



Use of Cem-Ostetic™ for Repair of Distal Radius Fracture



Figure 1
Preoperative:
AP and lateral views
demonstrating complex
comminuted extra-
articular distal radius
fracture with osteopenic
bone, with marked
displacement and
angulation.

Presentation

A 70-year-old woman presented complaining of isolated right wrist pain after sustaining a mechanical fall onto her outstretched right hand. She had no previous history of injury to the right wrist. Radiographs demonstrated an angulated comminuted extra-articular fracture of the right distal radius with osteoporotic bone and substantial collapse. A displaced fracture of the ulnar styloid was also seen (Figure 1).

Treatment

The fracture was treated with closed reduction, percutaneous pinning and external fixation. After completion of the fixation, a small incision was made dorsal to the fracture site and surgical dissection was carried down to the level of the fracture. A volume of 5 cc of Cem-Ostetic putty was then mixed and inserted into the metaphyseal defect of the fracture site. After the putty had cured at five minutes, the wound was irrigated and closed in layers.

Postoperative Results and Outcome

The patient had an uneventful postoperative course. Percutaneous pins were maintained for three weeks and the external fixator was retained for a duration of seven weeks. Physical therapy for range of motion was then initiated and the patient wore a removable wrist splint for 7-10 weeks. At eight weeks, the patient was able to make a full fist. By twelve weeks, the fracture had fully healed without evidence of collapse. The patient regained excellent wrist range of motion, with full finger range of motion and no significant pain at the fracture site.



Figure 2
One Week Postoperative:
X-rays demonstrating
reduction of the fracture
maintained with three
percutaneous pins and
external fixation.
Cem-Ostetic putty is
visualized as radiodense
material in the fracture site.



Figure 3
Three Weeks Postoperative:
AP views of the fracture
demonstrate remodeling
of the Cem-Ostetic putty
compared to one week
postoperative views with
excellent maintenance of
the fracture reduction.



Figure 4

Three Months Postoperative: X-ray demonstrates the well healed fracture with solid bridging callous formation. The percutaneous pins and external fixator have been removed prior to this time.



One Week

Figure 5

One Week and Three Months Comparison: AP views of the wrist demonstrate solid bridging callous formation with the greatest density of bone formation correlating with the placement of the Cem-Ostetic putty.



Three Months

Radiographs throughout the postoperative course demonstrated rapid healing of the fracture (Figures 2 and 3). Remodeling of the putty was seen from 1 - 3 weeks postoperatively at a time correlating with formation of osteoid. Solid bridging callous formation was clearly evident at three months postoperatively with the greatest bone formation seen in the distribution of the Cem-Ostetic putty placement (Figure 4).

Summary

Use of Cem-Ostetic putty in the treatment of a complex comminuted distal radius fracture in osteoporotic bone allowed for the augmentation of the deficient metaphyseal bone for more solid fracture healing without collapse (Figure 5). By twelve weeks, the patient had already regained excellent wrist range of motion, with full finger range of motion and no significant pain at the fracture site.



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