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Synovial Sarcoma of Tibialis Anterior Tendon

—Rare Case Report

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Abstract

Soft-tissue sarcomas (from the Greek sarcoma [fleshy growth]) are malignant tumors of mesenchymal or connective tissue origin. They are rare, comprising less than 1% of all adult cancers, and are heterogeneous, having an extensive range of histological types and biological behaviors. Synovial sarcomas represent a unique subset of soft tissue sarcomas and account for 5 - 10% of all STS. The name synovial sarcoma was proposed because the lesions showed a histological resemblance to normal synovial tissue. Thereafter, tumors have been diagnosed as arising in areas without synovial tissue, and the name synovial sarcoma may be a misnomer. Synovial sarcoma occurs predominantly in older children and young adults. It was named for its frequent occurrence within the soft tissue around large joints, particularly the knee. It is unusual for SS to invade joints, but it is found in close association with tendon sheaths, bursa, and joint capsules. Joint cavity involvement occurs in less than 5% of patients. We report a gentleman who underwent surgical excision of the tumour 3 years ago, after which recurrence was seen 6 months after surgery. Our patient was informed that data concerning the case would be submitted for publication and gave written consent.

Keywords

Soft Tissue Sarcoma, Synovial Sarcoma, Recurrence

1. Introduction

Synovial sarcoma is a relatively rare malignancy representing a soft tissue sarcoma (STS) of uncertain differentiation. Synovial sarcoma is unique among other STS as it presents at a younger age of onset and commonly occurs in adolescents and young adults. Soft tissue sarcomas are malignant tumors of mesenchymal or connective tissue origin. They are rare, comprising less than 1% of all adult cancers,

and heterogeneous, having an extensive range of histological types and biological behaviors. The name synovial sarcoma was proposed because the lesion showed histological resemblance to normal synovial tissue; therefore, tumors have been diagnosed arising in these areas without synovial tissue, and the name synovial sarcoma is a misnomer. It was originally named for its frequent occurrence within soft tissue around large joints; it is unusual for it to invade joints, although it is often found in close association with tendon sheaths, bursa, and joint capsules. Synovial sarcoma has been considered to have a poor prognosis [1] [2].

2. Objective

This paper aims to study a rare case of Synovial Sarcoma of the Tibialis Anterior tendon, its clinical features, management, and its functional outcome.

3. Case Report

In 2019, a 27-year-old male developed a swelling on the ankle for which excision was performed, and the HPE report showed tissue inflammation and synovial fluid, which was not significant. The patient developed a similar type of swelling after 6 months of surgery, for which the patient was referred to our center (**Figure 1**). Plain x-ray of the ankle shows soft tissue swelling without any bony involvement (**Figure 2**). MRI scan showed a lobulated lesion measuring 38 mm × 37 mm in the anterior compartment of the ankle, encasing the tibialis anterior tendon, suggestive of a recurrent mass lesion. Tendon sheath tumour. The patient underwent a wide surgical excision of the tumors, including the tendon sheath, and a sample was sent for HPE (**Figure 3**). Histological and immunohistochemical examination of the removed mass showed a linear course of a lesion composed of elongated spindles (**Figure 4** & **Figure 5**) to occasional epithelioid cells arranged in storiform and interlacing fascicles. The cells have eosinophilic cytoplasm with round to ovoid nuclei, fine chromatin, small nuclei, and rare mitotic figures noted.

- There are thin-walled, dilated blood vessels.
- There is mild lymphoplasmacytic infiltrate.
- No evidence of necrosis.

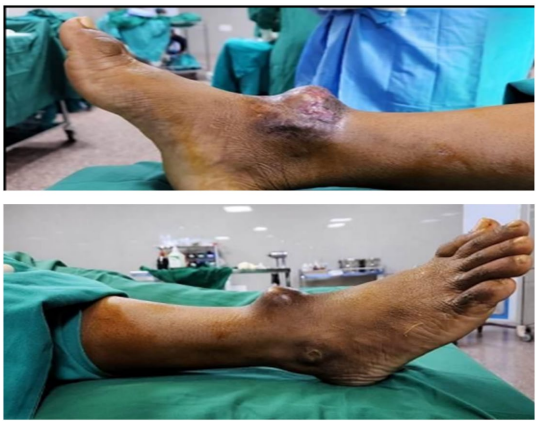

Figure 1. Swelling over the anterior aspect of the ankle.

Immunohistochemistry reveals nuclear staining with TLE-1 (Figure 6). Overexpression by IHC is highly sensitive and specific for the diagnosis of synovial sarcoma. The patient underwent local radiotherapy. A PET scan was done, which indicated no metastasis.

The symptoms resolved unremarkably, and the patient returned to normal activities of daily living (Figure 7).

