindle cell, Tumor*

Spindle cell lipomas (SCL) are a relatively rare histological variant of lipoma and are slow-growing, benign lipomatous tumors that were first described by Enzinger and Harvey in the year 1975 [1]. SCL account for 1.5% of all primary neoplasms of fat [2]. They are mostly seen in elderly males presenting as well-circumscribed subcutaneous lesions of mature adipose tissue arising typically (more than 90%) over the posterior neck, upper back, and shoulders [1-5]. They are chiefly composed of mature adipocytes, bland spindle cells, and collagen bundles due to which their differential diagnosis can be very difficult especially when they occur in sites other than their typical anatomical locations. The prognosis of these tumors is mostly favorable and thus, wide local excision is the treatment of choice [1].

This case highlights a rare presentation of SCL in the left occipital region of a 31-year-old male with high-resolution sonographic (HRSG) findings suggestive of a hemangioma or angiolipoma. The relative rarity of this tumor in this age group and misleading diagnosis on ultrasonography (USG) findings along with the two previous failed attempts at excising the tumor due to profuse bleeding was considered worthy of the presentation along with a review of the literature for better understanding of this soft-tissue tumor.

CASE REPORT

A 31-year-old male presented to the plastic surgery outpatient department with the chief complaint of awareness of a left occipital swelling for the past 6 years. The swelling was described as slow-growing, painless without any discharge or discomfort. He had a previous history of two surgical interventions, first 2 months ago and second 10 days ago which were not successful.

On general physical examination, the patient was vitally stable with a blood pressure of 110/70 mm of Hg, pulse rate of 82/min, and a respiratory rate of 15/min. On local examination, it was a solitary swelling approximately 7 cm × 7 cm over the left occipital region (Fig. 1). It was soft, non-tender, without any signs of active inflammation. The overlying skin had a linear surgical incision line with sutures *in situ*, suggestive of attempted previous excision. No regional lymph nodes were palpable.

Investigations including routine hematological investigations were all within the normal range. HRSG findings done with a high-frequency linear probe showed an arteriovenous component present in the lesion. Non-contrast computed tomography (NCCT) head revealed a well-circumscribed lesion with areas of fat attenuation in the left occipital region suggestive of a possible lipoma.

After obtaining informed consent, the patient was taken to the operating room for an excision biopsy. An elliptical incision was made right over the swelling including the previous scar. The incision was deepened to reach the margins of the swelling which were well-defined and lying in the subgaleal plane. The swelling was excised in toto (Fig. 2) and sent for histopathological examination which confirmed the presence of a tumor composed of adipocytes and spindle cells. Interspersed between the adipocytes were seen spindle cells arranged in a fascicular pattern having bland nuclei and ill-defined cytoplasmic boundaries suggestive of

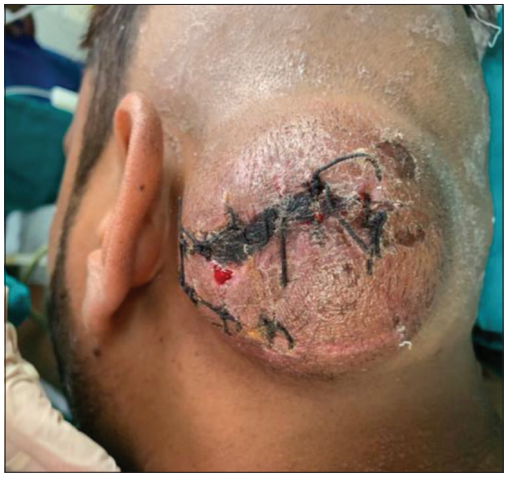

Figure 1: Swelling in the left occipital region with previous sutures *in situ*

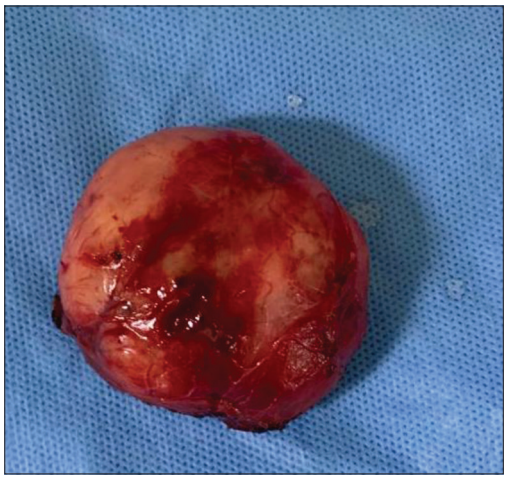

Figure 2: Intraoperative picture of the scalp swelling excised in toto

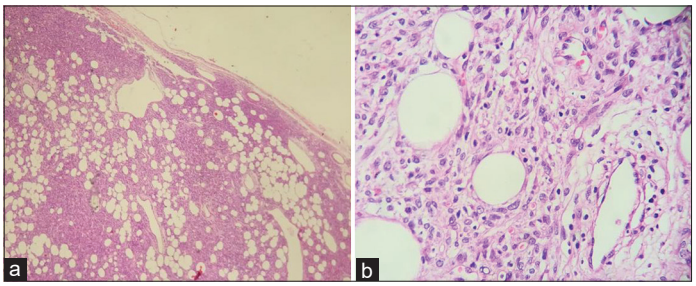

Figure 3: (a) Low power view showing a well encapsulated tumor with adipocytes and spindle cells; (b) high power view showing adipocytes and bland spindle cells. No mitosis, necrosis, or atypical cells seen

SCL (Fig. 3). Nuclear pleomorphism, significant mitosis, necrosis, and atypical lipoblast were absent. The post-operative period of the patient was uneventful. He made a full recovery and no recurrence was noted until 6 months after follow-up.

