Psoriatic Arthritis of the Hand: When Surgeons Meet Rheumatologists

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Psoriatic arthritis can present with significant hand and wrist deformity and dysfunction [1]. The development of newer biological therapies has resulted in higher rates of remission [2]. However, surgical intervention is still indicated in pain, disability, and severe deformation cases. The management of patients with rheumatic diseases has a controversial history, characterized by rheumatologists and hand surgeons debating the efficacy of surgical interventions. Some surgeons attribute the controversial results to "too little and too late" referral of patients from rheumatologists [3]. While the availability of new and more effective medication has changed the indications and postponed surgical intervention, it is important to remember that surgery is often more effective when used preventively in the early stages than when forced to salvage. In the following case, we present a patient with psoriatic arthritis who presented with advanced-stage debilitating hand deformity and was treated surgically.

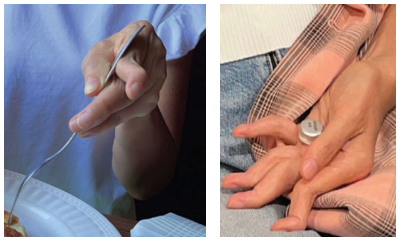
PATIENT DESCRIPTION

A 44-year-old, right-hand dominant patient was diagnosed with psoriatic arthritis at 14 years of age and gradually developed hand deformity. She was under rheumatologic treatment during the last decade and treated with tumor necrosis factor inhibitors, including infliximab, adalimumab, ustekinumab, etanercept, and golimumab. In 2016 while still living in Russia, she underwent arthroplasty of the metacarpophalangeal joints 2–5 with Swanson prosthesis due to ulnar deviation and subluxation of the joints on her right hand. In 2020 at a medical center in Israel, she underwent revision surgery, which included the replacement of all prostheses on the right due to recurrent ulnar deviation.

Figure 1. Deformity of the patient's left fingers

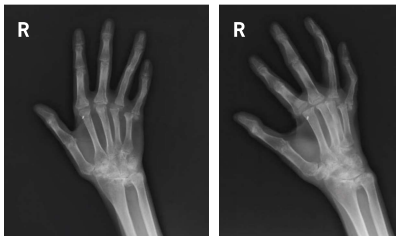
DIP = distal interphalangeal, DRUJ = distal radial ulnar joint, PIP = proximal interphalangeal

[A] Ulnar deviation of the metacarpophalangeal joints and swan-neck deformity limit activities of daily living requiring pinch and grasp and often causes an esthetic concern

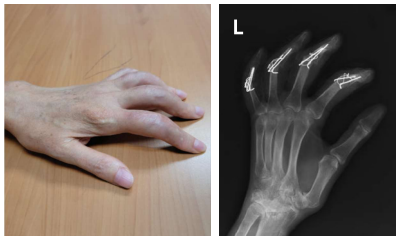


[B] X-rays of the left hand on anteroposterior and later views: end-stage arthrosis of the wrist and hand joints (DRUJ, carpometacarpal 1, PIP 2–5, DIP 2–5) and a swan-neck deformity of fingers 2–5

[C] X-rays of the right hand: status post metacarpophalangeal joint arthroplasty 2–5, the prosthesis in fingers 4 and 5 are broken and subluxated, and fingers 2–5 are in ulnar deviation at the level of the metacarpophalangeal joints; PIP joints are fused and the wrist is at end-stage arthrosis, bone to bone



[D] Postoperative photo of the left hand. Surgical wounds are healed; PIP joints are in a more physiologic flexed position and are fused on an oblique X-ray view



The patient sought our advice due to progressive deformity of her left fingers that limited her ability to grasp while performing activities of daily living, as well as because of the aesthetically unappealing look. Previous treatment during the preceding 2 years included the use of splints, which were ineffective in preventing deterioration of the deformity [Figure 1A].

On physical examination of the left wrist and hand, typical caput ulna and swan-neck deformities of fingers 2–5 (hyperextension of the proximal interphalangeal [PIP] joint and flexion of the distal interphalangeal [DIP] joint) were noted. Active and passive range of motion at the metacarpophalangeal joints 2–5 ranged from full extension to 90 degrees of flexion. All PIP joints were hyperextended and completely stiff.

On physical examination of her right wrist and hand, surgical scars over the dorsal aspect of metacarpophalangeal joints 2–5 were ulnarly deviated and a flexible swan-neck deformity of fingers 2–5 was noted. The range of motion at the metacarpophalangeal joints was 0–90 degrees of flexion and negligible at the PIP and DIP joints.

X-rays of the left hand and wrist depicted end-stage arthrosis and a swan-neck deformity of fingers 2–5 [Figure 1B]. X-rays of the right hand and wrist depicted broken and a subluxated metacarpophalangeal joint arthroplasty prosthesis in fingers 4 and 5, as well as ulnar deviation at the level of the metacarpophalangeal joints in fingers 2–5. The PIP joints were fused, and the wrist was at end-stage arthrosis, bone to bone [Figure 1C].

Our patient presented with swan-neck deformity, a condition often observed in rheumatoid arthritis. This deformity is characterized by hyperextension of the PIP joint and flexion of the DIP joint. The underlying pathophysiology is commonly attributed to the tightness of the intrinsic hand muscles and an increased pull at the central slip, both of which are secondary manifestations of rheumatoid arthritis. This deformity limited her ability to flex her fingers and grasp objects.

In the PIP joints, swan-neck and boutonnière deformities are treated based on whether they are flexible or rigid, with connective tissue procedures for the former and fusion or arthroplasty for the latter. Due to the rigidity of the deformity and advanced radiographic intraarticular changes in our patient, we recommended PIP joint fusion over arthroplasty due to the severe shortening of the extensor mechanism, involvement of the index PIP joint that required lateral stability during pinch, and the inferior outcome in patients with inflammatory arthritis. Although PIP joint fusion does not improve the overall range of motion, it improves the resting position of the joint for initiation of grasp, thus making the joint more functional [4]. The risk of nonunion is below 8.6% [5].

COMMENT

Our patient underwent arthrodesis of PIP joints in fingers 2–5 on the left hand at our institution in May 2022. The operative procedure was conducted as planned and included a dorsal approach to the PIP joint, splitting the extensor mechanism, capsulotomy, and excision of the surrounding ligaments. Fusion of the PIP joint included an osteotomy and fixation at an angle of approximately 45 degrees of flexion using a tension band wire technique. The extensor mechanism and skin were sutured in the end. The patient was discharged from our department 24 hours after surgery and the postoperative course was uneventful.

At 6 weeks follow-up, the patient reported improved ability of grasping and performing activities of daily living. She also expressed satisfaction with the esthetic outcome of the procedure. On physical examination the surgical wounds had healed, the range of motion in the metacarpophalangeal joints was similar to the preoperative state, and the current flexion position of PIP joints improved the patient's ability to grasp, as expected [Figure 1D].

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The heart of a mother is a deep abyss, at the bottom of which you will always find forgiveness.
Honoré de Balzac (1799–1850), French novelist and playwright

Truth is not only violated by falsehood; it may be equally outraged by silence.
Henri Frederic Amiel (1821–1881), Swiss moral philosopher, poet, and critic