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Case Report

A rare case of ancient Schwannoma of the ulnar nerve

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ABSTRACT

Schwannomas are benign tumors of neural crest origin that can arise from any nerve. Ancient Schwannomas are an exceedingly rare but benign variant characterized by degenerative changes on histopathology, often mimicking malignancy. Here, we report a case of a 45-year-old man presenting with a painful swelling in the left hand. Magnetic resonance imaging (MRI) suggested Schwannoma. Surgical excision revealed the tumor arising from a branch of the ulnar nerve. Histopathological examination confirmed the diagnosis of ancient Schwannoma through immunohistochemistry.

Keywords: Benign, Ancient Schwannoma, Rare

INTRODUCTION

Schwannomas are tumors of the peripheral nerve's neural sheath, arising from Schwann cells derived from the neural crest. They are the most common tumors of the peripheral nerves, typically presenting as a painless swelling.[1] Ancient Schwannomas, a rare variant, are associated with long-standing degenerative changes. These changes can mimic malignancy in histology and imaging, leading to diagnostic challenges. This report details a rare case of an ancient Schwannoma of the ulnar nerve.

Aims and objectives of the study were to report a rare case of ancient Schwannoma of the ulnar nerve.

CASE REPORT

A 45-year-old hypertensive man presented with a painful mass on the left hand. The mass had been present for over 10 years and had grown significantly during this period. An earlier attempt to remove the mass was unsuccessful. The swelling, located in the hypothenar area, extended medially, crossing the neutral line of the hand. It was extremely painful to touch, with Tinel's positive sign. Small muscles of the hand and thumb were normal. The mass was firm and adherent to a previous scar, with stretched overlying skin. Ulnar and radial pulses were intact.

MRI revealed a soft tissue mass over the ulnar aspect of the wrist and hypothenar region, hyperintense on T2-weighted imaging with hypointense foci. Findings were consistent with a schwannoma.

Surgical excision was performed under general anesthesia. A pearly white, firm tumor measuring approximately 5×6×6 cm was excised from a cutaneous branch of the ulnar nerve without damage to adjacent structures. Postoperative recovery was uneventful. At three-month follow-up, the patient exhibited no neurological deficits, and the hypothenar area had healed well.

Histopathological examination revealed a well-circumscribed, encapsulated mass of spindle cells arranged in short fascicles and bundles. Hypo- and hypercellular areas with cystic degeneration were observed, along with nuclear palisading (Antoni A areas). Low mitotic activity and nuclear atypia were noted. Immunohistochemistry was positive for S-100 and

chromogranin, confirming the diagnosis of ancient Schwannoma.

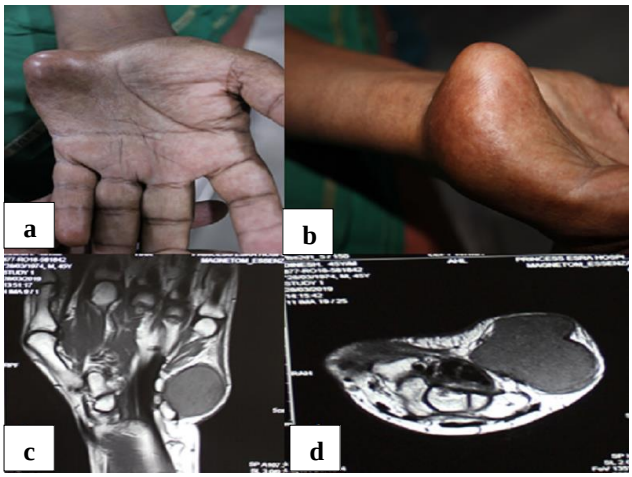

Figure 1: (a) Clinical image showing swelling in the hypothenar area, (b) overlying skin is stretched with no dorsal extension of swelling, (c) MRI shows a hyperintense soft tissue lesion on T2-weighted imaging with flexor tendons displaced, and (d) axial MRI section showing the lesion is hypointense on T1-weighted imaging.

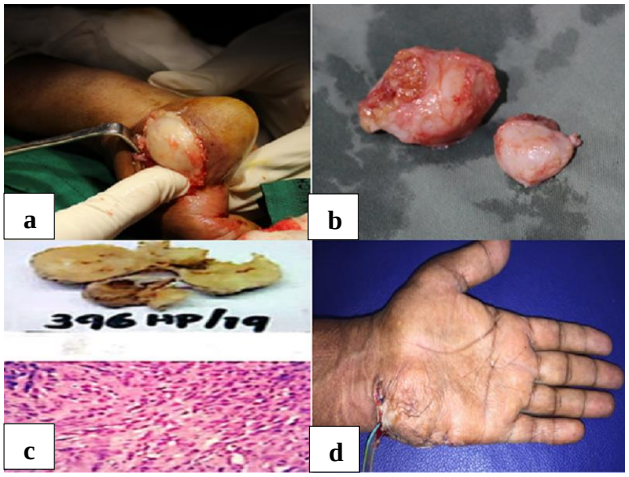

Figure 2: (a) Intraoperative image showing a pearly white tumor, (b) excised tumor specimen, (c) histopathological examination showing spindle cell proliferation with hypo- and hypercellular areas and cystic degeneration, and (d) postoperative image with a corrugated rubber drain in situ.

DISCUSSION

Schwannomas are benign tumors originating from Schwann cells that typically present as painless, slow-growing masses. Ancient Schwannomas, while rare, exhibit unique features such as nuclear atypia, hyalinization, cystic degeneration, and calcification, which can mimic malignancy on imaging and histopathology.[2,3]

The diagnostic challenge of ancient Schwannomas lies in their resemblance to malignant peripheral nerve sheath tumors, liposarcomas, and synovial sarcomas. Accurate diagnosis relies heavily on histopathology, which demonstrates characteristic Antoni A (hypercellular) and Antoni B (hypocellular) areas, as well as immunohistochemical staining positive for S-100 protein, a marker of neural crest origin.[4,5] Imaging modalities such as MRI are crucial for preoperative evaluation, typically showing encapsulated, heterogeneous lesions with variable signal intensities due to degenerative changes.[6,7]

The ulnar nerve is an uncommon site for Schwannomas, and reports of ancient Schwannomas originating from its cutaneous branches are exceedingly rare.[8] In this case, the tumor's size and chronicity presented a significant diagnostic challenge. The MRI findings, coupled with the surgical and histopathological evaluation, were critical in confirming the benign nature of the lesion and guiding appropriate management.

Complete surgical excision is the treatment of choice for Schwannomas, including the ancient variant. The encapsulated nature of these tumors facilitates nerve-sparing dissection, and recurrence is rare following complete removal.[9,10] In this case, meticulous dissection allowed for successful excision without damage to adjacent structures, resulting in an excellent postoperative outcome with no neurological deficits.

The importance of recognizing ancient Schwannoma as a benign entity cannot be overstated. Misdiagnosis as a malignant tumor can lead to overtreatment, including unnecessary radical procedures. This case underscores the need for a multidisciplinary approach involving imaging, surgical expertise, and pathological evaluation to achieve an accurate diagnosis and optimal patient outcomes.

CONCLUSION

This report presents a rare case of ancient Schwannoma arising from a cutaneous branch of the ulnar nerve. The case emphasizes the significance of combining clinical evaluation, imaging, and histopathological analysis for accurate diagnosis and effective management. Early surgical excision remains the cornerstone of treatment, ensuring symptom relief and minimizing the risk of recurrence.

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