DISCUSSION

SCL is an uncommon clinical entity with distinct histopathological features. It is more commonly seen in males with a marked predilection in the sixth decade of life which may be partly explained by androgen receptor reactivation [4]. It is relatively uncommon in children and adolescents. The tumor is most commonly located in the posterior neck, the shoulder, and the upper back. The clinical findings of the present case were in accordance with the literature mentioned before, the only contrasting feature being that our subject was relatively young. The tumor is easily distinguishable from the surrounding subcutaneous tissue. The anatomic site, sharp circumscription, and superficial location of SCL are helpful in establishing a correct diagnosis.

The largest pathologic series of SCLs, containing 144 patients, noted that these lesions were well-circumscribed, rarely encapsulated, and had predilection of occurrence over the shoulders and neck [1]. SCLs are located more superficially [3] and are typically found in men over 45 years, whereas lipomas, in general, occur more frequently in women and in a less characteristic anatomic distribution [1]. Two studies followed patients for up to 22 [1] and 25 [5] years after the local surgical excision of SCL. They reported a benign clinical course and concluded that treatment with local excision was curative [1,5].

With the development of advanced techniques to image soft-tissue lesions, the question of whether, and when, to evaluate a head and neck soft-tissue mass, needs to be considered. With the exception of a handful of clinical entities (lipoma, hemangioma, subacute hematoma, pigmented villonodular synovitis, and meningioma), the radiological appearance of most other soft-tissue tumors is very non-specific [6,7]. In fact, in one group of studies, soft-tissue tumors were studied by imaging and the correct histologic diagnosis based on imaging studies was achieved in only 25% cases [8-10]. However, lipomas, being very radiolucent can be very reliably diagnosed even by plain radiographs which enhance the difference between fat and muscle, accentuate soft-tissue detail and nature of bone involvement [11].

When a diagnosis cannot be clarified with plain films, CT scan can be helpful, especially by detecting any adipose tissue and any calcification pattern. In this case, NCCT of the head was done, which was highly suggestive of a lipoma due to the finding of areas of fat attenuation. Magnetic resonance imaging (MRI) is considered the best imaging technique for diagnosing soft-tissue masses because of its ability to demarcate muscle groups, fat, and neurovascular structures [11]. However, in our case, MRI was not done since CT was highly suggestive of a lipomatous tumor.

In addition, an HRSG was done which showed an arteriovenous component in the swelling suggestive of a hemangioma or angiolipoma. However, studies suggest that the USG findings can be misleading in case of deep-seated lipomas and its sensitivity and specificity of diagnosing lipomas on ultrasound vary greatly in the literature. In our case, on collaborating the findings of CT and HRSG, a possible differential diagnosis could be of an angiomatous variant of SCL. Knowing the strengths and limitations of imaging, the surgeon should establish a differential diagnosis in most cases based on the prevalence of specific soft-tissue tumors in common patient age groups and anatomical sites and then plan the surgical management accordingly.

Microscopically, SCLs consist of mature adipocytes, numerous bland spindle cells and collagen fibers along with mast cells and many times areas of myxoid degeneration. Mitosis, cellular pleomorphism, and nuclear hyperchromasia are extremely rare or absent [12]. The histopathological features of the present case fulfilled the above description.

Although most SCLs are composed of a relatively equal ratio of fat and spindle cells, either of them may predominate, and the variations in the ratio of fat and spindle cells may cause a wide spectrum of imaging features [13]. The histopathological differential diagnosis of SCL includes simple lipoma, fibrolipoma, pleomorphic lipoma, and tumors of nerve tissue origin mainly neurofibroma and neurilemmoma. Simple lipoma does not exhibit extensive collagen bundles with spindle cells and mast cells. Fibrolipomas are less cellular than SCL and show large bundles of collagen.

SCLs are similar to pleomorphic lipomas both clinically and morphologically. Pleomorphic lipomas in their "classic form" are marked by the presence of large multinucleated floret type giant cells with multiple radially arranged nuclei [12]. Another variant of lipoma which needs to be considered in the differential diagnosis of subcutaneous tumor scalp is hibernoma which is also slow-growing, painless and large, diagnosis of which is easily confirmed histologically.

A rare variant of SCL known as the angiomatous or pseudoangiomatous variant which develops predominantly in the shoulder and cervical regions of adult males and exhibits features of typical SCL along with irregular branching spaces with villiform connective tissue projections, that impart a striking angiomatoid appearance [14]. There were no such findings in our case hence, the possibility of this swelling being an angiomatous variant of SCL was ruled out.

CONCLUSION

We present a case of SCL of the occipital region to illustrate its classic presentation, location, histopathological features, reliability of imaging in diagnosing, and to review its management when considering the several other types of soft-tissue masses which can be encountered in this location.

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