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Unusual Gait Leads to Surprising Synovial Sarcoma Diagnosis: A Case Report

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Abstract **Case Report**

Synovial sarcoma is a high-grade soft-tissue tumor that can be locally aggressive and metastatic. The variability of early symptoms and the rarity of synovial sarcoma can affect the patient's presentation and clinical diagnosis. This makes the disease very susceptible to late awareness and misdiagnosis. We present the case of a 12-year-old boy with a one-year history of gait abnormality and pain in the left foot, which was identified as synovial sarcoma following an excisional biopsy. This article aims to describe the clinical, diagnostic, and therapeutic features of this rare pathology in a pediatric context while discussing its diagnostic challenges and treatment options.

Keywords: Synovial Sarcoma, Gait Disorder, Child.

INTRODUCTION

Synovial sarcoma is a rare malignant soft tissue tumor of mesenchymal origin that frequently develops near joints and tendon sheaths [1], it accounts for approximately 1% of all childhood malignancy [2], it typically occurs in patients between 15 and 35 years of age, with a slight male preponderance [3].

This neoplasm can occur in almost any location in the body. In most cases, it involves deep soft tissue of the lower extremities, frequently in the vicinity of large joints, like the knee and ankle [4]. Three types of synovial sarcoma have been identified: fibrous, epithelial, and poorly differentiated. Classical synovial sarcoma has a biphasic appearance with both fibrous and epithelial cell characteristics. Rarely, the tumor shows one monophasic form without exhibiting the other. Calcification of the tumor occurs in 20% to 30% of cases, while invasion or erosion of bone structures is observed in 5% to 20% of cases [5].

Adjunct imaging studies may be of help in initial diagnosis [6], but the gold standard diagnostic test is biopsy with histologic analysis [7].

This report discusses a rare case of a 12-year-old boy with synovial sarcoma in the left plantar region, identified through gait disturbance and pain, highlighting the need for thorough clinical examination and radiological evaluation for accurate diagnosis.

THE CASE REPORT

A 12-year-old boy was referred to the physical medicine and functional rehabilitation department in 2024 due to gait disorders. The mother reported that she first observed the child's symptoms approximately one year prior, when he began experiencing pain in his left foot, difficulty walking, and a decrease in daily activities.

The patient's medical history includes trauma to the left foot resulting from a road accident in 2023, with no family history of cancer or bone tumors.

Upon clinical examination, there was pain on palpation along the sole of the left foot, with a visual analog scale score of 08/10. During ambulation, the patient exhibited gait characteristics involving the lateral border of the left foot and permanent extension of the hallux.

There were no open lesions or clinical signs of infection. The patient demonstrated a full range of motion in the ankle, and muscle strength appeared adequate for his age despite atrophy of the left leg and foot muscles.

Diagnostic investigations included standard foot radiographs, which revealed no foreign body, fracture, or obvious bone destruction (Figure 1), as well as an ultrasound of the sole showing a subaponeurotic collection of 35 mm adjacent to the plantar muscles, with thick walls and nonvascularized echogenic content, leading the radiologist to recommend an MRI (Figure2).

The MRI showed a lesion in the deep plantar soft tissues of the left foot without signs of aggressiveness, in intimate contact with the plantaris quadratus muscle, and encompassing the tendon of the peroneus longus muscle (Figure3).

An excisional biopsy was performed, and the excised mass was sent for pathological analysis. One month post-surgery, the patient showed significant improvement in gait and disappearance of pain. Histopathological analysis revealed a fusocellular mesenchymal tumor proliferation with moderate to high cell density, and immunohistochemical tests confirmed it as synovial sarcoma.

A thoracoabdominal CT scan to assess distant metastases was negative, while an additional ultrasound of the left foot showed a lesional process in the deep plantar soft tissues, suggesting tumor residue. A subsequent bone scintigraphy ruled out any osseous metastases. The child was managed by a multidisciplinary team including physiatrist, pediatric oncologists, orthopedic surgeons, and radiation therapists.

