CASE REPORT

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Sensory Neuropathy of the Common Palmar Digital Nerve Caused by Ganglion Cyst

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Ganglion cysts that arise from the palm and compress the median nerve are rarely reported. Previous studies have described ganglion cysts compressing the motor branch of the median nerve, but no reports have described sensory neuropathy of the common palmar digital nerve as a result of ganglion cysts. We present a case of sensory neuropathy similar to carpal tunnel syndrome caused by a ganglion cyst that originated from the second carpometacarpal joint.

Keywords: Ganglion cyst, Common digital nerve, Palm, Sensory neuropathy

INTRODUCTION

Ganglion cysts are the most common soft tissue tumors of the hand and wrist[1]. In rare cases, ganglion cysts arise from the palm and can compress the median or ulnar nerve[2-6]. Ganglion cysts arising from the second carpometacarpal joint of the palm that compress the motor branch of the median nerve have been reported[6], but were not accompanied by sensory neuropathy. Here, we report a rare case of a ganglion cyst that arose from the second carpometacarpal joint and caused sensory disturbance by compressing the second common palmar digital nerve.

CASE REPORT

A 33-year-old male, right hand dominant, office worker presented with a 2-month history of palpable mass in the palm and decreased sense on the ulnar side of the index finger and the radial side of the middle finger of the right hand. He had no previous history of the hand trauma.

The patient was right-handed and had no history of trauma. On physical examination, a longitudinal mass was

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palpated between the thenar crease and the proximal palmar crease in the right palm. The tumor was soft and movable without palpable pulsation, and approximately 1×2 cm in size. The patient had focal tenderness and positive Tinel's sign, but was negative on the Phalen and Allen tests. Two-point discrimination measured 10 mm in the ulnar side of the index finger and the radial side of the middle finger. The patient's range of finger and wrist joint motion was normal but he complained of pain in the metacarpophalangeal joint while making a fist, which made grabbing objects difficult. The patient's grip strength and pinching as measured using a Jamar dynamometer (Asimov Engineering Co., Los Angeles, CA, USA) were similar with a left hand. Plain X-ray showed no abnormalities. Magnetic resonance imaging demonstrated a high-signal, homogenous fluid-filled mass connected to the second carpometacarpal joint that enveloped the second common palmar digital nerve in the midpalm (Fig. 1).

Because these symptoms caused a great inconvenience to the patient, excisional biopsy was scheduled. A longitudinal skin incision was made over the mass. Dissection was carried proximally, a distal portion of the transverse carpal ligament was released to gain better exposure of the mass. A cystic mass adherent to the perineurium of the second common palmar digital nerve was found (Fig. 2). A stalk of the mass originated proximally from the second carpometacarpal joint. Since the superficial palmar arch crossed over the mass, the artery was ligated and excision was performed under a microscope to prevent further nerve injury. Part of the capsule of the carpometacarpal joint, the origin of the stalk, was dissected simultaneously. Histological examination identified the mass as a ganglion cyst. After surgery, the patient continued to improve, and after 4 months, his digital senses had regained normal level.

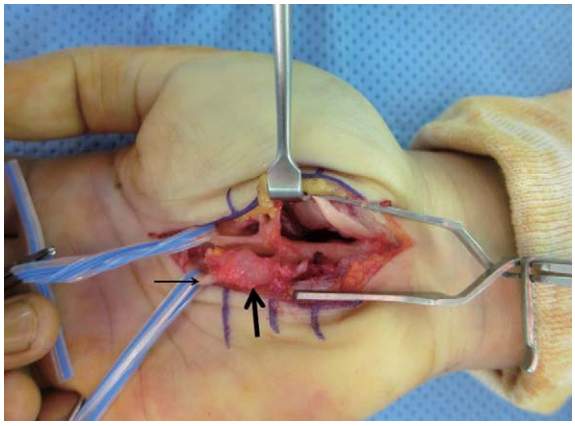

Fig. 2. Intraoperative photograph of cystic mass (large arrow) attached to the perineum of the second common palmar digital nerve (small arrow).

