AN ARTHROPLASTIC SALVAGE PROCEDURE FOR COMBINED RADIOCARPAL AND DISTAL RADIOULNAR PATHOLOGY

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In a patient with silicone synovitis and degeneration of the distal radioulnar joint after 2 operative procedures for Kienböck's disease, and in a patient with long-standing scapholunate dissociation and distal radioulnar degenerative arthritis, a combined salvage arthroplasty was performed. A proximal row carpectomy with a Sauvé Kapandji procedure maintained reasonable function.

Keywords : wrist ; distal radioulnar joint ; silicone synovitis ; Sauvé-Kapandji ; proximal row carpectomy.
Mots-clés : poignet ; articulation radio-cubitale inférieure ; synovite sur silicone ; Sauvé Kapandji ; résection de la première rangée du carpe.

INTRODUCTION

For a long time wrist arthrodesis has been considered as the ultimate solution for difficult, multioperated and/or salvage wrist problems, with good results in a vast majority. However in some situations the outcome is not too favorable. Manual labor and bilateral involvement are some of the clinical situations where some mobility is required for professional and personal functioning.

Proximal row carpectomy (PRC) (4, 6, 7, 10) is considered as a salvage procedure, which we used for several indications. The involvement of the distal radioulnar joint (DRUJ) however creates an additional problem, since simple resection of the ulnar head creates a very unstable wrist with a reduced contact zone for the proximally migrated capitate.

We combined the Sauvé Kapandji procedure (SK) (5, 8, 12, 13) with a PRC to preserve some wrist mobility. The SK-procedure consists in an arthrodesis of the DRUJ, with creation of a pseudarthrosis of the ulna proximally to the arthrodesis (fig. 2, 3, 4).

CASE REPORTS

Case 1

A 31-year-old male was operated in 1983 for Kienböck's disease of the left wrist. A silicone rubber implant was used to replace the necrotic lunate. In 1990 due to persisting wrist pain and synovitis the radius was shortened by 3 mm to decompress the implant. For one year the patient functioned well, and even returned to his previous job. After 1 year progressive pain in the distal radioulnar joint as well as in the radiocarpal joint (RCJ) prevented him from continuing his work. On examination tenderness over the DRUJ and synovitis of the RCJ were obvious. The forearm rotations were limited to 30% in each direction ; flexion-extension was limited (30/0/40), and grip force was reduced to 8 kg.

On x ray the implant was eroded with erosive lesions in the carpal bones. Degenerative alterations of the ulnar head with osteophytosis and subchondral sclerosis were also seen.

At operation synovial fluid in the RCJ with villous thickening of the synovial lining was discovered. The implant was reduced to practically half the original size. The implant, the scaphoid and the triquetrum were removed, and the DRUJ

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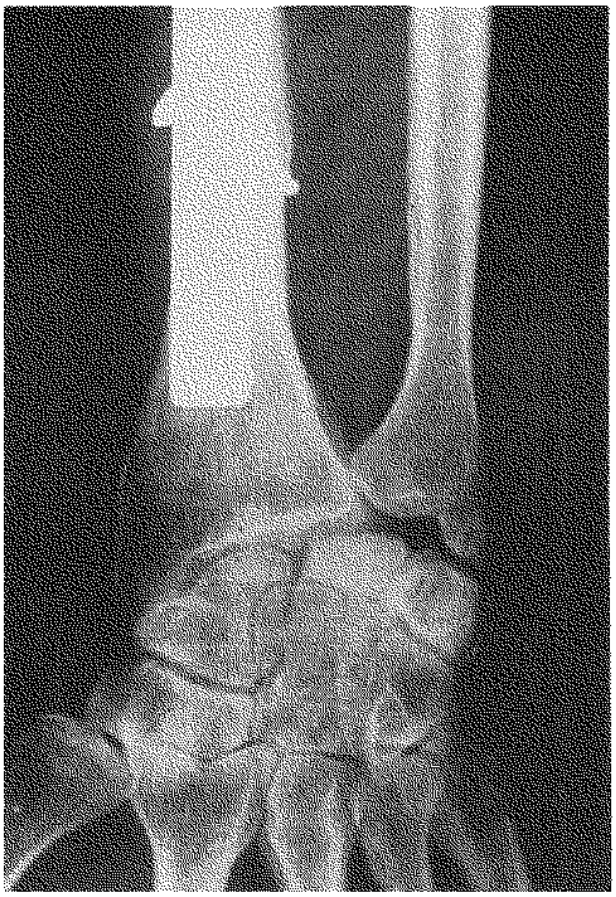

Fig. 1. — *Case 1* : preoperative xray with degeneration of the DRUJ and silicone synovitis.

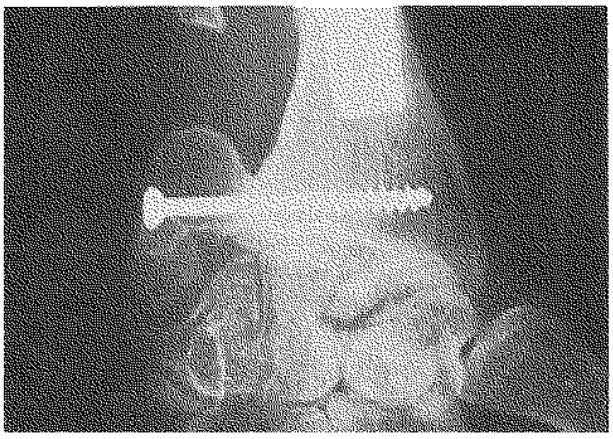

Fig. 2. — *Case 1* : end result with resection of the proximal row and Sauvé Kapandji procedure.