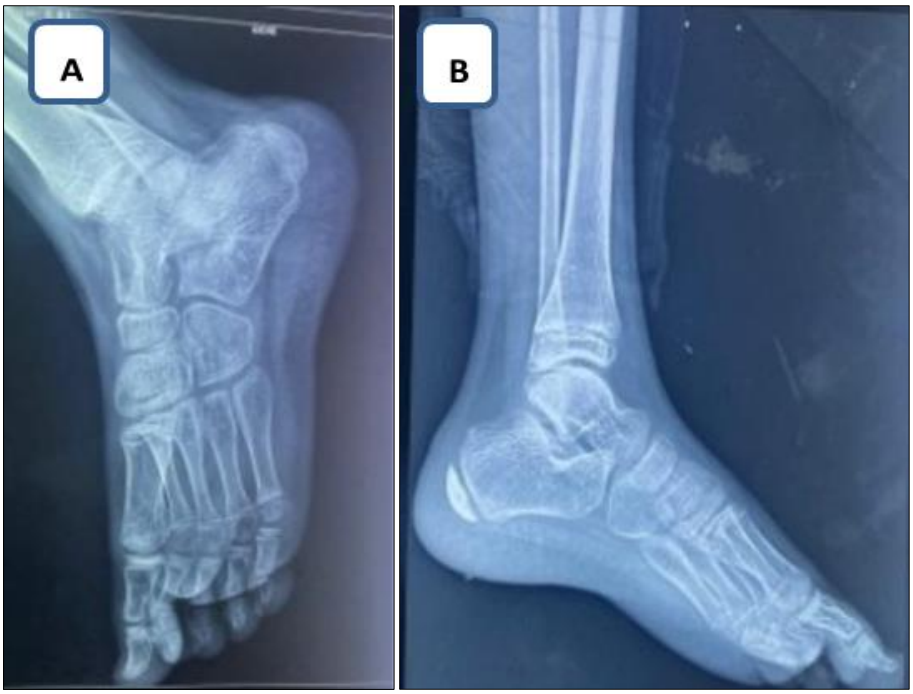

Figure 1: Medial oblique (A) and lateral (B) radiographs

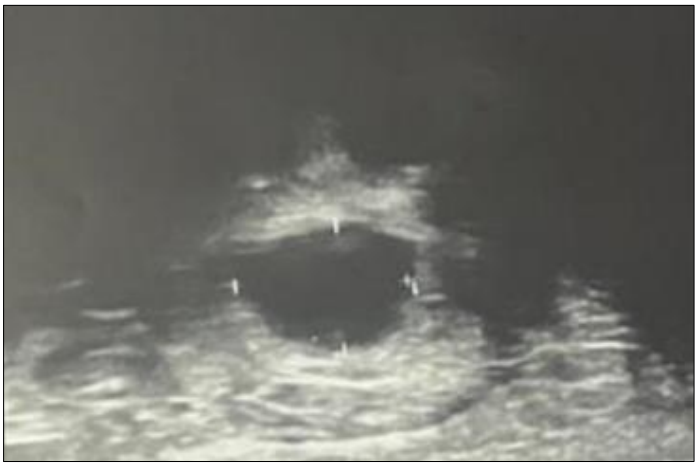

Figure 2: Ultrasound of the sole showing a sub-aponeurotic collection of 35 mm adjacent to the plantar muscles, with thick walls and non-vascularized echogenic content

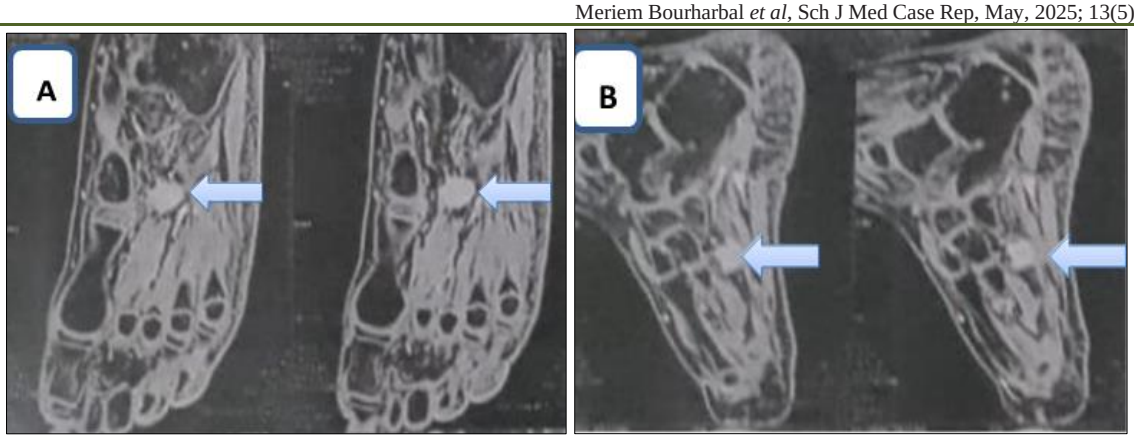

Figure 3: (A) Axial and (B) sagittal magnetic resonance imaging showing a lesion in the deep plantar soft tissues of the left foot without signs of aggressiveness, in intimate contact with the plantaris quadratus muscle, and encompassing the tendon of the peroneus longus muscle

DISCUSSION

Synovial sarcomas are rare in clinical practice. Patients may have a history of foot trauma, pain, and gait issues, but it's crucial to consider neoplasm, as shown in this case report.

Early diagnosis is challenging due to the rare nature of synovial sarcoma and nonspecific symptoms. MRI and biopsy are crucial for diagnosis, with PCR or cytogenetic analysis identifying the t(X;18) translocation as a key diagnostic element.

A multidisciplinary team consisting of oncologists, pathologists, radiologists, and podiatric surgeons is essential for the accurate diagnosis and effective treatment of this disease.

A recent study in Syria found that of 308 cases of soft tissue sarcomas, 10% were synovial sarcoma and 7% occurred in the foot and ankle [8].

