

CASE REPORT

Osteoporotic Pelvic Ring Fracture Repair Using IlluminOss®

IlluminOss®: a New, Patient-conforming, Intramedullary Implant for Treatment of Pathologic and Osteoporotic Fractures

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Patient History and Diagnosis

We present a case of an 85-year-old female with a ramus superior and inferior fracture of her left pelvic ring due to a fall inside her house. She also sustained a left subcapital humeral fracture. Her history consists of osteoporosis and a right medial column fracture, which was treated with a dynamic hip screw. She was still very active for her age. She was mobile without support inside her house and walked more than one kilometer with a rollator outside. Initially she was treated conservatively with physiotherapy. Despite adequate pain medication she was not able to mobilize. This in combination with the subcapital humeral fracture was the reason to choose IlluminOss to stabilize the fracture of the pelvic ring to make mobilization possible.

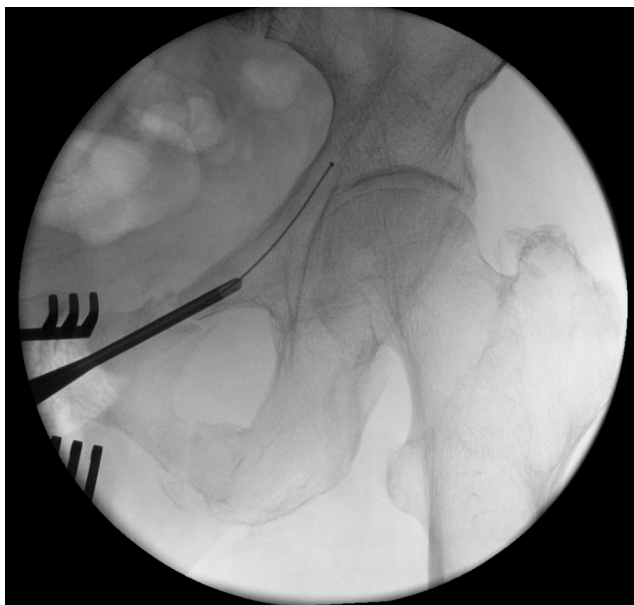


Figure 1: Opening the pubic canal and introducing guide wire over acetabular dome.

Discussion

It is generally known that the life expectancy and activity levels of people in developed countries has been increased over the recent years and will increase even more in the future. This will also lead to more age-related fractures. Kannus¹ described that the number of osteoporotic pelvic ring fractures in Finland between 1970 and 1997 increased dramatically and will increase even more over the coming years. They also describe an increase in the age of the patients that is likely to increase the injury-induced morbidity. To decrease the incidence and severity of complications, improve the patient's well being, prevent loss of independence and decrease the cost and burden of caregiving in these fragile geriatric patients, early mobilization is necessary.^{2 3 4}

Treatment

The operation was performed under general anesthesia due to combined operative treatment of the subcapital humeral fracture. A minimal supra pubic incision was made, so the intramedullary canal of the symphysis could be opened with a sharp awl. The guide wire was introduced and situated across the fracture, following the curve of the pelvic bone over the dome of the acetabulum. After the acetabulum was checked under X-ray guidance, flexible burs cleared the canal to the desired size of 5.5 mm. The introduction sheath was placed over the guide wire and an 8x120 mm balloon was inserted. X-ray guidance was used once more to check for proper positioning, before the balloon was filled with liquid monomer. To harden the monomer the balloon was attached to a light source of 436 nm for 400 seconds.

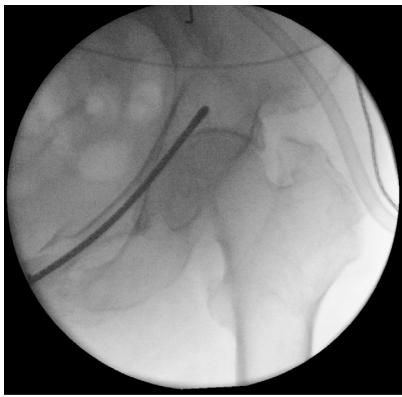


Figure 2: Burring the pubic and acetabular canal.

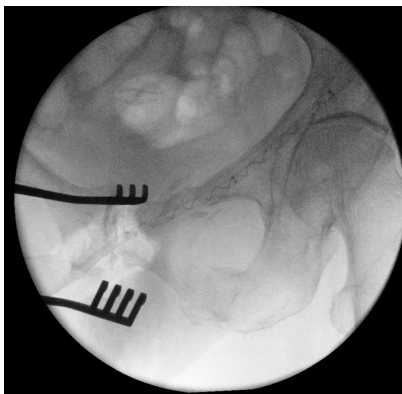


Figure 3: Positioning of the IlluminOss balloon via introduction sheath.



Figure 4: Expanding and curing of IlluminOss implant, postoperative result.

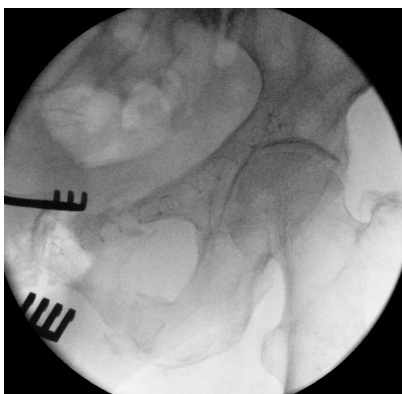


Figure 5: The postoperative control X-ray showed a good position of the IlluminOss polymer and the patient started mobilization with help of a physiotherapist.

Afterwards the light source was disconnected and the wounds were closed in layers. The surgical side was changed to start operative treatment of the subcapital humeral fracture also with IlluminOss.

At the first polyclinic appointment (after two weeks) the patient treated with IlluminOss for a ramus superior and inferior fracture of her left pelvic ring and left subcapital humeral fracture due to a fall was pain free when mobilizing without pain medication and was allowed to start full weight bearing. There were no signs of complications.

Outcome/Post-procedure Notes

The postoperative control X-ray showed a good position of the IlluminOss polymer and the patient started mobilization with help of a physiotherapist. She was instructed for partial weight bearing of 50% on her left leg. After discharge from the hospital she stayed a few days in a geriatric rehabilitation clinic before she was able to return to her own home. At the first polyclinic appointment (after two weeks) she was pain free when mobilizing without pain medication and was allowed to start full weight bearing. There were no signs of complications.

Conclusion

Due to the use of IlluminOss this patient was able to start mobilization on the first postoperative day. From this case we can conclude that IlluminOss is a good alternative method to stabilize a ramus superior fracture and make early weight bearing mobilization possible by a minimally invasive procedure.

¹ P. Kannus, M. Palvanen, S. Niemi, J. Parkkari and M. Järvinen, *Epidemiology of osteoporotic pelvic fractures in elderly people in Finland: Sharp increase in 1970-1997 and alarming projections for the new millennium*, *Osteoporosis International*, May 2000 volume 11, issue 5 p 443-448.

² Robert L. Kane, Joseph G. Ouslander, Itamar B. Abrass, Barbara Resnick, *Essentials of Clinical Geriatrics*, 7th edition 2013.

³ Albert L. Siu, Joan D. Penrod et al, *Early ambulation after hip fracture, effects on function and mortality*, *Arch Intern Med* 2006 April 10 166(7): 766-771.

⁴ K. Singler, R. Biber, S. Wicklein, C.C. Sieber, L.C. Bollheimer, *A plea for early mobilization after hip fractures, The geriatric point of view*, *European Geriatric Medicine* 4 (2013) 40-42.

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