PERIPROSTHETIC NON-UNION CASE TREATED WITH NATURAL MATRIX PROTEIN® (NMP®)

NMP bioimplant is a 100% human allograft delivering physiologic levels of bioavailable growth factors that guide bone regeneration and fusion

INDUCE BIOLOGICS

Patient History and Background

81-year-old female, non-smoker, with previous history of hypertension, glaucoma, and endometrial cancer. Past surgical history included:

- Right total hip arthroplasty
- Right periprosthetic femur fracture
- Appendectomy
- Hysterectomy and bilateral salpingo-oophroectomy

The patient previously underwent a total hip arthroplasty. Many years later, she sustained a right-sided Vancouver C periprosthetic femur fracture that was treated with open reduction internal fixation (ORIF) using a lateral locking plate with cable options. Approximately four months after the fracture, she developed progressive right-thigh pain that worsened to the point that she required a 4-wheeled walker for ambulation. Later that same month, she experienced a sudden snap accompanied by severe pain, became unable to ambulate, and was brought to the emergency department.

Physical Exam

The patient presented with pain, swelling and tenderness to her right thigh. Her previous lateral incision was well-healed with no concerns for infection. She had a normal distal neuro-vascular exam.

Diagnosis

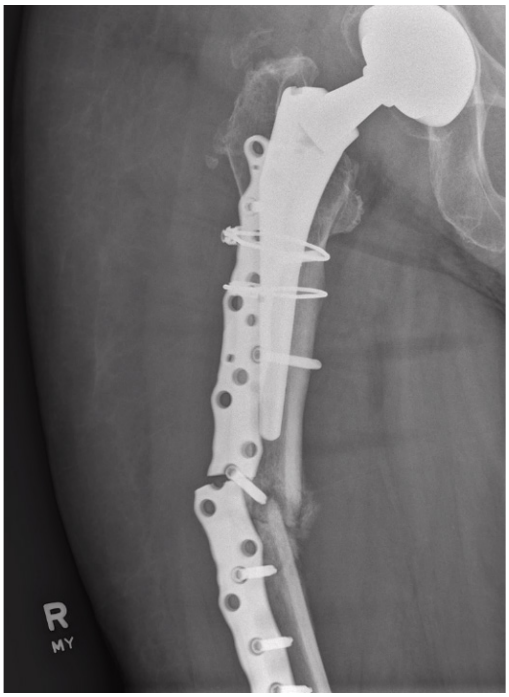
Non-union right mid-shaft periprosthetic femur fracture with hardware failure confirmed on preoperative radiographs.

Surgical Procedure

- Lateral approach to expose fracture site
- Removal previous plate
- Debridement of non-union
- Repeat ORIF with lateral locking plate
- Implantation of an anterior strut allograft secured with cables
- Placement of 11.1cc NMP Fibers, hydrated with saline, at the non-union

Post-Op Care

- Initial touch toe weight bearing
- Initiation of physical therapy for range of motion of hip and knee
- Progressive weight bearing between 6 and 12 weeks



Pre-Op

Post-Op X-ray in PACU Repeat ORIF with NMP

5 Months Post-Op

- Patient reports no pain and is walking independently
- Significant callous formation at the fracture site with the previous fracture line only faintly seen

5 Month Post-Op Significant callous formation at the fracture site

1 Year Post-Op

- Patient reports no pain at rest (VAS 0-1), full range of motion in right knee, hip flexion over 100° and walks over 1 mile/day without pain
- Complete consolidation at fracture site with no evidence of previous fracture line and partial incorporation of strut graft

1 Year Post-Op Complete consolidation at fracture site

CONCLUSION

The patient demonstrated progressive clinical and radiographic improvement over the postoperative course. Early follow-up showed significant callus formation with corresponding reductions in pain and improved ambulation. At twelve months, radiographs confirmed complete consolidation of the fracture site with partial incorporation of the strut graft, and the patient had resumed full daily activities without pain.

"The final X-rays demonstrated complete union with robust callus formation at the fracture site. I was quite satisfied with the result achieved using NMP for this very challenging non-union case, and my patient was very pleased to be pain-free from this injury."

— Claude A. Cullinan, MD FRCS(C)
Big Thunder Orthopaedic Associates, Thunder Bay, ON Canada