Distal Scaphoid Resection and Prosthetic Semireplacement Arthroplasty for a Scaphoid Nonunion with Degenerative Changes

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Distal scaphoid excision is a valid treatment option for selected scaphoid nonunions requiring a salvage procedure.^{1,2} Compared with proximal row carpectomy and intercarpal arthrodesis, it is technically simple to perform and reduces the immobilization period, without the risk of pseudarthrosis. A disadvantage is the risk of subsidence of the thumb.¹

We wish to report a case of an unemployed 29-year-old man with a scaphoid nonunion treated with distal scaphoid excision and additional interposition of a pyrocarbon implant (PI) to support the thumb. The patient was referred to our tertiary center because of untreated right-sided wrist pain, likely due to a fall over a year ago. He smoked tobacco and marijuana daily. A computed tomography scan showed a nonunion with degenerative changes (►Fig. 1A–C). We decided to excise the distal scaphoid and insert a PI² implant (Tornier, Montbonnot-Saint-Martin, France) through an open volar approach. The implant dimensions accurately resembled the distal scaphoid dimensions (►Fig. 1D–F). Standard imaging showed acceptable positioning of the implant (►Fig. 1G, H). At 3 months follow-up, wrist motion was painless, although limited (flexion/extension: 40/50 degrees) with 80% grip strength compared with the dominant left side.

In this case, we did not attempt to reconstruct the scaphoid because of the symptomatic degenerative changes, poor scaphoid bone quality, and substances abuses including smoking. There is strong evidence that smoking increases the failure rate of reconstructive surgery considerably.³

Replacement of the distal pole with an implant is well described in the treatment of scaphotrapeziotrapezoid osteoarthritis.⁴ In this particular case, the pyrocarbon interposition implant—normally used to replace the trapezium—resembled the distal scaphoid accurately (►Fig. 1D–F). We

Fig. 1 Preoperative (A) sagittal, (B) coronal, and (C) axial computed tomography slices showing a scaphoid midwaist nonunion including large intrascaphoid cystic formations and humpback deformity with osteophytic overgrowth on the dorsal scaphoid. (D–F) Intraoperative photos of a PI² implant (Tornier, Montbonnot-Saint-Martin, France; size: medium) and the native distal scaphoid, which were comparable in shape and size. The implant snugly fitted in the resection space. (G) Intraoperative fluoroscopic anteroposterior (AP) image confirming adequate positioning of the implant. (H) Postoperative AP radiograph at 1 month follow-up, showing slight radial displacement without clinical complaints.

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therefore chose this option to preserve the joint height and soft-tissue tension. In general, distal scaphoid resection can be considered as an initial option in selected scaphoid nonunion.⁵ If wrist instability and osteoarthritis progress, more extensive salvage procedures can still be used.

Conflict of Interest

None.

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