The Intraneural Hemangioma of the Digital Nerve: Case Report

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Abstract Intraneural Hemangioma of the digital nerve is rare and so far three cases have been reported in the literature. We present a case of 12-year-old boy with painless soft tissue mass in the right hand and numbness on the radial aspect of the index finger. Magnetic Resonance Imaging showed an iso-intense subcutaneous lesion without discrete borders in the first web space classically of hemangioma with the radial digital nerve extension. On exploration, the intraneural extension of the hemangioma was confirmed and total resection, microsurgical primary digital nerve repair was done. The patient became better and at 6 months follow up the index finger sensation improved. The patient had no recurrence and he is still under follow up.

Keywords Digital artery · Intraneural · Hemangioma

Introduction

Intraneural hemangioma of digital nerve is an extremely rare benign lesion with mesodermic origin. The first case was reported by Sommer in 1922. Treatment requires microneural dissection and excisional nerve grafting. [1–5]. We report an interesting case of intra-neural hemangioma originating from

the princeps pollicis artery to the right index finger involving the radial digital nerve and discuss the management.

Case Report

A 12-year-old boy presented with a painless swelling in the right hand of 3 years duration; He also had tingling and numbness in index finger. There was no history of trauma and relevant medical condition. Physical examination revealed a soft, painful mass, approximately 1.5 cm in diameter on the volar aspect of the first web space in the right hand with all clinical features of hemangioma. The patient had hypoesthesia on the radial aspect of the index finger. There was no motor disturbance in the hand and fingers. Passive and active ranges of motion were unaffected. MRI imaging revealed a subcutaneous lesion that was isointense with muscle on T1-weighted images (Figure 1). The lesion demonstrated hyperintensity without discrete borders in the first web space on T2-weighted images with fat saturation and radial digital nerve involvement. (Figure 2)

The operation was performed under general anesthesia using a pneumatic tourniquet and operating microscope. Exploration revealed a dark blue hemangioma of approximately $2 \times 1.5 \times 1.5$ cm, originating from the volar surface of Princeps pollicis artery with radial digital nerve extension. (Figure 3). This hemangioma was then resected off the surrounding tissue and the radial digital nerve dissection showed segmental interfascicular extension of hemangioma into the digital nerve. Hence resection of the nerve segment (20 mm) was done carefully. The digital nerve ends were adequately mobilised and coapted using 8/0 nylon suture without tension. Histopathologic examination revealed thin-walled dilated capillaries embedded

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Fig. 1 Sagittal T1-weighted image; reveals a small subcutaneous lesion on the volar aspect of the hand

in fibroadipous stroma with peripheral nerve fibers, consistent with the hemangioma and the intraneural extension.

Sensation on the radial side of the index finger was evaluated and two point discrimination test was performed. Sensory deficit was reported with two point discrimination of 10 mm. The sensation on the index finger improved progressively, and the two point discrimination was 6 mm at the end of 6 months follow up. There was no recurrence of the lesion observed during follow up.

Discussion

Peripheral nerve tumors comprise less than 5% of all tumors of the hand [6]

Intraneural hemangioma is a rare lesion, especially in a peripheral nerve. Sato is the first to report on the peripheral

Fig. 2 Transverse T2- weighted image demonstrated a hyper intense lesion with radial digital nerve involvement

Fig. 3 The cavarneous hemangioma originated from princeps pollicis artery and the radial digital nerve appears expanded, segmentally distorted and discoloured secondary to the intraneural extension

nerve hemangiomas [7]. They present either as a tumor of variable size or with spontaneous localized pain while motor or sensory deficit is rare. Treatment may require microneural dissection and excision of the lesion or segmental nerve resection and grafting[1].

Surgical excision is the only feasible method for treatment of intraneural hemangioma, and careful microsurgical dissection is mandatory to prevent recurrence and minimize iatrogenic injury to the surrounding nerve fascicles. [8]. It is not always possible to excise intraneural lesions totally, and an incomplete resection carries a high risk of recurrence [9]. Large segmental nerve lesions require interfascicular nerve grafting.

We report a case of hemangioma with radial digital nerve extension in a young boy for whom careful microsurgical excision and primary nerve repair gave a good result with sensory recovery and no recurrence. Pre-operative planning using MRI is essential in delineating the lesion and histopathology is the gold standard tool for diagnosis. The surgery should be total excision of the lesion and if possible reconstruct with primary nerve grafting. One should always look for the recurrence in the follow up.

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