MEDIAN NERVE GIANT SCHWANNOMA

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ABSTRACT

Background: Schwannomas are benign peripheral nerve sheath tumors arising from Schwann cells, most commonly affecting the median nerve in the upper extremity. Although typically slow-growing and asymptomatic, they can present with pain, swelling, or neurologic symptoms due to nerve compression. Accurate diagnosis and appropriate management are crucial to ensure complete resection and preservation of nerve function.

Case Presentation: We report a case of a 30-year-old male presenting with a 3-year history of a painless, gradually enlarging swelling on the medial aspect of the distal left arm. On examination, a 6×6 cm, well-circumscribed, soft, and tender mass was noted, with mild motor weakness in thumb opposition and finger flexion. Magnetic resonance imaging (MRI) revealed a well-defined lesion within the muscular plane, arising from the median nerve, consistent with a benign peripheral nerve sheath tumor. The patient underwent complete surgical excision with preservation of the nerve fascicles, without the need for nerve grafting. Histopathological examination confirmed the diagnosis of schwannoma. Postoperatively, the patient experienced no new neurological deficits and showed clinical improvement.

Conclusion: This case highlights the importance of considering schwannomas in the differential diagnosis of soft tissue masses in the upper limb, particularly when associated with subtle neurological findings. Imaging modalities such as MRI and ultrasonography play a key role in preoperative assessment. Surgical enucleation remains the treatment of choice, offering excellent outcomes with low recurrence rates and preservation of nerve function. This report reinforces current literature on the clinical presentation, diagnostic approach, and successful management of median nerve schwannomas.

Keywords:- median nerve, schwannomas, benign peripheral nerve sheath tumors, surgical excision

INTRODUCTION

Peripheral nerve sheath tumors are a group of neoplasms originating from the cells surrounding peripheral nerves. Among these, schwannomas, also known as neurilemomas, are the most common benign variant (1,2). These tumors typically exhibit slow growth and are generally benign. While they can occur sporadically or be associated with genetic disorders, schwannomas commonly affect individuals between the third and sixth decades of life (3). This report aims to present a case of median nerve sheath tumor schwannoma and review the relevant literature concerning its presentation, diagnosis, and management.

Literature Review

Pathophysiology and Characteristics

Schwannomas originate from Schwann cells and are typically encapsulated, solitary tumors (3,4). Histologically, they are characterized by Antoni A areas (dense cellularity with Verocay bodies) and Antoni B areas (myxoid, hypocellular regions). The presence of S100 protein on histochemical analysis further confirms their diagnosis and helps differentiate them from other soft tissue tumors like lipomas, neurofibromas, and gangliomas (2,3). Their encapsulated nature often facilitates complete surgical enucleation with preservation of nerve fascicles (5,6).

Clinical Presentation

Median nerve sheath tumors can initially be asymptomatic or present as a local bulging or discomfort. As the tumor grows, it may compress adjacent tissues, leading to symptoms such as paresthesia, a positive Tinel's sign, pain, and dysesthesia (3). Pain is a frequent complaint, and a palpable mass on the flexor aspect of the forearm is common (7). In some instances, multiple schwannomas on the median nerve can lead to symptoms that might be misdiagnosed as carpal tunnel syndrome (8). Motor deficits are rare in benign cases and may suggest malignancy (3). The asymptomatic nature and slow evolution can lead to delayed diagnosis (9).

Diagnosis

Diagnosis of median nerve sheath tumors can be challenging due to non-specific symptoms and potential confusion with other soft tissue tumors (3). A combination of clinical assessment and imaging is crucial. Magnetic Resonance Imaging is the preferred imaging modality as it provides detailed information on tumor extent and its relationship with surrounding structures, aiding in surgical planning (3,8). Ultrasonography is a valuable preliminary tool, revealing avascular, well-limited masses and assisting in the characterization of tumors and peripheral neuropathies (3,10,11). Computed Tomography can also be used in conjunction with other imaging for assessment (7). Histopathology: The definitive diagnosis is typically made through histopathological examination of the excised tumor (2,3). Biopsies are generally not recommended due to risks of neurological injury or tumor cell translocation (3).

