Scholars Journal of Medical Case Reports

OPEN ACCESS

Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

Schwannoma of Median Nerve at Palmar Wrist: A Case Report

Mohamed Badr Errachid*, Ismail Kebbaj, Reda Lah Bassir, Moncef Boufettal, M. Kharmaz, M. O. Lamrani and M. S. Berrada

Department of Orthopedic Surgery, Ibn Sina Hospital, University Mohamed V, Faculty of Medecine of Rabat, Avenue Mohamed Belarbi El Alaoui B.P.6203 10000, Rabat Morocco

DOI: 10.36347/sjmcr.2021.v09i05.037 | **Received:** 15.04.2021 | **Accepted:** 24.05.2021 | **Published:** 28.05.2021

***Corresponding author:** Mohamed Badr Errachid

Abstract **Case Report**

Schwannomas are rare benign tumors posing differential diagnosis problem with carpal tunnel syndrom if it presents complications such as numbness and tingling or neurofibromatosis especially when shwannomas are multiple. We present a case of woman presenting swelling of the palmar aspect of wrist with functional signs guiding the clinical diagnosis of carpal tunnel syndrom. On MRI the mass was well encapsulated to sharp limits without any peritumoral edema. The diagnosis was confirmed at histological exam after surgical intervention. However, It is essential to have a presumption diagnosis of schwannoma oriented by imaging such as ultrasound and especially MRI to have an idea on the dissection of the tumor, the schwannoma being easily resectable with easy dissection from the nerve fibers that surround it, while neurofibromatosis requires sacrifices of nerve fibers due to difficult dissection. Only surgical resection is considered a curative treatment. Generally, there are no sequelae of postoperative paresthesia, long-term recurrence or degeneration.

Keywords: Schwannoma, median, nerve, neurofibromatosis.

INTRODUCTION

Benign tumors affecting the peripheral nerves of the upper limb are relatively rare [1] which poses the problem of differential diagnosis with more frequent diagnoses such as carpal tunnel syndrome [2]. However, they are considered to be the most frequent tumors of the hand (0.8 to 2%) [3]. Median nerve schwannomas are even rarer than ulnar nerve schwannomas [4]. Schwannomas or neurilemomas come from the peripheral nerve sheaths or more precisely from Schwann cells. They are gradual and slow onset, presenting as a painless, often isolated swelling that follows the course of the nerve and lasts for several years before a diagnosis is made [5]. Multiple lesions tend to favor neurofibromatosis diagnosis although cases of sporadic schwannomatosis have been described [6]. The incidence is similar between the two sexes with a peak in frequency in the 3rd and 6th decades. The clinical presentation of usual schwannomas is a small asymptomatic mass; however, clinical signs may appear if the tumor grows large, including pain, numbness, tingling, and loss of dexterity in the hand. Additional tests to aid in the diagnosis are magnetic resonance imaging (MRI) or ultrasound and electromyography. Only surgical resection is considered a curative treatment.

OBSERVATION

A 35-year-old woman consulted in our hospital in Rabat for swelling of the palmar aspect of the right wrist with intermittent tingling sensations affecting the entire sensory territory of the median nerve with some accentuation of the index finger. The history of the disease dates back to 18 months, the onset of symptoms was marked by the gradual onset of slow and painless swelling of the palmar aspect of the wrist with no other accompanying signs. The onset of numbness occurred 14 months after the onset of symptoms, prompting the patient to consult. During the questioning, we were able to rule out a family history of neurofibromatosis, the notion of paroxysmal nocturnal numbness and fatigue or loss of dexterity of the right hand. Physical examination revealed a 3, 5× 2.5 cm mass on the palmar aspect of the wrist (zone 5). Firm and sensitive to palpation, more mobile transversely than longitudinally, with positive Tinel sign and positive Phalen sign but without associated motor deficit. The thenar compartment was not amyotrophic. No coffee with milk type skin pigmentation was demonstrated. Ultrasound revealed a well circumscribed and homogeneous hypoechogenic mass of 2, 5 cm × 1,8 cm on the anterior aspect of the right wrist, MRI revealed a 2,2 × 1,5 cm mass located in the flexor tendons which has an

intermediate signal on the images T1-weighted and hyperintense signal on T2-weighted fat images, the mass was well encapsulated to sharp limits without any peritumoral edema. Total excision through a tumor-centered longitudinal incision was performed with microsurgical techniques that consisted of opening the epineurium longitudinally in the direction of the incision, and carefully dissecting the tumor from adjacent nerve fibers without traumatizing the median nerve (figure 3). During the operation the mass was well encapsulated without any invasion of the adjacent tissues, sitting under the flexor tendons in a position slightly eccentric to the median nerve (figure 1 and 2). The anatomopathological examination confirmed the diagnosis of schwannoma by demonstrating the alternations of the Antoni A and Antoni B areas. The patient presented immediately after the operation with paresthesias which disappeared after a few days. At the 6th month of follow-up, the patient had no sequelae of paresthesia and was able to resume her work.

