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## PEARL-SEED GANGLION: BONY HARD BUT NOT BONE.

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### ABSTRACT

Ganglion of fibrous flexor tendon sheath of hand also known as 'pearl-seed' ganglion is rare compared to wrist ganglion. Despite this, pearl ganglion often leads to disabling pain which can impair patient's hand function. Thus understanding the knowledge of this pathology and initiating an appropriate treatment is crucial. We reported a case of a 5 year old girl with successful outcome after surgical excision of 'pearl-seed' ganglion.

**Keywords:** Ganglion cysts, Hand, Pearl-seed ganglion, Sesamoid bones, Tendon.

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**Keywords:** Ganglion cysts, Hand, Pearl-seed ganglion, Sesamoid bones, Tendon.

## INTRODUCTION

Ganglion is one of the most common benign soft tissue tumours of the hand of which 60% to 70% are found at the dorsal aspect of the wrist while 13% to 20% on the volar aspect.<sup>1,2</sup> Approximately 10% will arise from the flexor tendon sheath.<sup>1</sup> They are known as "sesamoid" or "pearl-seed ganglion" based on their unique presentation and characteristics. While there are a lot of published reports on adult wrist and hand ganglia, it is less common in children. The exact incidence is uncertain but Nelson et al reported out of 543 patients with hand and wrist ganglia, less than 2% were younger than 10 years of age.<sup>3</sup> We reported a rare case of painful 'pearl-seed ganglion' in the left middle finger of a five year old girl which was successfully treated by surgical excision.

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## CASE REPORT

A five year old girl was referred to hand clinic complaining of pain over her left middle finger for the past 2 months. The patient's mother had noticed a hard bony lump at the volar side of her left middle finger which was painful on pressure. There was no history of trauma or fracture. Clinically there was no obvious swelling on the affected finger on inspection (Figure 1a & 1b). On palpation, there was a palpable bony hard discrete swelling over volar aspect of left middle finger at the proximal digital crease which was tender on pressure. The lump was not mobile along both transverse and longitudinal plane in fully extended finger. Flexion of left middle finger was limited due to pain.

She underwent excision biopsy of the lump. Intraoperatively there was a lobulated firm tissue mass with pearly grey appearance (Figure 2a & 2b) arising from the flexor tendon sheath of middle finger which was confirmed as ganglion cyst on histopathological examination. Postoperatively pain was significantly reduced and she regained full function

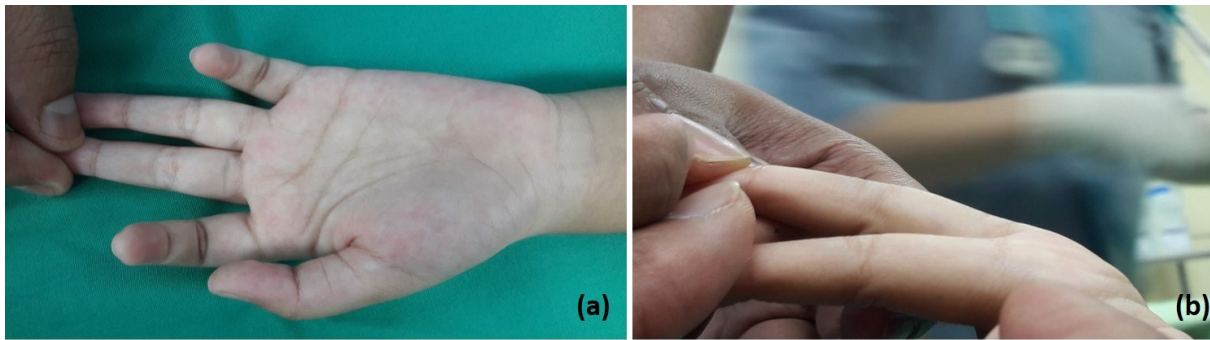


Figure 1a & 1b – Showing that the lump was not clinically visible from inspection both volar and side view.

of her finger after 6 weeks.

**DISCUSSION:**

“Pearl-seed” ganglion or “sesamoid” ganglion is less common than dorsal or volar wrist ganglion. Instead of originating from the joint capsule, pearl-seed ganglion arises from fibrous flexor tendon sheath of a digit. The etiology of the flexor tendon sheath ganglion is unknown. Reported incidence of pearl-seed ganglion ranges from 5-16%.<sup>4</sup>

Matthew *et al.*, in his report of 40 patients treated for hand ganglia of flexor tendon sheaths concluded that there was no familial association in development of this disease.<sup>5</sup> The commonest site of involvement reported by Matthew *et al.*, was the middle of proximal phalanx at the proximal crease of digit followed by metacarpophalangeal joint

level. He also found that those arising from tendon sheath of flexor pollicis longus were all at metacarpophalangeal level.