Treatment

Surgical resection is the most common and curative treatment for benign median nerve sheath tumors (1,3,12). The primary goal is complete tumor removal while preserving nerve function (5). Due to their eccentric growth, schwannomas can often be enucleated without damaging nerve fascicles (3,5,6). Surgical loupes or microscopic magnification are commonly used to ensure precise dissection and nerve preservation (5,6). Intraoperative ultrasound can also assist in visualizing the lesion and ensuring complete removal (3).

Prognosis and Recurrence

The prognosis for schwannomas after surgical removal is generally excellent, with a low recurrence rate and minimal potential for malignant transformation (2,9,13). Complete resection is associated with favorable outcomes (12,14). While patients may experience temporary neurological symptoms post-surgery, these typically resolve within a few months (3).

CASE REPORT

A 30 year old man presented with swelling at left upper limb- lower 1/3 of arm on medial side since 3 years. He referred only to the local pain of touching it. In a neurologic exam, he had a strength grade 4 for thumb opposition and finger flexion.

Clinically he had 6x6 cm globular swelling on the medial aspect of the lower 1/3 of left arm, soft with well defined margin fixed to underlying structures, moving along length of arm, tenderness present, overlying skin appears normal (Fig. 1). He underwent an MRI that showed a lesion suggestive of a large benign peripheral nerve sheath tumor in the intramuscular plane at the medial aspect of the distal left arm arising from the median nerve (Fig. 2). He was subjected to a tumoral resection (Figs. 3). The nerve graft was not necessary.. The patient did not report new neurological impairment. The histopathology was compatible with Schwannoma (Fig. 4).

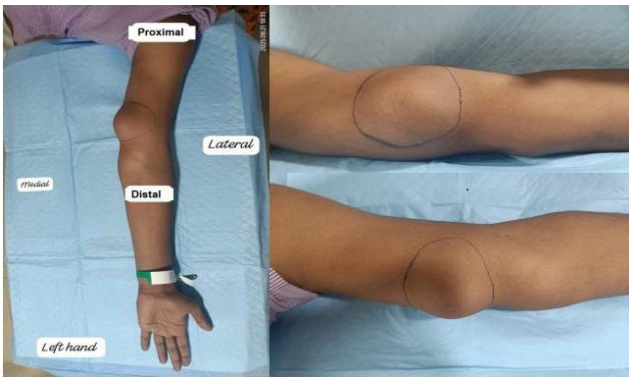


Figure 01: clinical images of left arm swelling



Figure 02: Images showing MRI Images of left arm a; axial section of left arm, b; sagittal section of left arm, c; coronal section of left arm



Figure 03: Images showing pathological specimen of swelling

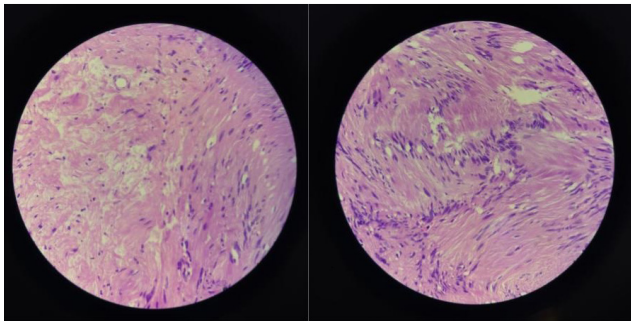


Figure 04: Histopathologic examination shows [A] hypocellular Antoni A and hypercellular Antoni B, [B] Verocay bodies, confirming the diagnosis of benign schwannoma.

DISCUSSION

The present case of schwannoma of left median nerve aligns with several findings in the literature regarding median nerve sheath tumors. For instance, the patient's age, gender and symptom are consistent with Chaves et al. (3). The diagnostic pathway, relying on MRI and ultrasound, are in line with recommended practices for characterizing these tumors and differentiating them from other soft tissue masses (3).

The successful surgical excision with preservation of nerve function and positive neurological recovery further supports the literature's emphasis on complete surgical removal as the gold standard for benign schwannomas, often achievable without significant neurological sequelae (5,6). This case also underscores the importance of considering these tumors in the differential diagnosis of swelling at left upper limb- lower especially given their non-specific presentation (3,8).