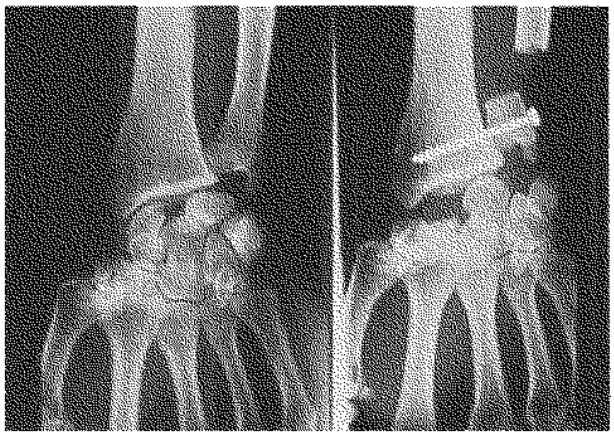

Fig. 3. — *Case 2* : pre- and postoperative x ray.

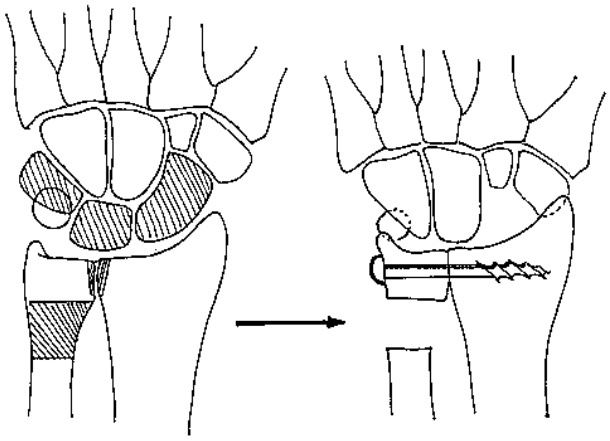

Fig. 4. — Schematic presentation of the salvage procedure.

was fixed with a cancellous screw. A pseudarthrosis was created by resection of a 15-mm segment of the ulna, proximal to the arthrodesis, according to the technique of Sauvé-Kapandji (fig. 2).

At 18 months postoperatively the patient is pain-free, and pronation and supination returned to normal. Extension and flexion remained fairly equal (45/0/45), and the grip force increased to 18 kg.

On histological examination the presence of synovitis with foreign body inclusions was confirmed.

Case 2

A 64-year-old male with chronic Parkinsonism came to the clinic with diffuse pain of the right

wrist. Radial pain as well as ulnar pain were present. Rotation of the forearm was painful, and tenderness over the radial styloid and the radiocarpal joint was noticed. The patient himself declared that these localizations were not related and quite different. The Watson shift test was extremely painful.

Radiographs confirmed a double pathology with distinct DRUJ degeneration and scapholunate dissociation with rotation of the scaphoid, a large gap and signs of degenerative alteration of the radial styloid. Here too a PRC/SK salvage was performed. At 1-year follow-up the patient is pain-free, with functional motion (extension : 20°, flexion : 30°, normal prosupination) and 11-kg grip force. Despite his neurological handicap mainly with rigidity, he is able to fulfill his activities of daily life, including personal hygiene.

DISCUSSION

The first patient had a complication of both procedures for the treatment of Kienböck's disease. Silicone synovitis (here proved on histological examination) is now being recognized as occurring with 30 to 50% of carpal implants, starting 2 years after the initial operation (1, 11). The treatment recommended is excision of the implant and curettage of the bone cysts. In this patient the cysts were still small, so we could immediately go on to a reconstructive procedure. The choice of a proximal row carpectomy was based on our own good results as well as those published in several papers (2, 4, 6, 7, 10).

The discongruence of the DRUJ after radial shortening or ulnar lengthening has not been demonstrated, but it seems obvious since the articulation is not cylindrical, nor is its axis parallel with the forearm axis (3). The pressure in the DRUJ increases significantly with leveling the DRUJ, as demonstrated by Werner (14). For disorders of the DRUJ the Sauvé Kapandji procedure has been proved to give reliably good results (5, 8, 9, 12, 13).

To our knowledge, this combination of procedures to avoid a radiocarpal arthrodesis has not been reported. Although the kinematics of wrist motion are fundamentally altered, for the particular conditions in this patient these combined procedures seemed logical.

In order to avoid a full arthrodesis in the second patient with the combined lesion of DRUJ arthritis and scapholunate dissociation, the above-mentioned combined procedure was used and gave a reasonable result with preservation of painless motion of the wrist.

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SAMENVATTING

L. DE SMET, B. ZACHEE, G. FABRY. Salvage arthroplastie voor gecombineerde radiocarpale en distale radioulnaire gewrichtspathologie.

Wij verrichten bij 2 patiënten met een combinatie van radiocarpale pathologie (1 × silicone synovitis, 1 × chronische scapholunaire dissociatie) en distale radio-ulnaire arthrose een combinatie van proximale carpus-rijresektie en Sauvé Kapandji procedure. In beide gevallen kon een pijnloze en functionele pols worden behouden.

RÉSUMÉ

L. DE SMET, B. ZACHEE, G. FABRY. Arthroplastie pour pathologie combinée radiocarpienne et radiocubitale inférieure.

Chez un patient présentant une synovite au silicone et une arthrose de la radiocubitale inférieure après 2 interventions pour malacie du semi-lunaire et dans un cas de dissociation scapho-lunaire chronique avec arthrose de la radio-cubitale inférieure, une arthroplastie de sauvetage fut réalisée : la combinaison de la résection de la première rangée du carpe avec la technique de Sauvé Kapandji a permis de conserver une fonction acceptable et indolore.