

Small Stiff Swelling over the Flexor Aspect of the Finger: Digital Ganglion Arising from the A2 Pulley

Sonal Saran^{1*}, Manvendra Gaur²

¹Department of Radiology, AIIMS, Rishikesh, Uttarakhand, India, ²Department of Orthopedics, Subharti Medical College, Meerut, Uttar Pradesh, India

SECTION 2 – ANSWER

CASE

A 30-year-old male patient presented to the orthopedic outpatient clinic with the complaint of a small painful, stiff mass over the flexor aspect of the left ring finger for 3 months. There was no history of antecedent trauma and no apparent restriction of finger movements. The swelling was small, firm, and tender. The temperature of the overlying skin was normal. The patient was sent to the radiology department for a high-frequency ultrasound examination of the finger to determine the nature of the swelling [Figure 1 and Video 1].

On ultrasound examination, a tiny (0.3 cm × 0.4 cm × 0.3 cm) rounded anechoic lesion was seen overlying the flexor tendon at the level of the proximal phalanx. It was lying in

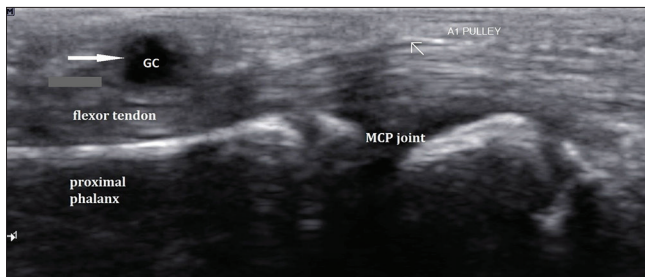


Figure 1: Ultrasound image over the palmar aspect of the left ring finger in longitudinal plane showing an anechoic cyst (ganglion cyst GC) with posterior acoustic enhancement reflecting a digital ganglion. The underlying flexor tendon is normal, with no evidence of tenosynovitis. Note the close relationship of the cyst with the A2 pulley (solid arrow). A1 pulley (thin arrow) and metacarpophalangeal joint are normal

close proximity to the proximal edge of the second annular pulley (A2 pulley) [Figure 1]. Dynamic ultrasound examination showed smooth gliding of the flexor tendon. The cyst did not show any noticeable change in size and position during tendon movement. Hence, the diagnosis of ganglion cyst arising from the A2 pulley was made. Surgical excision of the lesion was performed, and peroperatively, the ganglion cyst was seen arising from the A2 pulley [Figure 2].

DISCUSSION

In the hand and fingers, two main types of ganglion cysts may be encountered: ganglia, which arise from the joint capsule, and ganglia related to the tendons or peritendinous structures. The latter are mostly found at the finger's base (digital ganglion) and arise from the tendon sheath/pulleys or within the tendons (intratendinous ganglia). Digital ganglia are less frequently seen than the wrist ganglion. They present as small hard masses containing jelly-like material. The third and fourth digits are most commonly involved. Digital ganglia can lead to significant pain and discomfort, especially while carrying a heavy object in the affected hand, squeezing the ganglion against the hard palmar surface of the proximal phalanx. The most accredited pathogenetic theory says that microtrauma to the annular pulley followed by mucoid degeneration and cyst formation is responsible for site predilection of digital ganglion at the proximal edge of the A2 pulley.^[1]

Abe *et al.* investigated 128 patients with flexor tendon sheath ganglion for 30 years and found that most of the patients were middle aged with a female-to-male ratio of 2.6:1. Most of the cases had no history of trauma or relation to any particular occupation. Sixty-nine percent of the ganglions were located on

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Address for correspondence: Dr. Sonal Saran,
Department of Radiology, AIIMS Rishikesh, Uttarakhand, India,
E-mail: sonalsaranmalik@gmail.com

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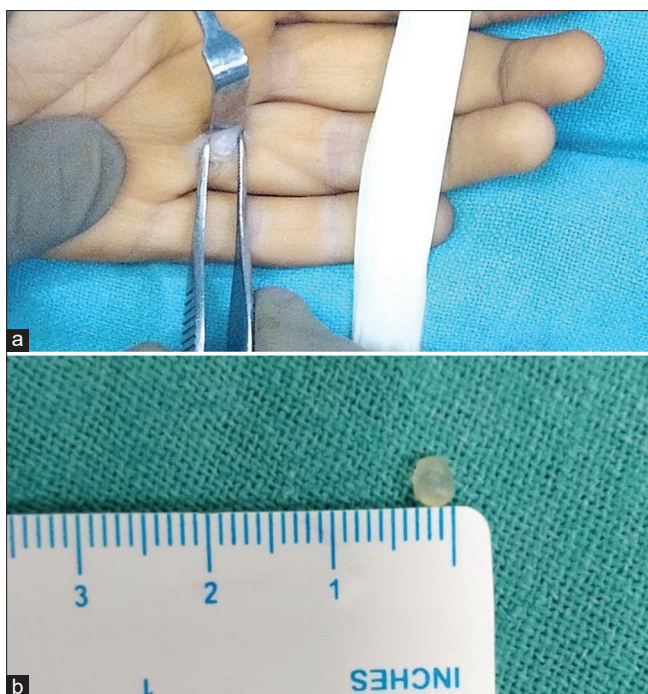


Figure 2: Photograph of the ganglion cyst peroperatively (a) and postoperatively (b). The cyst is small and gelatinous

the A1 and A2 pulleys with the middle finger most commonly involved.^[2]

High-frequency ultrasound examination is a beneficial modality for diagnosing digital ganglion cyst, given the

advantage of dynamic evaluation, revealing its relation with the tendon sheath or overlying annular pulley.^[3]

Ultrasound-guided percutaneous aspiration can be performed by a thick needle; however, chances of recurrence rate with aspiration are high, and so excision has been advocated.^[4]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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