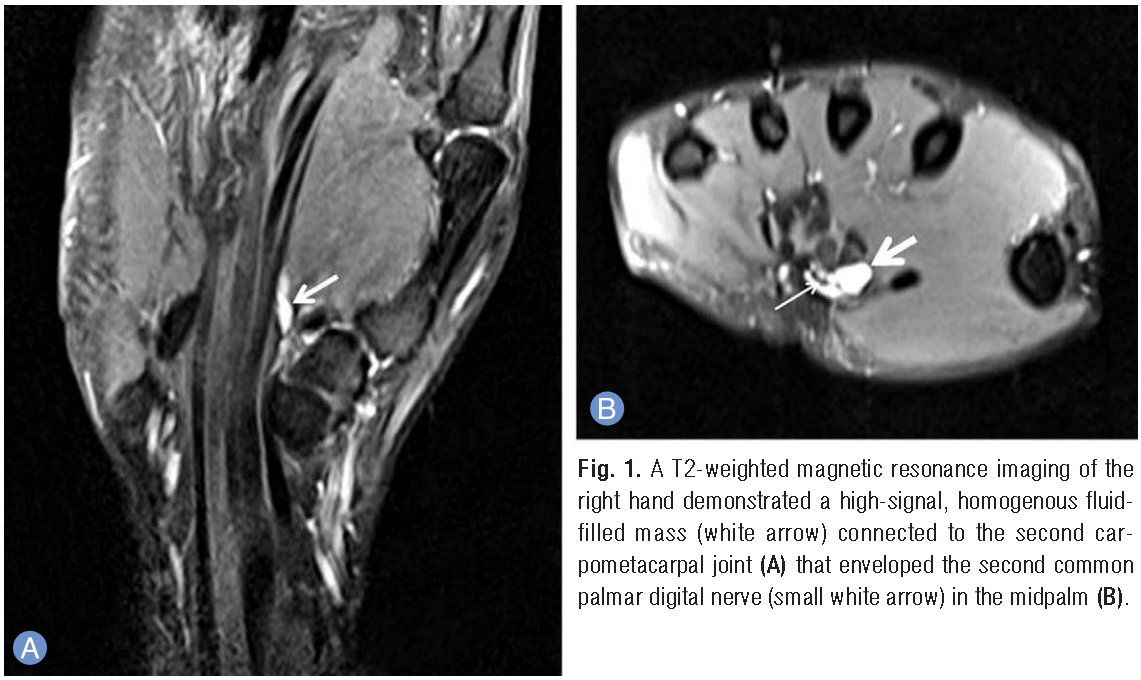

Fig. 1. A T2-weighted magnetic resonance imaging of the right hand demonstrated a high-signal, homogenous fluid-filled mass (white arrow) connected to the second carpometacarpal joint **(A)** that enveloped the second common palmar digital nerve (small white arrow) in the midpalm **(B)**.

One year after the operation, the patient did not have any inconveniences in his daily activities and there was no evidence of recurrence of the ganglion cyst on ultrasonography.

DISCUSSION

Ganglion cysts on the volar surface sometimes appear to protrude into the carpal tunnel, compressing the median nerve and causing carpal tunnel syndrome[2,7-9]. In such cases, ganglion cysts may be palpable proximal to the wrist crease or not palpable at all[8,9]. Ganglion cysts may also appear in the midpalm, causing compression of motor[3-5] or sensory[9] branches of the median nerve, but only in rare cases. The ganglion cysts in these cases arise from the midcarpal joint or the first or second carpometacarpal joints, leading to motor or sensory disturbances in the thenar area[3-6]. To date, only one case of a ganglion cyst arising from the second carpometacarpal joint has been reported[6]. In that case, the ganglion cyst compressed the motor branch of the median nerve, leading to muscle weakness. There was also a case report that described a ganglion cyst arising from the scaphotrapeziotrapezoid joint and located between the flexor tendons without compressing the nerve[10]. In our case, a ganglion cyst originated from the second carpometacarpal joint and protruded distally, attaching to the common palmar digital nerve. The ganglion cyst in our case was symptomatic, causing sensory neuropathy in particular. To our knowledge, no previous report has described such a case.

Ultrasonography and magnetic resonance imaging are considered useful for preoperative examination of ganglion cysts5. In our case, we confirmed the size and shape of the ganglion cyst and observed that a stalk of the ganglion cyst originated from the second carpometacarpal joint. During surgery, a ganglion cyst enveloping the common palmar digital nerve was observed. Since neurolysis was not feasible under the Roupe, we performed excision under an operating microscope.

Ganglion cysts in the midpalm may cause compressive sensory neuropathy of the common palmar digital nerve. In our opinion, microscope may be helpful in identifying accurate origin of a complex ganglion and its relationship to the digital nerve and in facilitating safety dissection.

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결절종에 의한 수장부 총수지신경의 감각 신경병증

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수장부에서 발생하여 정중신경을 압박하는 결절종은 드물게 보고되고 있다. 정중신경의 운동 분지를 압박하는 결절종에 대한 보고는 있었지만 총수지 신경의 감각 분지를 압박하여 감각 신경병증 소견을 보인 예는 보고되지 않았다. 저자들은 2수근 중수관절에서 기시한 결절종에 의해 유발된 감각 신경병증의 예를 경험하였기에 이를 보고하고자 한다.

색인단어: 결절종, 수장부, 총수지신경, 감각신경병증

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