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Myopericytoma: A Unique Entity - A Rare Benign Tumor in the Webspace of the Hand

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Abstract: ***Myopericytoma is a rare benign tumor arising from cells surrounding blood vessels, typically found in the lower limbs. Its occurrence in the hand is unusual and can present with symptoms due to limited space. We report a case of a middle-aged man with a painful swelling in the first web space of the left hand. Imaging revealed a well-defined soft tissue mass, and surgical excision was performed. Histopathology confirmed the diagnosis of myopericytoma. The patient recovered well with no recurrence at six months. This case highlights the importance of considering myopericytoma when evaluating soft tissue masses of the hand and demonstrates that complete excision offers effective treatment.***

Keywords: Haemangiopericytoma, Myofibroma, Myopericytoma, Perivascularmyoid cells, Perivascular Myoma, Sarcoma, Soft Tissue, General Surgery, Pathology, Oncology

1. Introduction

Myopericytoma is a rare, benign soft tissue neoplasm arising from perivascular myoid cells, exhibiting smooth muscle differentiation. Recognized as a distinct pathological entity in 1998 [1], it is histologically defined by concentric perivascular arrangements of spindle-shaped cells surrounding vascular channels [2]. Although the tumor predominantly affects the lower extremities, occurrences in the head, neck, trunk, and upper limbs have been reported [3,4]. Its manifestation in the hand is exceptionally rare and poses a diagnostic challenge due to limited awareness and the hand's intricate anatomical structure [5]. Clinically, myopericytomas typically present as slow-growing, painless masses. However, in confined anatomical regions like the hand, symptoms such as pain or functional limitation may arise due to compression of adjacent structures [6]. Imaging modalities such as ultrasonography and plain radiographs aid in localization but are nonspecific [7]. Histopathology remains the gold standard for diagnosis, and surgical excision is generally curative, with low recurrence risk [8].We present a rare case of myopericytoma located in the first web space of the left hand, outlining its clinical, radiological, surgical, and pathological features.

2. Case presentation

A 55-year-old right-handed man presented with a two-year history of a gradually enlarging swelling in the left first web space. Over the past three months, he reported associated pain. There was no history of trauma or infection.

On physical examination, a firm, mobile, well-circumscribed subcutaneous mass measuring approximately 3× 4 cm was palpable. (Figure *1*) The overlying skin was intact, and neurovascular assessment was unremarkable.

Imaging studies included a plain X-ray (posteroanterior view), which revealed a well-defined, rounded soft tissue opacity located in the first web space between the thumb and index finger (Figure *3*). The lesion showed no calcifications, bony erosion, or periosteal reaction. Adjacent bones appeared normal, with preserved joint spaces

Ultrasound examination demonstrated a well-circumscribed, hypoechoic, and vascular lesion.

Surgical excision was performed under regional anesthesia. Intraoperatively, a reddish-brown, encapsulated nodular mass measuring 3 × 3 × 2 cm was identified and completely excised (Figure *4*) (Figures *5*). The cut surface showed gray-white areas with a spongy texture and focal hemorrhage. Hemostasis was achieved, and the wound was closed with 3.0 Ethilon sutures (Figures *6*) (Figure *7*).

Sutures were removed after ten days without complications such as wound dehiscence or infection. The patient regained full range of motion and resumed routine activities within two weeks.

Histopathology examination revealed:Spindle cells with oval to wavy nuclei arranged in concentric perivascular layers. Numerous anastomosing, dilated vascular channels lined by endothelial cells were present. Focal areas of stromal hyalinization and edema [2].(Figure *8*) Histopathology demonstrated the hallmark concentric perivascular growth pattern in a loose collagenous stroma, consistent with a benign myopericytoma [2].

These findings confirmed the diagnosis of myopericytoma.

At six months' follow-up, the patient had no recurrence and maintained full, pain-free hand function.

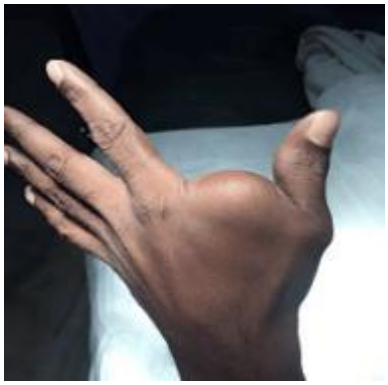

Figure 1: Pre Operative image -dorsal view-

Preoperative image showing a large, well-defined soft tissue swelling on the dorsal aspect of the hand, extending from the thenar region. The lesion is presenting as a painless, gradually enlarging mass causing mechanical discomfort and impaired hand function

Figure 2: Pre Operative image- Plantar view

Palmar view of the left hand showing a prominent swelling at the base of the thumb, suggestive of a soft tissue tumor. The overlying skin appears intact with no signs of ulceration. The mass causes visible distortion of the thenar contour, raising concern for functional limitation and indicating need for surgical intervention.