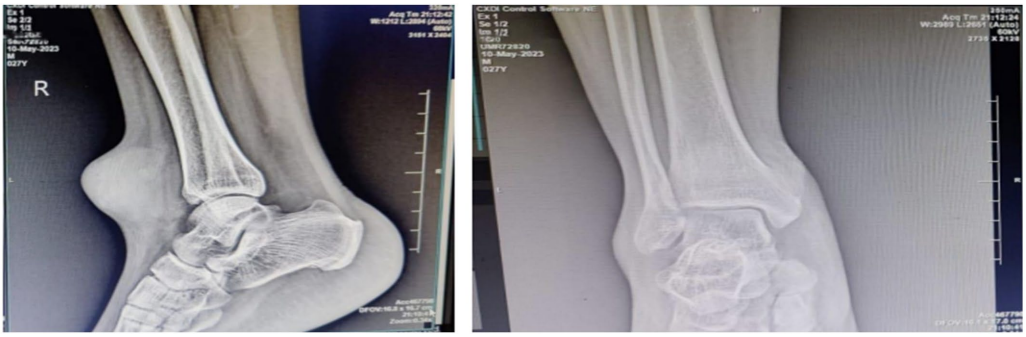

Figure 2. X-ray: shows soft tissue swelling.

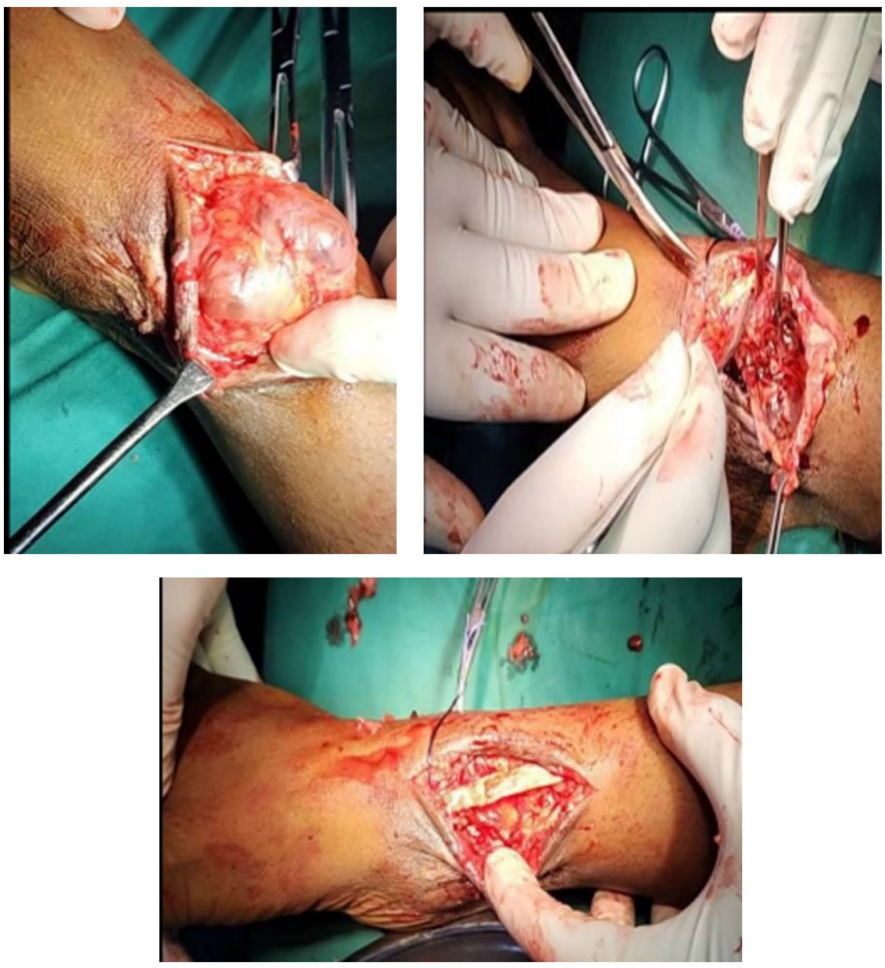

Figure 3. Intraoperative images showing tumour excision with the tendon intact.

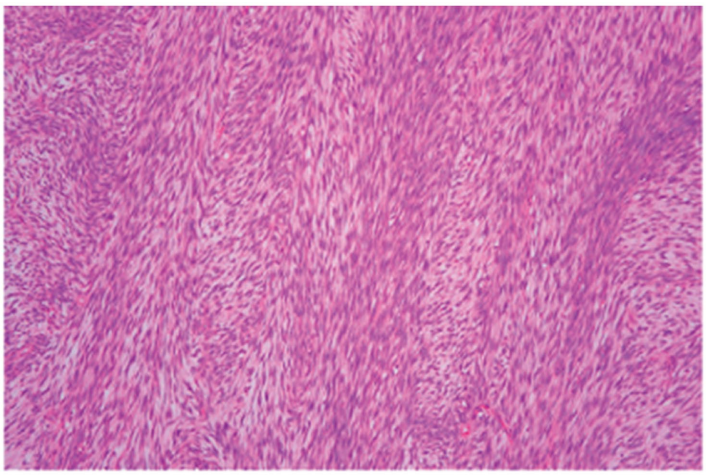

Figure 4. Monophasic spindle cells.