Ganglion cyst in general often has variable consistency ranging from cystic to firm and hard. Its thin wall contains viscous fluid to jelly like material.<sup>6</sup> This gelatinous material contained in a sac made of randomly oriented sheets of collagen arranged in loose layers. Cystic fluid is mainly comprised of hyaluronic acid and lesser amount of glucosamine, globulins and albumin.<sup>1</sup> Pearl-seed ganglion often gives a bony hard consistency appearance instead of cystic. This could be due to two possible reasons; fully distended sac due to distension by the cystic fluid or the cystic sac is pressed against the bony floor of the proximal phalanx or metacarpal bones thus transmitted the bony hard consistency towards the examiner’s fingertip.

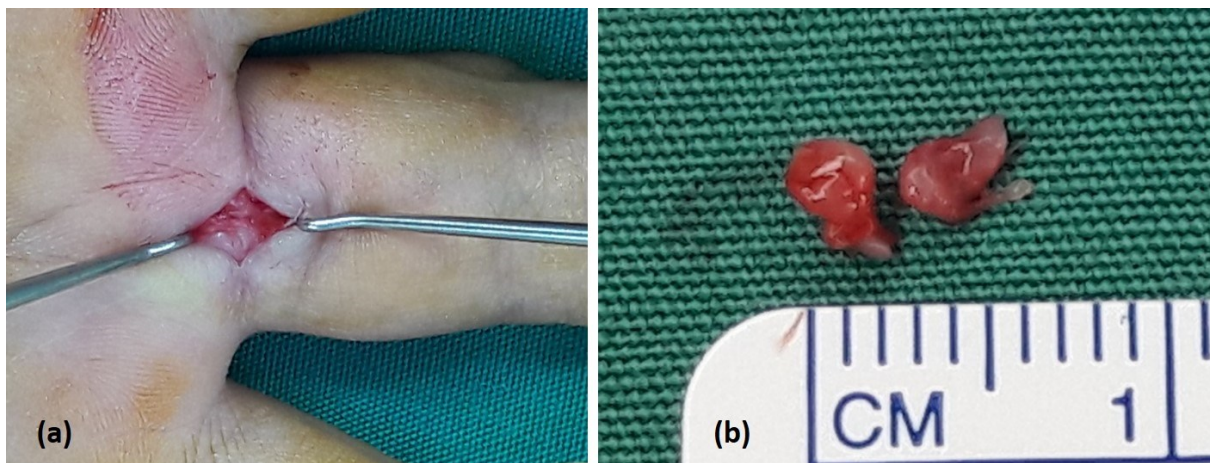


Figure 2: (a) Transverse skin incision made on the proximal digit crease giving a good exposure of the lump. (b) 2 small lobulated soft tissue masses with a pearly grey appearance

The size of pearl-seed ganglion is usually small and it is often unilocular.<sup>7</sup> Despite its small size, it often causes pain, which significantly limit patient's activity. Patients tend to present early because of the pain and hence, there is very little tendency for the ganglia to progress to a much larger size. Alternative differential diagnoses to be considered for small painful lump in the hand includes painful sesamoid bones, osteomas, chondromas or implantation dermoids.

Different treatment modalities had been advocated for ganglions in general. Brunner suggested needle rupture by producing a wheal raised by a local anaesthetic as a choice of treatment which could give satisfactory results.<sup>8</sup> Surgical excision is the mainstay of treatment in cases of recurrence and should also be considered as primary treatment.<sup>4</sup> It is recommended to excise the ganglion together with the small disc of the tendon sheath to minimize the chance of recurrence. It has been suggested that recurrence is due to inadequate excision of degenerative myxoid tissue.<sup>4</sup>

### CONCLUSION:

Pearl-seed ganglion or ganglion cyst of the fibrous tendon sheath is a diagnosis to be considered in an individual whom presented with a painful bony hard lump at the digits or hand. Surgical excision is one of the options of treatments to alleviate pain and to reduce risk of recurrence.

### DISCLOSURE

All authors have contributed to the manuscript equally. None of the authors have direct or financial conflicts of interest with this paper and material contained herein. Authors also acknowledged that consent has been obtained to publish these images.

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