CONCLUSION

This case reports the case of a schwannoma arising from the left median nerve, presenting as a slow-growing, painless swelling in the distal arm. The tumor was successfully excised without postoperative neurological complications contributing to the understanding of median nerve sheath tumors. It highlights the importance of thorough clinical and radiological evaluation for accurate diagnosis and demonstrates the effectiveness of surgical management in achieving favorable outcomes with nerve preservation. Further research, including larger case series, would continue to refine our understanding of rare presentations and long-term prognoses of these tumors.

REFERENCES

1. Chang, C.H., Wang, J.P., Huang, Y.C. et al. Excision of large median and ulnar nerve schwannomas: a case series. BMC Surg 24, 284 ,2024.
2. Ansilata Marlyn Anesly , Faisal, A. , Hillol ,K. Pal EMJ Neurol. 2020,8,1,103-107. Case Report of Schwannomas: Benign Tumour of the Peripheral Nerve Sheath. DOI/10.33590/emjneurol/19-00203.
3. Galdino, J., Chaves, E., Iná Cirino, R. Sousa,L., Robinson A., Marques,M., Giant Schwannoma of the Median Nerve: A Case Report and Literature Review, Asian J Oncol 2019,5,36–38.
4. Salar, M., Kaye, M.B. Multiple Schwannomas of the Median Nerve: A Case Report and Review of Literature. J Orthop Case Rep. 2020 Sep,10,6,60-63.
5. Kapoor, R., Saxena, B.R. (2018) Case Series of Peripheral Nerve Sheath Tumours: Schwanoma. Journal of Clinical and Diagnostic Research,12,PR01-PR03.
6. Konstantinos, , Xarchas , G. K., Vlachou, M., Manthas,S.. Median Nerve Schwannoma of the Hand and Wrist: 3 Cases. DOI: 10.2174/1874325001913010290, 2019, 13, 290-294
7. Padasali, P.S-, Shankaregowda, V.S., Kshirsagar, S.D. Median nerve schwannoma: A case and review of literature. Asian J Neurosurg. 2015 Jul-Sep,10,3,212-215.
8. Aslam, N., Kerr, G. Multiple schwannomas of the median nerve: a case report and literature review. Hand Surg. 2003, Dec,8,2,249-252.
9. Boufetta,l M., Azouz, M., Rhanim, A., Abouzahir, M., Mahfoud, M., Bardouni, A.E., Berrada, M.S., Yaacoubi, M.E. Schwannoma of the median nerve: diagnosis sometimes delayed. Clin Med Insights Case Rep. 2014 Jul., 2, 7, 71-73.
10. Slimane, K., Sbai, M.A., Elfeki, F., Maalla, R. (2016) The Motor Branch of the Median Nerve, a Rare Localization of Schwannoma. J Clin Exp Orthop 2,18. doi: 10.4172/2471-8416.100018
11. Upadhyaya. V., Choudur, H.N. Imaging in peripheral neuropathy: Ultrasound and MRI. Indian J Musculoskelet

Radiol 2021,3,1,14-23.
12. Zipfel, J., Al-Hariri, M., Gugel, .I, Grimm, A., Steger, V., Ladurne,r R., Krimmel, M., Tatagiba, M., Schuhmann, M.U. Surgical Management of Sporadic Peripheral Nerve Schwannomas in Adults: Indications and Outcome in a Single Center Cohort. Cancers (Basel). 2021 Mar 1,13,5,1017.
13. Galaz Hernández, R., Granados, F.A, Garcia Palazuelos Ramirez, J.M, Rodriguez Madrid T.C, Gonzalez, S. J.R, Arriola Rios, D.I, Sierra Reyes, M.C., Rubio Vega, P.G. Cervical Schwannoma: Diagnosis and Treatment in a Second-Level Hospital in Mexico. Cureus. 2025 Jul 7,17,7, :e87481. doi: 10.7759/cureus.87481. PMID: 40777668; PMCID: PMC12328070.
14. A.R. Prabhuraj, Sarthak Mehta, Nishanth Sadashiva, Nupur Pruthi, Arivazhagan Arima, Kannepalli Narasingha Rao, Vikas Vazhayil, Manish Beniwal, Abhinith Shashidhar, Gyani Jail Singh Birua, Sampath Somanna, Factors predicting recurrence in benign spinal nerve sheath tumors: A retrospective study of 457 patients from a single institution, Journal of Clinical Neuroscience, Volume 114, 2023, Pages 158-165,ISSN 0967-5868,

A RARE CASE OF AN ACUTE ISCHEMIC STROKE PRESENTING AS AN ISOLATED WRIST DROP.

