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Thumb interphalangeal joint replacements with silicone and surface gliding implants. A case report

Dear Sir,

Arthrodesis is the preferred intervention for osteoarthritis (OA) of the thumb interphalangeal (IP) joint (Rizzo, 2006). However, if preservation of joint range of motion is desired, replacement with implant arthroplasty is an alternative and has been documented for distal IP joints of the long fingers (Sierakowski et al., 2012). We describe the technique of thumb IP arthroplasty using a silicone (Swanson, Wright Medical Group N.V., Cham, Switzerland) and surface gliding implant (CapFlex, KLSMartin group, Tuttlingen, Germany) in one patient.

Prerequisites for thumb IP joint replacement are a stable joint configuration with sufficient collateral ligaments and no severe bone loss. In a 53-year-old female patient with bilateral OA of the thumb IP joints, we first performed a silicone arthroplasty in the non-dominant right thumb and 2 years later a surface replacement on the left side. Both procedures involved a dorsal approach and transverse extensor pollicis longus (EPL) tenotomy to expose the extensor tendon and joint. Osteophytes were resected. The radial collateral ligament was released while preserving its ulnar counterpart to achieve joint stability during grasping and pinching. The silicone prosthesis was inserted using the technique commonly used for proximal IP joint arthroplasty, but

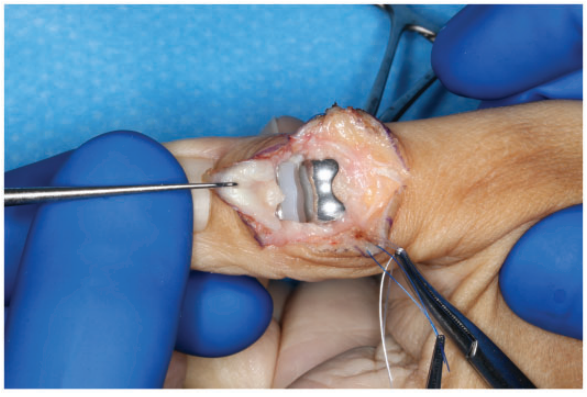

Figure 1. Operative photograph showing implantation of a CapFlex-PIP resurfacing arthroplasty implant with press fit fixation. The articulation is metal on polyethylene.

Figure 2. Radiograph showing the thumb IP arthroplasty with a silicone implant 6 years after surgery.

Figure 3. Radiograph showing the thumb IP arthroplasty with a CapFlex-PIP resurfacing implant 4 years after surgery.

with less resection of the head of the proximal phalanx to protect collateral ligaments. Proximal and distal medullary canals were reamed to allow adequate implant fit.

The surface gliding implant was inserted as previously described for proximal IP joint arthroplasty (Schindele et al., 2015) (Figure 1). For both prostheses, the EPL tendon was sutured without excessive tension in order to avoid joint hyperextension. To protect the EPL tendon repair, the joint was immobilized in a neutral position for 4 weeks. Thereafter, the patient began active mobilization without load and after 6 weeks daily activities were allowed.

Six years after silicone (Figure 2) and 4 years after CapFlex (Figure 3) implantation, active flexion/extension was 35°/0°/0° and 25°/0°/40°, respectively. The patient was pain-free on both sides and very satisfied with the surgical outcome. She reported subjective instability of the silicone joint, although there was 20° of radial deviation. In contrast, the surface replacement was stable and well-aligned.

Our case indicates that thumb IP arthroplasty can lead to good functional results. The surface replacement with its greater intrinsic stability may better resist the forces generated while pinching compared with the silicone implant. Implant loosening could occur in the longer term. However, IP joint fusion remains our treatment of choice when preoperative stability is uncertain, particularly when treating inflammatory arthritis.

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