Median nerve Schwannoma. A case report and review of the literature

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Case Report

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Background: Background: Schwannomas are benign peripheral nerve sheath tumors that can arise from any cranial or peripheral nerve. Median nerve schwannomas in the distal forearm or wrist are rare and may mimic other soft-tissue lesions, causing diagnostic delays. Case Report: An 83-year-old male presented with a 3-year history of a slowly enlarging, painless mass in the distal volar forearm, associated with intermittent paresthesias in all fingers of the right hand. Imaging (ultrasound and CT angiography) revealed a well-defined, oval mass dependent on the median nerve. The patient underwent complete tumor excision with resection of the involved nerve segment at the Oncology Hospital of the National Medical Center "Siglo XXI" (Mexico City, Mexico). Histopathological analysis confirmed a schwannoma measuring 2.0 × 2.0 cm, completely resected with free margins. The postoperative course was uneventful. Conclusions: Median nerve schwannomas are uncommon and should be considered in the differential diagnosis of forearm masses with neurological symptoms. Imaging is essential for preoperative planning, and complete resection is curative, although functional deficits are expected when nerve sacrifice is required.

Keywords: Median nerve, schwannoma, peripheral nerve sheath tumor, forearm mass, case report

Schwannomas, also referred to as neurilemmomas, are benign peripheral nerve sheath tumors originating from Schwann cells, accounting for approximately 5% of all soft tissue tumors in the upper extremities. Schwannomas involving the median nerve are particularly rare, comprising only 0.1–0.3% of all hand tumors. These tumors typically present as a solitary, slow-growing mass and may manifest with pain, paresthesia, or motor deficits depending on their size and location. Because of their rarity and nonspecific presentation, median nerve schwannomas are often misdiagnosed as ganglion cysts, lipomas, or other benign soft-tissue tumors. Imaging plays a key role in preoperative evaluation. On MRI, schwannomas are classically described as encapsulated, oval lesions eccentrically located in relation to the nerve, sometimes demonstrating the "target sign," which has high specificity for schwannomas. Histologically, schwannomas are characterized by Antoni A and Antoni B areas and show strong S-100 protein immunoreactivity, distinguishing them from neurofibromas. Although complete surgical excision is curative, resection can lead to sensory or motor deficits, particularly when the entire nerve segment is involved. Early diagnosis and meticulous microsurgical techniques may preserve nerve function in some cases. We present this case in accordance with the CARE reporting checklist.

Case report

An 83-year-old male with no significant past medical history presented with a 3-year history of a progressively enlarging mass on the volar aspect of the distal right forearm. The patient reported intermittent paresthesias in all fingers of the right hand but denied pain or motor weakness. Physical examination revealed a firm, mobile, non-tender mass measuring approximately 4 × 4 cm. As shown in Figure 1, the swelling was localized to the anterior region of the distal forearm without impairment of hand movement. Laboratory studies were normal. Ultrasonography demonstrated a hyperechoic, well-defined solid mass with vascularity. Imaging characteristics are shown in Figure 2; computed tomography angiography revealed a 3.0 × 1.9 cm oval lesion dependent on the median nerve with heterogeneous enhancement and mass effect on adjacent structures without invasion. The patient underwent complete tumor resection under general anesthesia. The surgical appearance is illustrated in Figure 3, where the mass was found to

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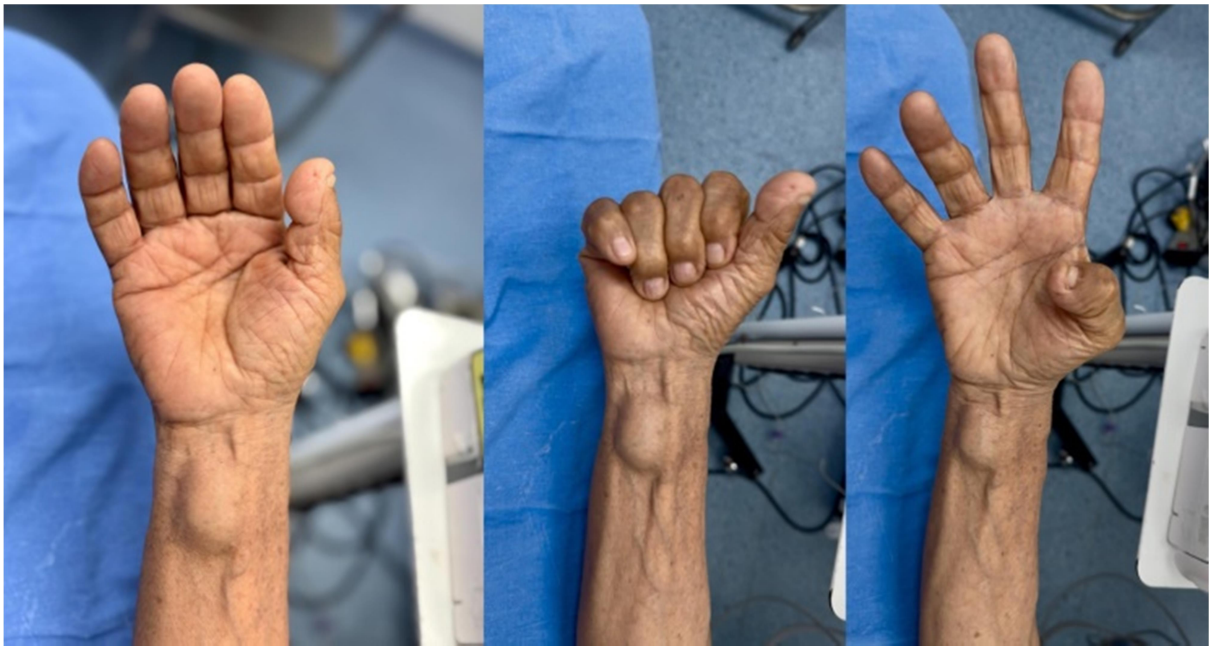

