

# CASE REPORT

## Distal Radius fracture repair using IlluminOss®

### *IlluminOss®: a new, patient-conforming, intramedullary implant for treatment of osteoporotic fractures*

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#### **Patient History and Diagnosis**

*A case study is presented of a 77-year-old female, in generally good health and living independently, who suffered a low-energy fall on her left arm, sustaining an AO type 23-A2 extra-articular fracture in her radius.*

#### **Pre-op X-ray: AO type 23-A2 extra-articular fracture**



#### **Treatment**

The fracture was stabilized with Plaster of Paris in preparation for placement of an IlluminOss implant. The implant procedure was performed in a supine position with Chinese finger traction. Anesthesia was administered prior to a closed reduction of the fracture and creation of a 1.5 cm incision over the styloid process of the distal radius. The operator used a straight awl to gain entry to the intramedullary canal, and then used a cannulated awl to introduce a guide wire. Flexible burrs were then used to clean the canal to 5.5 mm. Under x-ray guidance, a balloon catheter was introduced via a sheath and dilator, and positioned across fracture site. After proper positioning was confirmed by fluoroscopy, a liquid monomer was infused to inflate the balloon. An optical fiber residing within a lumen in the balloon catheter was then attached to a light source and activated for 400 seconds to deliver visible 436 nm light and harden the monomer, creating the implant in situ. Afterward, the optical fiber and catheter were removed, leaving the implant to stabilize the fracture site.

### Post-operative X-ray with IlluminOss implant



Post-operative: Patient was discharged the same day without a tourniquet



### Discussion

As life expectancy and activity levels among the elderly continue to increase in developed countries, wrist fractures are an increasingly important factor in maintaining quality of life and controlling healthcare costs.<sup>1,2</sup> A wrist fracture resulting in a non-functional wrist joint may cause reduced mobility, loss of work, and eventual loss of independence. Chung et al estimated that internal fixation for distal radius fractures would result in direct costs of \$240 million per annum in the US alone, with higher secondary costs related to prescription drugs, loss of work, and loss of independence.<sup>3</sup> In the case of a bi-lateral fracture of the wrist, patients may require assistive living support or interim nursing care. Despite the growing need for effective treatment, there is no gold-standard therapy. Current treatments include splinting, cast immobilization, and surgical treatment with fixation devices — yet treatment protocol remains “controversial” and varies from center to center.<sup>4</sup> New treatment options are urgently needed to help elderly patients recover, rehabilitate, and regain mobility and independence.

### Outcome/Post-procedure notes

The patient was treated on an outpatient basis with a stand-alone IlluminOss implant. She returned home the same day of the procedure with instructions to use her wrist as tolerated and begin physiotherapy. There was no infection, secondary procedure, or delayed union at the fracture site.

### Conclusion

The IlluminOss system provides a safe, minimally invasive, treatment option for fracture fixation. The small incision required for surgical access and the rapid longitudinal and rotational support may contribute to improved recovery time so patients can return home faster and maintain quality of life and independence.



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<sup>1</sup> <https://www.nia.nih.gov/research/publication/global-health-and-aging/living-longer>

<sup>2</sup> <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3345129/>

<sup>3</sup> Nellans KW, Kowalski E, Chung KC. The Epidemiology of Distal Radius Fractures. *Hand Clinics*. 2012;28(2):113-125. doi:10.1016/j.hcl.2012.02.001.

<sup>4</sup> Diaz-Garcia RJ, Oda T, Shauver MJ, Chung KC. A Systematic Review of Outcomes and Complications of Treating Unstable Distal Radius Fractures in the Elderly. *The Journal of Hand Surgery*. 2011;36(5):824-835.e2. doi:10.1016/j.jhssa.2011.02.005.

This product has the CE mark and is available for sale in the EU. This product is investigational and not for sale in the United States.