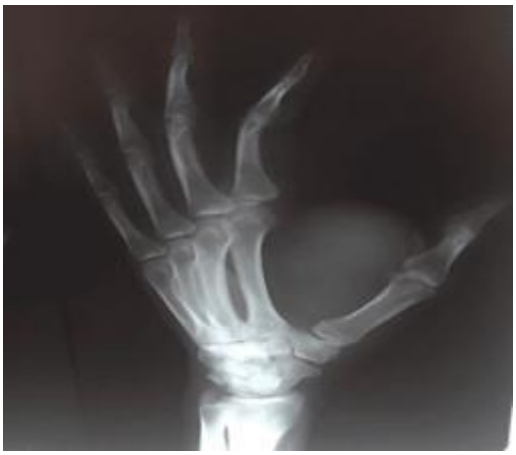

Figure 3: Radiological image of the swelling

Plain X-ray of the left hand (posteroanterior view) shows a large, well-defined, rounded soft tissue mass at the base of the thumb. The bones of the hand and wrist appear to be intact, without obvious fractures or dislocations. The mass does not seem to invade or destroy the surrounding bony structures, suggesting it is likely benign.

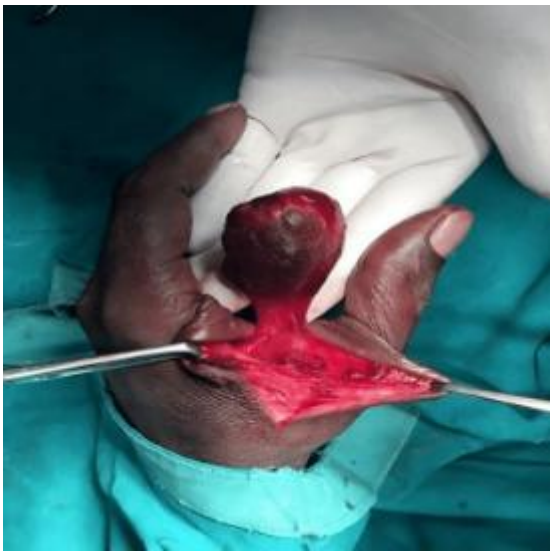

Figure 4: Intra operative image

Intraoperative image showing the excision of a large swelling which is reddish-brown encapsulated nodular mass prior to excision from the palmar aspect of a patient's hand. The tumor is being carefully dissected from surrounding soft tissue structures to preserve function. This image highlights the complexity of tumor removal in delicate anatomical regions

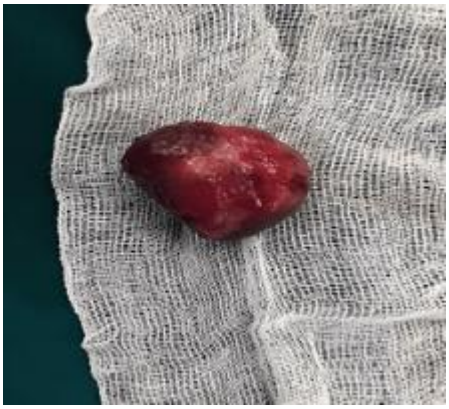

Figure 5: Post Operative image after excision of swelling

Excised mass measuring approximately 3 × 3 × 2 cm with a spongy, gray-white cut surface and focal hemorrhage placed on surgical gauze. The well-circumscribed mass was removed en bloc during hand surgery and sent for histopathological evaluation

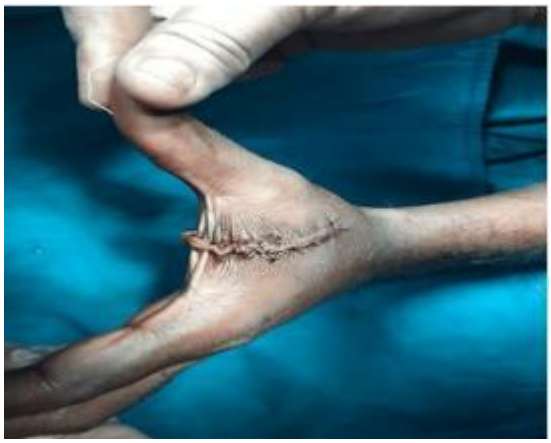

Figure 6: Post operative image after suturing

This clinical image shows a postoperative dorsal view of the left hand after excision of the swelling, specifically the base of the thumb and first web space. The location corresponds to the area seen in the previous X-ray