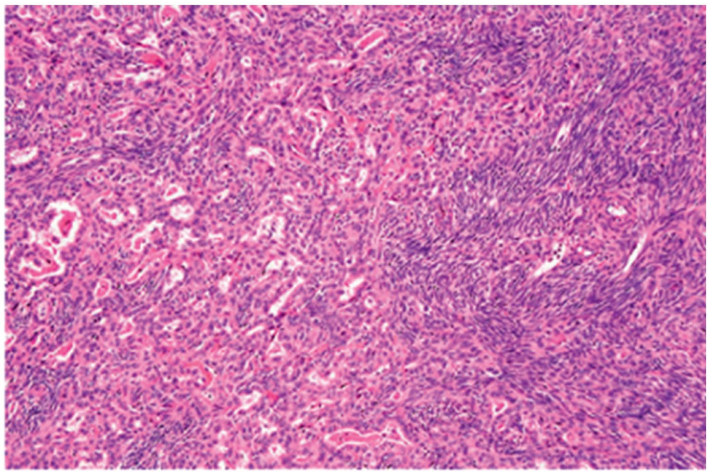

Figure 5. Biphasic with spindle cells.

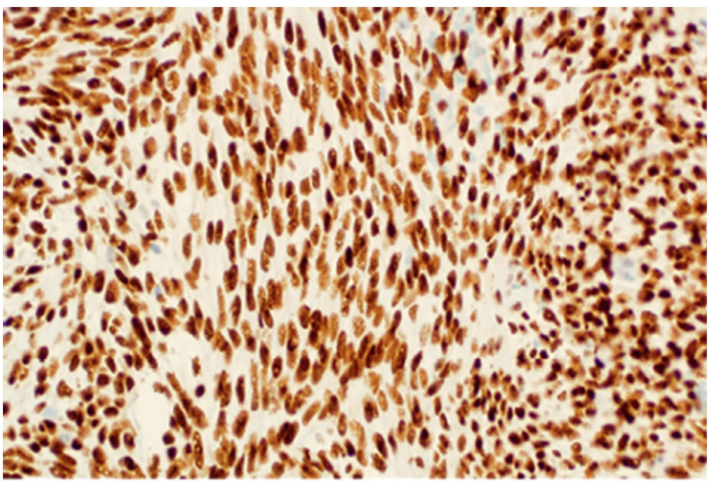

Figure 6. Immunohistochemistry.

Intra-op images of tumor excision show intact tendon.

Figure 7. Follow up images.

4. Discussion

Synovial sarcomas are malignant mesenchymal tumors, *i.e.*, tumors arising from connective tissue. There are generally two types of synovial sarcoma: monophasic sarcoma, *i.e.*, made up of only one type of cell, and biphasic sarcoma made up of both types of cells. The monophasic type is predominantly composed of fascicles of spindle-shaped cells, while the biphasic subtype is characterized by variable areas of spindle cells and glandular-like epithelium. Tumors originating in the foot and ankle are not commonly reported in the podiatric medical literature [3] [4]. Typically, patients with synovial sarcoma have a long history of a slow-growing soft-tissue mass. Synovial sarcoma is the common sarcoma to be misdiagnosed as a benign lesion, which may often lead to a delay in exact diagnosis and adequate treatment. Often, the mass may have a benign appearance on imaging studies. In several patients, the disease duration before surgery ranges from 2 to 4 years [5]. Another distinguishing feature of synovial sarcomas from other sarcomas is the younger age at the time of first symptoms—it often appears in adolescents and young adults and affects both sexes equally [6] [7]. The basis for diagnosis is a magnetic resonance examination and then a biopsy, which should be performed before surgery so that a sufficiently radical procedure can then be performed. There are many other tumors which mimic synovial sarcoma; the differential diagnoses are:

- Foreign body granuloma;
- Necrobiotic granuloma;
- Tendinous xanthoma;
- Fibroma of tendon;
- Ganglion cyst;
- Rheumatoid nodule;
- Epidermoid cyst;
- Lipoma.

The main treatment of synovial sarcoma is surgical treatment, which should take place only after a biopsy with histological examination of the tumour so that it is sufficiently radical and does not have to undergo an additional reoperation, as happened in the case of our patient. Primary less radical excision without prior biopsy verification leads to a higher risk of local recurrence, even if a proper reexcision was performed immediately after biopsy verification of the sarcoma [8] [9].

Synovial sarcomas appear to be more chemosensitive than other soft tissue sarcomas. In general, chemotherapy is recommended for younger patients, in whom it is expected to have a greater effect, or for patients with unresectable or already generalized sarcomas.

5. Conclusion

In conclusion, synovial sarcoma is a soft tissue sarcoma with a propensity to imitate benign extremity lesions. Even though synovial sarcomas of the extremities generally have a poor prognosis, adequate surgical resection and radiotherapy can be good options for these patients. Synovial sarcoma of the foot is commonly misdiagnosed because it is slow-growing, has a benign appearance on imaging studies, and can vary in size. Histopathology is important in diagnosis and should be requested early on, with the results available within days [10]-[17].

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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