

# Cases and Conclusion

## Case 3



Preoperative radiographs of a 54-year-old male who has been diagnosed with schizophrenia. He had a land mine accident during the Vietnam war and now has a left distal tibial infected nonunion with a 6-cm defect. The patient underwent internal fixation in 2005 and developed infection. Three subsequent surgical procedures failed.



Preoperative photos.



Surgical treatment included:

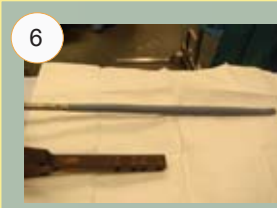
- Removal of hardware
- Osteomyelitis débridement
- Fibular osteotomy
- Insertion of custom antibiotic-coated hindfoot fusion rod



Intraoperative photo.



Fluoroscopic view after resection.



Antibiotic-coated intramedullary rod.



Intraoperative photo after rod insertion.

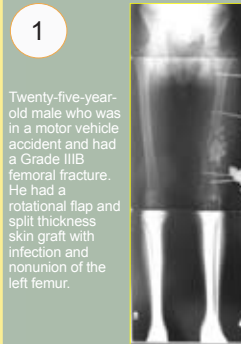


Photo and radiographs obtained 2 weeks postoperatively.

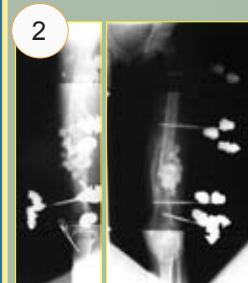


Clinical photo and radiographs obtained 7 months postoperatively.

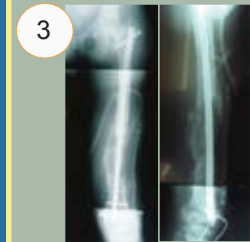
## Case 4



Twenty-five-year-old male who was in a motor vehicle accident and had a Grade IIIB femoral fracture. He had a rotational flap and split thickness skin graft with infection and nonunion of the left femur.



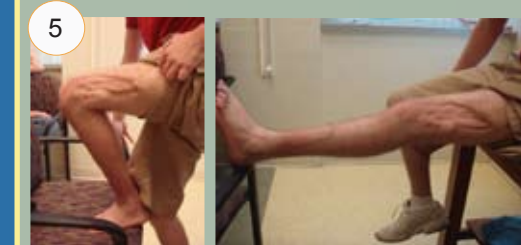
Preoperative radiographs.



At the time of surgery, the medial bridge had healed but suspicious tissue/bone was noted. Before the surgical site was opened, the RIA was used to harvest bone graft. An antibiotic-coated rod was inserted, and antibiotics and BMP-2 were added to the bone graft.



Postoperative radiographs.



Clinical photos obtained 8 months postoperatively.



One-year postoperative photos. Infection eradicated and bone healed.

Snowboarding

## Conclusion

Both methods for creating the antibiotic-coated intramedullary rod are effective; however, the silicone tubing method at present has better reliability in the coating, has fewer complications with insertion, and takes less intraoperative time to create. The silicone tubing method is our current method of choice to create an antibiotic-coated intramedullary rod.

Overall, the antibiotic-coated intramedullary rod is extremely effective when treating infected nonunion and segmental bone defects. These cases would normally require long periods of external fixation and often bone transport. Our method has a 26% risk of an additional procedure for infection or nonunion. This is an acceptable risk given the difficult nature of the initial problem and a comparatively low risk when compared with the complications and additional surgical procedures reported in the Ilizarov literature.<sup>7</sup>

The only disadvantage with this method appears to be with rod removal. The arthroplasty cement removal instruments have been very effective in dealing with this problem. Additional research is being conducted to improve the cement bonding interface, and techniques are being developed to remove cement when it debonds during rod removal.

## References

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