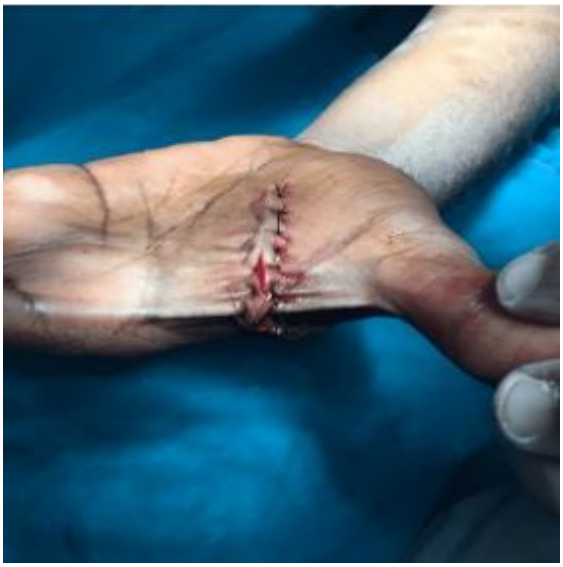

Figure 7: Post suturing - palmar view

Postoperative palmar view of the left hand demonstrating surgical incision that has been sutured and regained its normal appearance after excision of the swelling.

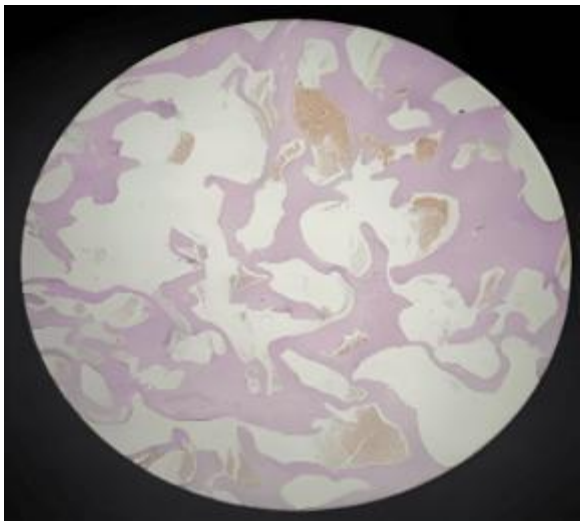

Figure 8: Histopathalogy slide image

Histopathological image under magnification ×40 (H&E stain). The section shows concentric perivascular spindle-shaped cells with wavy nuclei and with dilated vascular channels embedded in a myxoid stroma. The characteristic loose collagenous matrix and lack of atypia support the diagnosis of a benign tumor myopericytoma.

3. Discussion

Myopericytoma is a rare perivascular neoplasm that frequently arises in the lower extremities and rarely involves the upper limbs or hand [8]. In confined regions like the hand, symptoms such as pain or impaired function may arise due to local compression [9]. Histologically, myopericytomas are distinguished by concentric perivascular proliferation of spindle cells exhibiting smooth muscle features, helping to differentiate them from other vascular neoplasms like glomus tumors and hemangiopericytomas [10, 11].

Immunohistochemistry, though not performed in this case, typically shows: Positivity for smooth muscle actin (SMA). Negativity for CD34 and S-100, assisting in distinguishing myopericytomas from other perivascular tumors [10, 11]. Surgical excision remains the primary treatment modality, offering favorable outcomes and minimal recurrence [8]. Malignant transformation is exceedingly rare but has been documented, especially in larger or recurrent lesions [11].

4. Conclusions

This case highlights the importance of considering myopericytoma in the differential diagnosis of soft tissue masses in the hand, despite its rarity. Accurate diagnosis depends on careful clinical evaluation and histopathological confirmation. Surgical excision offers definitive treatment with favorable outcomes and minimal recurrence risk. Awareness of this entity among clinicians and pathologists is essential to ensure prompt diagnosis and optimal management.

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Institutional Ethical Committee (Human Studies) issued approval NO.IEC/C- P/58/2025. Informed written consent was obtained from the patient for publication of this case report and any accompanying images. The patient was informed that the report would be published in an open-access format. All identifying information has been anonymized to maintain confidentiality, in accordance with institutional and international ethical standards.

Conflicts of interest: None declared

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