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Background:
Isolated wrist drop is typically due to peripheral nerve injury, but rarely results from cortical infarction. Failure to promptly distinguish between central and peripheral causes can lead to missed diagnoses and delayed management, risking adverse outcomes.

Case:
A 74-year-old Filipino woman with a 10-year history of well-controlled hypertension and diabetes mellitus presented with a two-week history of progressive, isolated left distal upper-extremity weakness. She denied headache, dizziness, visual changes, trauma, dysarthria, or bowel and bladder dysfunction. Outpatient spine MRI demonstrated mild thoracic spondylosis with dextroscoliosis, vertebral hemangiomas, and multilevel lumbar disc protrusions, while cervical MRI showed spondylosis with disc desiccation and mild to moderate left foraminal narrowing. Neurologic examination revealed 4/5 strength in the left distal upper limb with intact sensation, reflexes, cranial nerve, and cerebellar function. Nerve conduction studies showed reduced recruitment without denervation. Brain MRI identified acute cortical infarcts involving the right precentral gyrus and adjacent frontal and parietal regions. Laboratory evaluation, carotid duplex ultrasonography, and 24-hour Holter monitoring were unremarkable. The patient was treated with dual antiplatelet therapy, as she was outside the thrombolysis window.

Conclusions:
This case underscores the importance of early diagnosis of cortical hand-knob stroke as a rare but significant cause of isolated distal upper-limb weakness. Prompt neuroimaging is essential to ensure correct diagnosis, initiate appropriate management, prevent secondary stroke, and optimize rehabilitation, especially in patients with vascular risk factors.

Keywords: cortical hand-knob stroke, isolated wrist drop, upper-extremity weakness, ischemic stroke, neuroimaging

INTRODUCTION

Isolated wrist drop is most commonly indicative of a peripheral nerve lesion, such as radial nerve palsy; however, it can uncommonly arise from an acute cortical infarction.[1] Distinguishing between central and peripheral etiologies is critical, as accurate localization directly informs both therapeutic decision-making and prognostic evaluation.[2] Recognition of a cortical origin is particularly important because misattribution to peripheral neuropathy may delay timely stroke management and secondary prevention. The present case contributes to the limited body of literature on cortical strokes manifesting solely as isolated wrist drop. It underscores the necessity of considering central nervous system causes in patients presenting with distal upper-limb weakness, especially in the presence of vascular risk factors. Early neuroimaging and electrophysiologic studies are pivotal in establishing the correct diagnosis, guiding treatment strategies, and preventing functional deterioration.

The Case

A 74-year-old Filipino woman with a 10-year history of well-controlled hypertension and diabetes mellitus presented with a two-week history of isolated, progressive left upper-extremity weakness. She denied headache, dizziness, visual symptoms, trauma, dysarthria, or bowel/bladder changes. An outpatient orthopedic surgeon consult was performed, and the official radiology report from an outside institution noted that the spine MRI demonstrated mild thoracic spondylosis with dextroscoliosis, vertebral hemangiomas at L3-L5, and multilevel mild lumbar disc protrusions. Cervical MRI showed spondylosis with disc desiccation at C3-C4 and C5-C6, with mild to moderate left foraminal narrowing. On admission, she was alert with stable vital signs and intact cognition. Neurologic examination showed left distal upper-extremity weakness (4/5) with normal sensation, reflexes, cranial nerves, and cerebellar function. Nerve conduction studies demonstrated reduced recruitment without denervation. Brain MRI revealed acute cortical infarcts in the right superior and posterior frontal and parietal lobes (Figure 1).