Case Study

Use of the ArcPhix™ Angled Compression Screw for Functional Flexion of the Third Distal Interphalangeal (DIP) Joint to Treat Isolated DIP Arthritis

Mark Rekant, MD

Philadelphia Hand to Shoulder Center
Philadelphia, PA

Dr. Rekant completed his undergraduate education Magna Cum Laude at Duke University and Medical School at the University of Medicine ad Dentistry of New Jersey – New Jersey Medical School. He completed his Orthopeadic Surgery Residency at New York University Medical Center and completed his specialty training with a Hand and Upper Extremity Surgical Fellowship with Philadelphia Hand to Shoulder Center and Thomas Jefferson University Hospital . He is currently an Associate Professor in the Department of Orthopedic Surgery at Thomas Jefferson University.

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Philadelphia Hand to Shoulder Center, Philadelphia, PA

Case Presentation

Patient was a 58-year-old female who suffered from isolated arthritis on her third distal interphalangeal (DIP) joint. An intramedullary (IM) approach that provided compression, stable fixation, and functional flexion DIP fusion was recommended to achieve early mobilization and maintain finger dexterity and grip strength.

Pre-op Plan

Dr. Rekant normally considers IM fixation with headless compression screws due to satisfactory DIP fusion outcomes but found it difficult in this case to create an angled fusion with a straight implant. He proceeded with the ArcPhix angled compression screw because the pre-bent design simplifies the construction of a clinically appropriate angle (18 degrees) for functional flexion of the DIP joint and features the additional benefits of improved finger dexterity and grip strength compared to full-extension fusions.

Operative Findings and Approach

Dr. Rekant removed the scar tissue and decorticated the bone ends in a manner that allowed for good apposition at the desired angle. He aligned the distal and middle phalanges, in a manner typical for standard IM K-wire fixation, for IM guide wire placement through both the distal and middle phalanges in a retrograde fashion. Afterwards, Dr. Rekant drilled by passing the cannulated drill over the guide wire to the desired depth of the implant, which was approximately 16 mm into the middle phalanx. He removed the drill and guide wire to insert the ArcPhix angled compression screw into the drill hole at the tip of the distal phalanx. Dr. Rekant advanced the screw until the apex of the bend was across the DIP joint with the convex side of the screw facing dorsally and the threads were past the fusion site. With ArcPhix, he achieved excellent compression and stability across the DIP joint. Total surgery time was approximately 15 minutes.

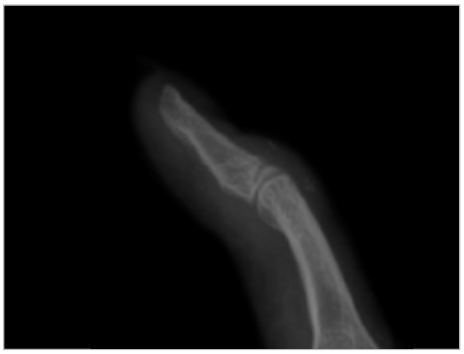
Follow-up

Immediately after surgery, Dr. Rekant implemented his post-op protocol that includes the use of a removable cap splint, which patients normally tend to discard because the fixation is extremely stable with ArcPhix. The patient did very well after surgery and by the four weeks post-op, she was using her finger naturally and returned to her daily activities without any complications.

Discussion

Dr. Rekant has been pleased with the ArcPhix angled compression screw because it not only achieves excellent fixation, allowing early mobilization, but also results in functional flexion, ensuring functional dexterity and grip strength for daily activities.

Preoperative



Postoperative