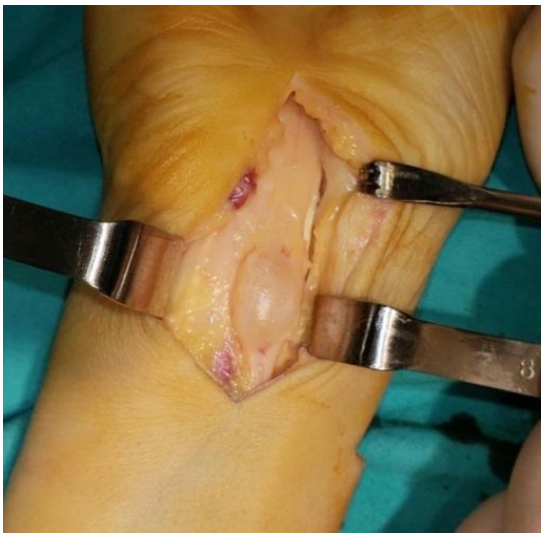

Fig-1: Operative schwannoma aspect of median nerve

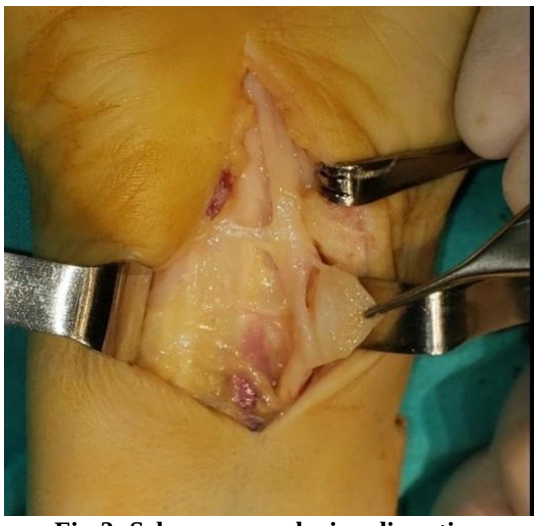

Fig-2: Schwannoma during dissection

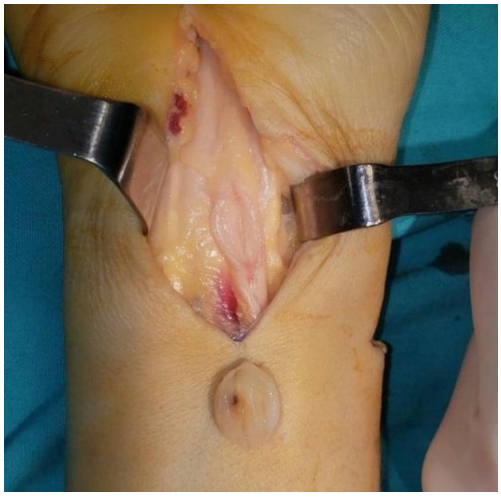

Fig-3: Schwannoma after resection

DISCUSSION

Schwannomas are rare benign tumors [7]. Generally solitary however, they can be multiple in the setting of sporadic schwannomatosis [9]. THat should be differentiated from familial neurofibromatosis type 1 [8]. The rarity of these lesions and in particular the schwannoma of the median nerve makes their diagnosis difficult and can be confused with carpal tunnel syndrome in consultation given the common clinical signs such as numbness of the sensory territory of the median nerve, the sign of Tinel and Phanel positive especially if the tumor grows and at a relatively fast rate because its slow growth model allows adaptation of nerve function to the effects of pressure [10]. Otherwise at an early stage it presents as an isolated painless swelling without any accompanying signs. Neural tumors with motor deficits such as thenar muscular atrophy or loss of dexterity in the hand are considered signs of malignancy, although motor deficits can also be present in schwannoma. Palpation is often painless or slightly tender, often of a firm or hard consistency. The advantage of ultrasound over MRI is that it provides dynamic images in flexion and extension providing information on the mobility of the tumor relative to adjacent tissues [13]. MRI with injection of gadolinium is the main complementary examination to aid in the preoperative diagnosis. The target signs according to Koga et al. are the difference between central and peripheral contrasts. The tumor is often eccentric and encapsulated without invasion of surrounding tissue [12]. Preoperative diagnosis is important in the sense of providing a preliminary understanding of the nature of the dissection of the tumor from the rest of the nerve, for example, schwannomas are easily dissected from the rest of the nerve fascicles, which is not the case for neurofibromatosis which cannot be resected without inducing iatrogenic nerve damage. The excision-biopsy with pathological examination confirms the diagnosis, the main characteristic of which is the alternation of the Antoni A and Antoni B areas associated with a strongly positive S-100 protein on the staining and which is

specific for schwannomas and excluding neurofibromas [11]. In addition, we were able to reveal a real capsule encompassing the tumor. Surgical excision is considered to be the only effective treatment [3, 14]; however its indication remains controversial [15, 16]. The rules of microsurgery should be followed to avoid damage to nerve fibers during dissection, as careful dissection without bloodshed [2] and the use of microscopic magnification. Paresthesia is the main immediate postoperative complication [17]. The recurrence rate is low [11].

