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Schwannoma of the digital nerve. A rare case report

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ABSTRACT

Schwannomas are the most common benign tumours affecting the peripheral nervous system. They represent a benign proliferation of Schwann cells. Schwannomas and other peripheral nerve sheath tumours are common in the head and neck, spine, thorax, abdominal wall, and retroperitoneum. However, localization in hand is exceptional. We present a 22-years-old female patient diagnosed and operated on for schwannoma of the digital nerve (dorsal cutaneous branch originating from the palmar cutaneous branch of ulnar nerve). In the case of a palpable hand mass, one of the possible diagnoses is schwannoma, and since the operative technique is somewhat specific with tumour enucleation and internal neurolysis, it is necessary to preoperatively keep in mind schwannoma in the differential diagnosis.

Keywords
schwannoma,
digital nerve,
hand schwannoma

INTRODUCTION

Schwannomas are the most common benign tumors affecting the peripheral nervous system (1). They represent a benign proliferation of Schwann cells. Schwannomas and other peripheral nerve sheath tumors are common in the head and neck, thorax, abdominal wall, and retroperitoneum. These tumors are rarely found in the hands, particularly the fingers (2). They are most frequent in adults between the ages of 30 and 60, and they affect both men and women equally (3, 4). Most schwannomas are asymptomatic however they can cause functional deficits and pain depending on which nerve is affected (5).

We present a 22-years-old female patient diagnosed and operated on because of left hand digital nerve schwannoma.

CASE REPORT

The 22-year-old female patient was admitted to the neurosurgery department for surgical treatment of a tumor in the dorsal region of the left hand, which was described as a scwannoma on ultrasound (Figure 1). Due to the suspicion of a ganglion cyst the tumor was punctured in another institution and aspiration was tried, however, no content was obtained, and subsequently reddening of the skin above tumor appeared few days later. The tumor has been present for several years and has begun to grow during the last year. Phisical examination

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revealed small tumor between the third and fourth finger of the left hand on the dorsal side, messuring about 3 x 2 cm, mobile, painless, and percussion in the tumor region gave a positive Tinel sign. Based on the clinical picture and ultrasound findings, an indication for surgical removal of the tumor was set. The patient was operated under the conditions of local anesthesia and the tumor of the digital nerve in the region of the ulnar nerve branch was microsurgically removed. The change was irregular in shape, pearly white in color in cross section with significant adhesions for the surrounding tissues, so external and internal neurolysis were performed and all shown fascicles were preserved exept the fasciculus from which the tumor grew (Figure 2). The operation went smoothly, the patient was transferred to the ward. The postoperative period was uneventful, the patient was neurologicaly intact and was discharged on second postoeprative day. Histopathological examination confirmed suspected diagnosis of schwannoma (WHO grade I) (Figure 3). After 3 months, the patient is without symptoms, neurological deficit and with no signs of tumor recurrence.

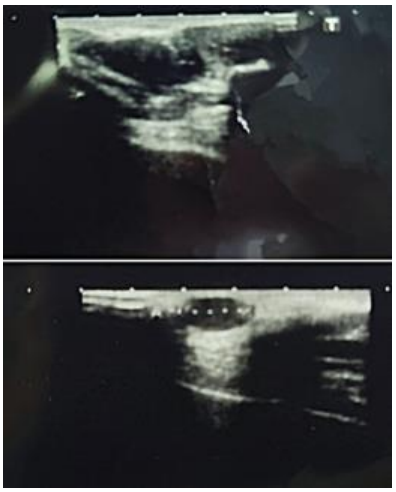

Figure 1. Ultrasound finding of the mass located in the dorsal region of the hand resembling schwannoma or ganglion cyst.

Discussion

Schwannomas are typically benign slow growing tumors of the peripheral nerve. Despite its low overall incidence, benign schwannoma is one of the most common peripheral nerve tumors. They are usually find in the head, neck and spine (3, 4). The hands, particularly the fingers, are rarely affected by these tumors (2). We present a rare case of the digital nerve (dorsal cutaneous branch originating from palmar cutaneus branch of ulnar nerve) schwannoma located on the dorsal side of hand.

Schwannomas are typically described as non-painful swellings that go unnoticed for years, making clinical identification and therapy more challenging (6). In the differential diagnosis neurofibroma, perineurinoma, ganglion cyst, giant cell tumors of the tendon sheath, fibroma of the tendon sheath, lipoma, extraosseous chrondroma and other soft-tissue masses should be considered (5). In our case ultrasound finding was described as ganglion cyst or schwannoma. Local finding was more suggestive of schwannoma, especialy since the lesion was punctured and no content was obtained. Positive Tinel's sign also indicated nerve (sheath) tumor.

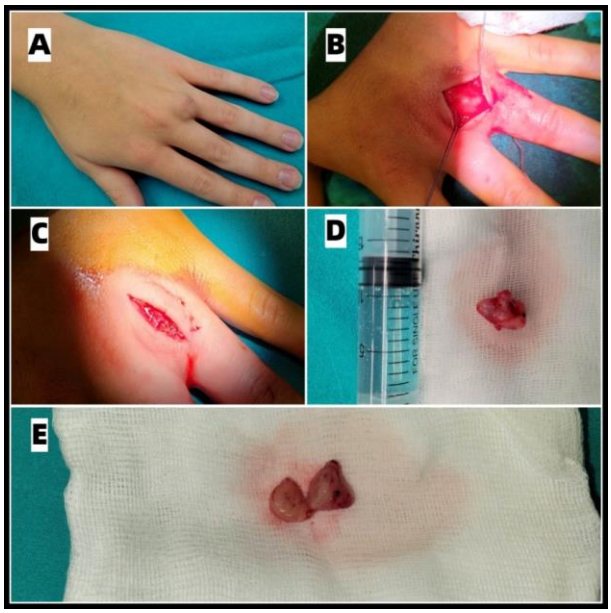

Figure 2. Intraoeprative findings: (A) preoperative aperance; (B) finding after skin incision; (C) local finding after tumor removal; (D) macroscopic apperance of the tumor after removal; (E) cros section fo tumor.