Figure 1. Localized swelling in the anterior region of the distal third of the forearm without impairment of hand movement.

involve the entire segment of the median nerve. Histopathology confirmed a schwannoma measuring 2.0 × 2.0 cm, completely excised with free margins. The postoperative course was uneventful.

Discussion

Median nerve schwannomas are exceedingly uncommon, representing less than 1% of all benign soft tissue tumors of the upper extremity and only 0.1–0.3% of hand tumors. They are typically solitary, slow-growing, and often asymptomatic in early stages, contributing to delayed diagnosis. The most common presenting symptoms are paresthesia, pain, and occasionally a positive Tinel's sign. Imaging studies are essential for preoperative planning, as schwannomas are usually seen as oval, encapsulated, and eccentrically located masses on MRI or CTA, sometimes demonstrating the "target sign." In this case, ultrasonography and CT angiography revealed a well-defined, heterogeneous mass dependent on the median nerve without invasion. Histopathology remains the gold standard for definitive diagnosis, with schwannomas showing Antoni A and Antoni B areas and strong S-100 positivity. Complete surgical excision is the treatment of choice. When the tumor involves the entire nerve segment, nerve resection may be unavoidable, leading to permanent deficits. Early recognition and meticulous microsurgical techniques may improve outcomes.

Conclusion

Median nerve schwannomas are rare benign tumors that can mimic other soft-tissue lesions, leading to diagnostic delays. Preoperative imaging is crucial for surgical planning, and histopathology confirms the diagnosis. Although complete excision is curative, functional deficits may occur when the nerve segment is sacrificed.

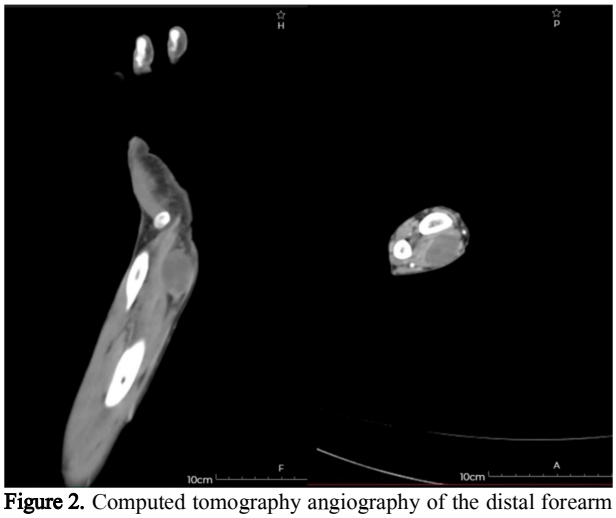

Figure 2. Computed tomography angiography of the distal forearm showing a well-defined, oval, heterogeneously enhancing mass dependent on the median nerve, exerting mass effect on adjacent structures without evidence of vascular invasion.

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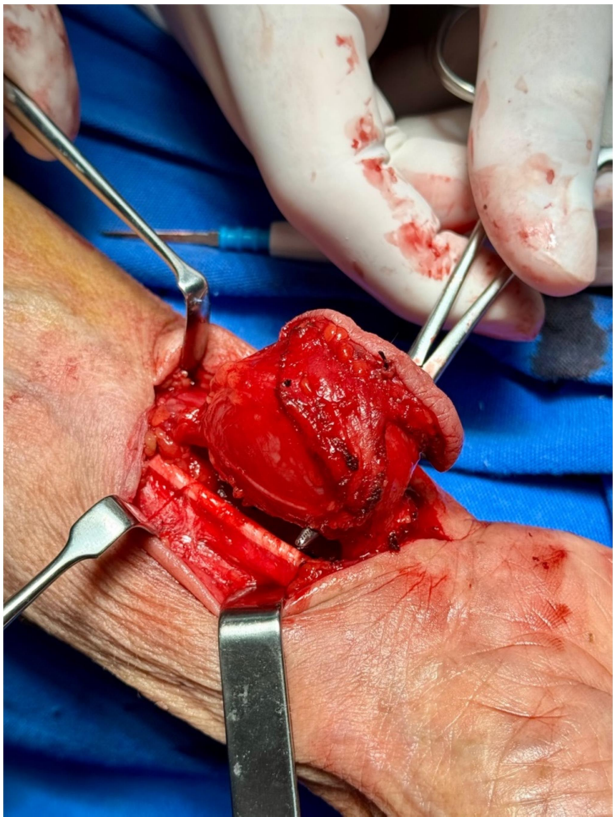

Figure 3. Intraoperative view showing a well-encapsulated tumor arising from the median nerve in the distal forearm.

Conflicts of interests

None declared by the authors.

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