Most studies indicate a tendency for synovial sarcoma to affect young adults, with a median age at diagnosis of approximately 30 years. Nonetheless, synovial sarcoma can occur in individuals of any age. There is a slight male predominance with a male-to-female ratio of 1.2:1, and no racial predilection has been identified. Typical clinical features of synovial sarcoma at presentation include a palpable swelling or soft tissue mass, often accompanied by localized pain and tenderness [9]. Recognition of this atypical manifestation is crucial, as the diagnosis may be significantly delayed otherwise. It is noteworthy that some patients may present with pain without an accompanying palpable mass [10].

A study performed by Chotel *et al.*, found that half of SS patients exhibited typical STS symptoms, with an average duration of symptoms before diagnosis being 98 weeks. The study reported an average patient-caused diagnosis delay (from symptom onset to first consultation) of 43 weeks and an average doctor-caused diagnosis delay (from first consultation to accurate diagnosis) of 50 weeks [11]. According to this article, the total duration of symptoms before diagnosis was approximately one year.

The treatment of synovial sarcoma in pediatric patients involves a multimodal strategy, incorporating radical surgery, radiotherapy, and occasionally chemotherapy. In this instance, surgical excision was conducted, followed by a regimen of chemotherapy. These treatments are aimed at mitigating the risks of local recurrence and metastasis.

Chemotherapy was more common for children than adults. Among those with surgically removed disease, the 5-year metastasis-free survival rate was 60% with chemotherapy and 48% without it [3].

Research across various age groups has shown that younger patients tend to have better prognoses. However, since tumor size also fluctuates with age, there is insufficient evidence to conclude that age alone is an independent prognostic factor.

CONCLUSION

Diagnosing synovial sarcoma of the foot in children is challenging and requires careful clinical evaluation. This case emphasizes the need for early, multidisciplinary care. While early diagnosis and proper management can lead to a favorable prognosis, long-term follow-up is crucial due to the risk of recurrence and metastasis.

REFERENCES

1. Bekarev M, Bajaj K, Rasquinha VJ, Nadiminti H, Thukral V. Synovial sarcoma of the foot. J FootAnkle Surg. 2013 Jul;52(4):513–7. https://doi.org/10.1053/j.jfas.2013.03.012
2. Ries LAG, Smith MA, Gurney JG, Linet M, Tamra T, Young JL, et al. The national cancer data basereport on patterns of childhood cancers in the

United States. Cancer. 1997 Dec 15 [cited 2025 Jan 23];80(12):2321–33. Available from: https://www.wellesu.com/10.1002/(sici)1097-0142(19971215)80:12%3C2321::aid-cncr14%3E3.0.co;2-w

3. Ferrari A, Gronchi A, Casanova M, Meazza C, Gandola L, Collini P, et al. Synovial sarcoma: aretrospective analysis of 271 patients of all ages treated at a single institution. Cancer. 2004 Aug 1;101(3):627–34. https://doi.org/10.1002/cncr.20386
4. Steinstraesser L, Ring A, Tilkorn D, Al-Benna S, Hauser J, Steinau HU. Biphasic synovial sarcoma ofthe extremity: quadruple approach of isolated limb perfusion, surgical ablation, adipofascial perforator flap and radiation to avoid amputation. Case Rep Oncol. 2011 Apr 6;4(1):222–8. https://doi.org/10.1159/000327845
5. Dalinka MK, Zlatkin MB. The roentgen features of synovial sarcomas. Clin Radiol. 1973 [cited 2025 Feb 17];24(3):331–6. Available from: https://www.wellesu.com/10.1016/s0009-9260(73)80158-8
6. Morton MJ, Berquist TH, McLeod RA, Unni KK, Sim FH. MR imaging of synovial sarcoma. Am JRoentgenol. 1991 Feb;156(2):337–40. https://doi.org/10.2214/ajr.156.2.1846054
7. Pfeifer JD, Hill DA, O'Sullivan MJ, Dehner LP, Coffin CM. Diagnostic gold standard for soft tissuetumours: morphology or molecular genetics? Histopathology. 2000 Dec;37(6):485–500. https://doi.org/10.1046/j.1365-2559.2000.01107.x
8. Ghazal H, Al Ali M, Al Hariri Y. Prevalence of malignant soft tissue tumors in extremities: anepidemiological study in Syria. [cited 2025 Jan 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC4151447/
9. Murphey MD, Gibson MS, Jennings BT, Crespo-Rodríguez AM, Fanburg-Smith J, Gajewski DA. Imaging of synovial sarcoma with radiologic-pathologic correlation. Radiographics. 2006 [cited 2025 Jan 23];26(5):1543–65. Available from: https://www.wellesu.com/10.1148/rg.265065084
10. Cadman NL, Soule EH, Kelly PJ. Synovial sarcoma. An analysis of 134 tumors. Cancer. 1965 May;18(5):613–27. https://doi.org/10.1002/1097-0142(196505)18:5<613::AID-CNCR2820180510>3.0.CO;2-V
11. Chotel F, Parot R, Bourelle S, Raux S, Gomez-Brouchet A, Dijoud F, et al. Variability in thepresentation of synovial sarcoma in children: a plea for greater awareness. J Bone Joint Surg Br. 2008 Aug; 90-B(8):1090–6. https://doi.org/10.1302/0301-620X.90B8.19815