CONCLUSION

In our study, we present the case of isolated schwannoma from the median nerve in zone 5. Schwannomas are rare peripheral nerve tumors that are difficult to diagnose preoperatively. Its clinical features are a small, isolated, painless swelling along the path of a peripheral nerve, in this case it was median nerve. The MRI being the main complementary examination helping in the preoperative diagnosis. Surgical resection is the only curative treatment, it must be subject to the rules of microsurgery to avoid iatrogenic lesions of the nerve.

Consent

The patient has given their informed consent for the case to be published.

Competing Interests

The authors declare no competing interest.

Authors 'Contributions

All authors have read and agreed to the final version of this manuscript and have equally contributed to its content and to the management of the manuscript.

REFERENCES

1. Louis, D. S., & Hankin, F. M. (1985). "Benign nerve tumors of the upper extremity," Bulletin of the New York Academy of Medicine, 61(7) 611–620.
2. Aslam, N., & Kerr, G. (2003). "Multiple schwannomas of the median nerve: a case report and literature review," Hand Surgery, 8(2), 249–252.
3. Harkin, J.C., Reed, R.S. (1968). Washington, DC, USA: Armed Forces Institute of Pathology. Tumors of the Peripheral Nervous System.
4. Knight, D.M., Birch, R., Pringle, J. (2007). Benign solitary schwannomas: A review of 234 cases. J Bone Joint Surg Br, 89; 382–7.
5. Ozdemir, O., Ozsoy, M.H., Kurt, C., Coskunol, E., Calli, I. (2005). Schwannomas of the hand and wrist: Long-term results and review of the literature. J Orthop Surg (Hong Kong); 13:267–72.
6. Multiple Schwannomas of the Median Nerve. (2020). A Case Report and Review of the Literature Mohamed Salar and Marc B Kaye J Orthop Case Rep; 10(6): 60–63.
7. Whitaker, W.G., Droulias, C. (1976). Benign encapsulated neurilemoma: A report of 76 cases. Am Surg, 42; 675–8.
8. Gonzalvo, A., Fowler, A., Cook, R.J., Little, N.S., Wheeler, H., McDonald, K.L. (2011). Schwannomatosis, sporadic schwannomatosis, and familial schwannomatosis: A surgical series with long-term follow-up. Clinical article. J Neurosurg, 114:756–62.
9. Shin, K.H., Moon, S.H., Suh, J.S., Jahng, J.S. (1998). Multiple neurilemomas. A case report. Clin Orthop Relat Res, 375:171–5.
10. Adani, R., Baccarani, A., Guidi, E., Tarallo, L. (2008). Schwannomas of the upper extremity: Diagnosis and treatment. Chir Organi Mov, 92:85–8.
11. Padasali, P. S., Shankaregowda, V. S., & Kshirsagar, S. D. (2015). Median nerve schwannoma: A case and review of literature. Asian journal of neurosurgery, 10(3), 212.
12. Das, S., Ganju, A., Tiel, R.L., Kline, D.G. (2007). Tumors of the brachial plexus. Neurosurg Focus, 22:E26.
13. Kuo, Y. L., Yao, W. J., & Chiu, H. Y. (2005). Role of sonography in the preoperative assessment of neurilemmoma. Journal of Clinical Ultrasound, 33(2), 87-89.
14. Phalen, G. S. (1976). "Neurilemmomas of the forearm and hand," Clinical Orthopaedics and Related Research, 114, 219–222.
15. Gonzalvo, A., Fowler, A., Cook, R. J. (2011). "Schwannomatosis, sporadic schwannomatosis, and familial schwannomatosis: surgical series with longterm follow-up: clinical article," Jour nal of Neurosurgery, 114(3), 756–762.
16. Bhattacharyya, A. K., Perrin, R., & Guha, A. (2004). "Peripheral nerve tumors: management strategies and molecular insights," Journal of NeuroOncology, 69, 1–3, 335–349, 2004.
17. Lee, S. H., Jung, H. G., Park, Y. C., & Kim, H.S. (2001). "Results of neurilemona treatment: a review of 78 cases," Orthopedics, 24(10), 977–980.