Wide spectrum of clinical symptoms such as parasthesias, hypoesthesia, tingling, motor defict, and positive Tinel's sign contribute to almost impossible clinical distinction between schwannomas and other peripheral nerve tumors or other soft-tissue tumors. The most common clinical scenario represents a patient with swelling that starts to hurt and grows a bit more after a few years of beeing an asymptomatic lesion. The appearance of pain and the fast growth of a tumor might signal a malignant transformation (7, 8). Our patient had

tumor for several years, but it started to grow during one last year.

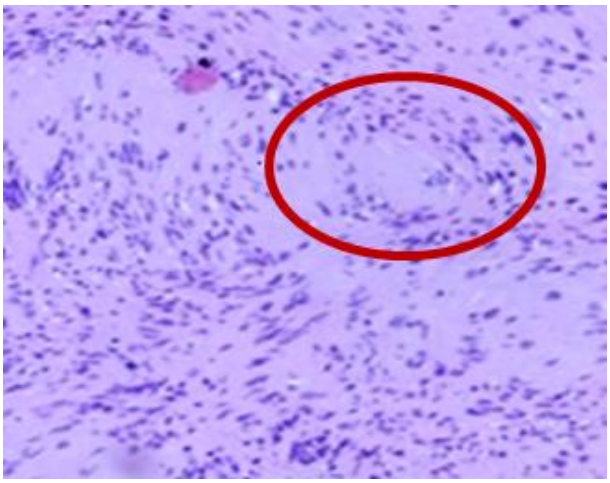

Figure 3. Pathohistological diagnosis confirmed schwannoma with typical Verocay bodies (rounded).

Additional diagnostic procedures are usualy required such as ultrasound and magnetic resonance imaging. On ultrasonography, a schwannoma is a homogeneous, hypoechoic mass with enhanced through transmission, target appearance, and pseudocystic appearance, similar to ganglion cysts. As a result, it's difficult to tell the difference between a schwannoma of the hand and a cystic lesion (9). In our case due to suspicion of ganglion cyst patient was first referred to another institution where puncture and aspiration were performed, however, no content was isolated. During the operation in our institution, the intraoperative finding was indicative of schwannoma, which was confirmed with histopathological analysis.

Treatment for schwannoma is determined by the location of the tumor, if it is causing pain, and how rapidly it grows. Sometimes observation is indicated, but surgery is essential if symptoms occur. Main goal is enucleating the tumor while avoiding nerve damage with internal neurolysis, so usage of operative microscope is strongly recommended (10). After performed operation our patient didnt have any postoperative complication nor neurological deficit.

Conclusion

Schwannomas are benign tumors that are rarely encountered in clinical practice. Ultrasound, MRI, and finally histological analysis of the tumor verify them. The tumors are normally benign, and the condition is rarely life-threatening, but depending on where they are located, they might cause a variety of symptoms. One of the possible diagnoses in the case of a palpable hand mass is schwannoma, which requires a special microsurgical approach in order to completely remove the tumor while preserving nerve function. Therefore, because operative technique is somewhat specific, it is essential to keep schwannoma as a possible diagnosis.

References

1. Jiang S, Shen H, Lu H. Multiple schwannomas of the digital nerves and common palmar digital nerves: An unusual case report of multiple schwannomas in one hand. Medicine (Baltimore). 2019;98(10):e14605.
2. Balan JR, John JR. Digital schwannomas: A diagnosis in retrospect. IP Int JAesthet Health Rejuvenation. 2020;3(3):77-9.
3. Fodor L, Samuila S, Bodog F. A rare case of schwannomatosis of the extremities. J Int Med Res. 2020;48(9):300060520952278.
4. Galbiatti JA, Milhomens GRDS, Bertozzo LG, Escames L, Milhomens Neto PA, Galbiatti MGP. Retrospective Analysis of 20 Patients Affected by Schwannomas in the Upper and Lower Limbs. Rev Bras Ortop (Sao Paulo). 2020;55(5):629-636.
5. Troy J, Barnes C, Gaviria A, Payne W. Schwannoma in Digital Nerve: A Rare Case Report. Eplasty. 2015;15:ic56.
6. Kütahya H, Güleç A,Güzel Y, Kacira B, Toker S. Schwannoma of the Median Nerve at the Wrist and Palmar Regions of the Hand: A Rare Case Report. Orthopedics. 2013; 2013: 2013950106.
7. Mackinnon SE. Nerve Surgery. New York: Thieme; 2015.
8. Hirai T, Kobayashi H, Akiyama T, Okuma T, Oka H, Shinoda Y, Ikegami M, et al.Predictive factors for complications after surgical treatment for schwannomas of the extremities. BMC Musculoskelet Disord. 2019;20(1):166.
9. Lee SJ, Yoon ST. Ultrasonographic and Clinical Characteristics of Schwannoma of the Hand. Clin Orthop Surg. 2017;9(1):91-95.
10. Mayoclinic.org [homepage on the Internet]. Arizona: Peripheral nerve tumors; Available from: https://www.mayoclinic.org/diseases-conditions/schwannoma/cdc-20352974.