

Total Dorsal Capsulectomy for the Treatment of Mucous Cysts

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Purpose To describe the technique of total dorsal capsulectomy alone for mucous cysts of the distal interphalangeal (DIP) joint and evaluate its outcomes and complications.

Methods Nineteen patients (18 women and 1 man) with 19 mucous cysts were treated by a total dorsal capsulectomy without cyst excision or osteophyte removal. The average age at surgery was 63 years. The thumb was involved in 4 patients, index finger in 1, middle finger in 7, ring finger in 4, and little finger in 3. Twelve patients had nail deformities associated with the mucous cyst. The average period of postoperative follow-up was 26 months. The dorsal half of the DIP joint capsule was resected with a punch and curette. The cyst and osteophytes were left intact.

Results The average preoperative range of motion for the DIP joint was from 10° of extension to 45° of flexion. Radiographs showed osteophytes at the DIP joint in all affected digits. After surgery, all cysts disappeared at an average of 3 weeks. There was no recurrence at the time of final follow-up. All nail deformities had resolved at an average of 5 months after surgery. The average motion for the DIP joint at the time of final follow-up was from 8° of extension to 56° of flexion. There were no acquired nail deformities or other complications.

Conclusions A total dorsal capsulectomy alone was a simple treatment for mucous cysts and did not lead to any recurrence. (*J Hand Surg Am.* 2014;39(6):1063–1067. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Therapeutic IV.

Key words Digit, mucous cyst, capsulectomy.

DIGITAL MUCOUS CYSTS ARE common benign lesions found in association with osteoarthritis of the distal interphalangeal (DIP) or thumb interphalangeal joint.^{1–3} The cyst arises from the capsule of the DIP or interphalangeal joint and is connected to the capsule by a pedicle with a 1-way valve.²

Numerous treatments have been reported; the 2 most common procedures are needle puncture/aspiration and surgical excision.^{4,5} Needle puncture has a recurrence rate ranging from 40% to 100%,^{4,5} whereas simple excision of the cysts has a recurrence rate ranging from 25% to 28%.^{1,6,7} Many authors report removing the osteophytes, and some add a skin graft or rotational flap.^{1,2,4,8} These procedures result in recurrence in 0% to 8% of cases.^{1,2,4,8}

Gingrass et al⁹ reported an alternative surgical technique. Nail deformity resolved in 18 of 20 digits treated by debridement of the osteophytes alone, without cyst excision. There were no recurrences at a mean follow-up of 3 years. We speculated that because dorsal wrist ganglion can be treated by arthroscopic debridement of the stalk and surrounding dorsal capsule without excision of the cyst, capsular excision alone would be successful for mucous cysts.^{10,11} We

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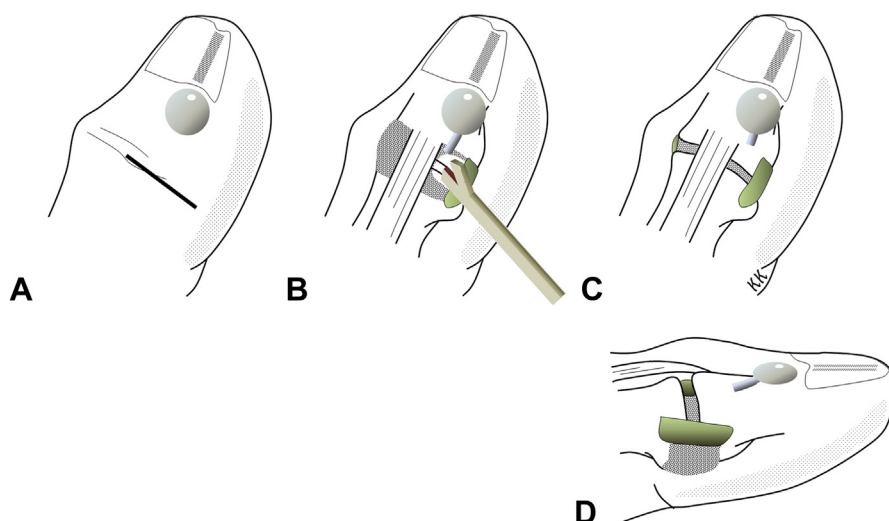


FIGURE 1: **A** A skin incision was made over the affected half of the dorsal DIP joint crease. **B** The joint capsule was exposed and excised using a 2-mm punch. **C, D** The dorsal half of the joint capsule was totally excised. A stalk lying on the joint capsule was excised but was not pursued to the cyst.

report a retrospective analysis, its outcomes, and the complications of isolated dorsal capsulectomy for digital mucous cysts.

PATIENTS AND METHODS

Between 2010 and 2013, 24 digits in 23 patients were treated solely by total dorsal capsulectomy. All procedures were performed by 1 of the authors (K.K.). We included in the study 19 digits in 19 patients who were observed for more than 6 months. Informed consent for the procedure was obtained from all patients, and we obtained approval from the institutional review board of ethics committee. Indications for surgical treatment were cysts that had nail deformity or that failed to respond to prior injection or puncture. Every patient was reviewed 2 to 4 times during the first month, and 2 to 4 times from the second to the sixth month after surgery. The average number of follow-up appointments was 7 (range, 5–8). After 1 year, up-to-date information was obtained by a visit to the clinic or by telephone. The period until cyst resolution, recurrence, and nail deformity was observed throughout follow-up. Preoperative and postoperative range of motion (ROM) for the DIP joint was measured. Complications were investigated at the final examination.

Surgical technique

The surgery was performed under a digital nerve block using 1% lidocaine. A digital tourniquet was applied. The site of skin incision depended on the position of the cyst. A transverse incision was made

over the affected half of the dorsal DIP extension crease if the cyst was on 1 side of the digit (Fig. 1), and a transverse incision was made over the entire DIP extension crease if the cyst was in the center. The extensor tendon was exposed and retracted dorsally. A stalk of the cyst was sometimes found along the extensor tendon. The joint capsule was exposed and incised using a scalpel. The dorsal half of the joint capsule in the coronal plane was excised via the incision in the capsule to remove numerous satellite lakes or ducts using a 2-mm punch, which is usually used for knee arthroscopy (Fig. 1). A stalk lying on the joint capsule was excised but was not pursued to the cyst. We curetted the remaining capsule attached to the bone using sharp curettes. We left the osteophytes and cyst intact. The skin incision was closed and a conforming dressing was placed over the wound. The sutures were removed at 10 to 14 days later. Patients were advised to resume activities of daily living 2 weeks postoperatively.

RESULTS

We treated 18 women and 1 man. The affected digit was on the left hand in 10 patients and on the right hand in 9. The average age at the time of surgery was 63 years (range, 47–83 y). The average period of postoperative follow-up was 26 months (range, 6–45 mo). The distribution of cyst involvement was the thumb in 4, index finger in 1, middle finger in 7, ring finger in 4, and little finger in 3. The cyst was located on the radial side of the extensor tendon in 7 patients, on the ulnar side in 10, and in the center in 2. The

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