

CASE REPORT



Ulnar Shaft Bridge Plating Using a 17-hole Medartis APTUS Elbow Dorsal Olecranon Plate

The Surgeon

Ryan Bliss MD,
Baton Rouge Orthopaedic Clinic

Dr. Bliss is an American Board of Orthopaedic Surgery certified surgeon with a subspecialty in hand and upper extremity surgery. He works in private practice in Baton Rouge, Louisiana and is on staff at Our Lady of the Lake Regional level 1 trauma center. He has been in practice for eight years and handles a high volume of complex traumatic hand, wrist, and elbow cases. He is a current member of the American Society for Surgery of the Hand.

Introduction

Isolated ulnar diaphyseal fractures make up a small percentage of fractures, however these fractures can lead to non-union, loss of rotation, synostosis, and long-term pain.¹ Often these fractures can be managed with internal fixation, which allows for earlier range of motion and improved stability. When evaluating the fixation of the fracture, the mechanism and pattern should guide the physician in choosing the proper technique.

Gunshot wounds to the extremity can present with extensive tissue damage, neurovascular injury, bone loss, and multiple fracture planes.² These injuries can more effectively be addressed with bridge plating techniques to span the zone of injury.

Here we describe the early fixation of a comminuted proximal ulnar shaft fracture with bridge plating using a 17-hole Medartis Dorsal Olecranon plate.

The Case



Patient Profile

A 28-year-old male who sustained multiple gunshot wounds, including one to his abdomen and one to his right ulna. He was taken to surgery emergently for exploratory laparotomy. Orthopaedics was consulted following his ex-lap for treatment of a right comminuted ulnar shaft fracture with radial head dislocation.



Clinical Findings / Preoperative Analysis

Once the patient was stable, he was evaluated by orthopaedics. He reported significant pain in his right forearm, with an entry and exit wound visible. Sensation was intact in all nerve distributions, and he showed good motor function in his hand. Radiographs showed a severely comminuted ulnar shaft fracture that extended approximately one-third the length of the ulna and was slightly more closer to the olecranon (Fig 1). There was also a radial head dislocation. He was splinted and the radial head was reduced prior to surgery.



Figure 1: Pre-operative X-ray in AP and lateral projections.



Surgical Treatment

The surgical treatment consisted of a formal irrigation and debridement of the open fracture. All devitalized or loose bony fragments were debrided, however, bone fragments that had soft tissue attachments were carefully left in order to provide more opportunity for secondary bone healing across the comminuted fracture.

Once adequate debridement was performed, the 17-hole Medartis Dorsal Olecranon plate was used to span the fracture. The contoured plate fitted as-is, no bending was necessary. Using the distal end of the plate as an elevator, the plate was slid distally along the intact ulnar shaft almost to the level of the neck. It was then placed in an appropriate position proximally.

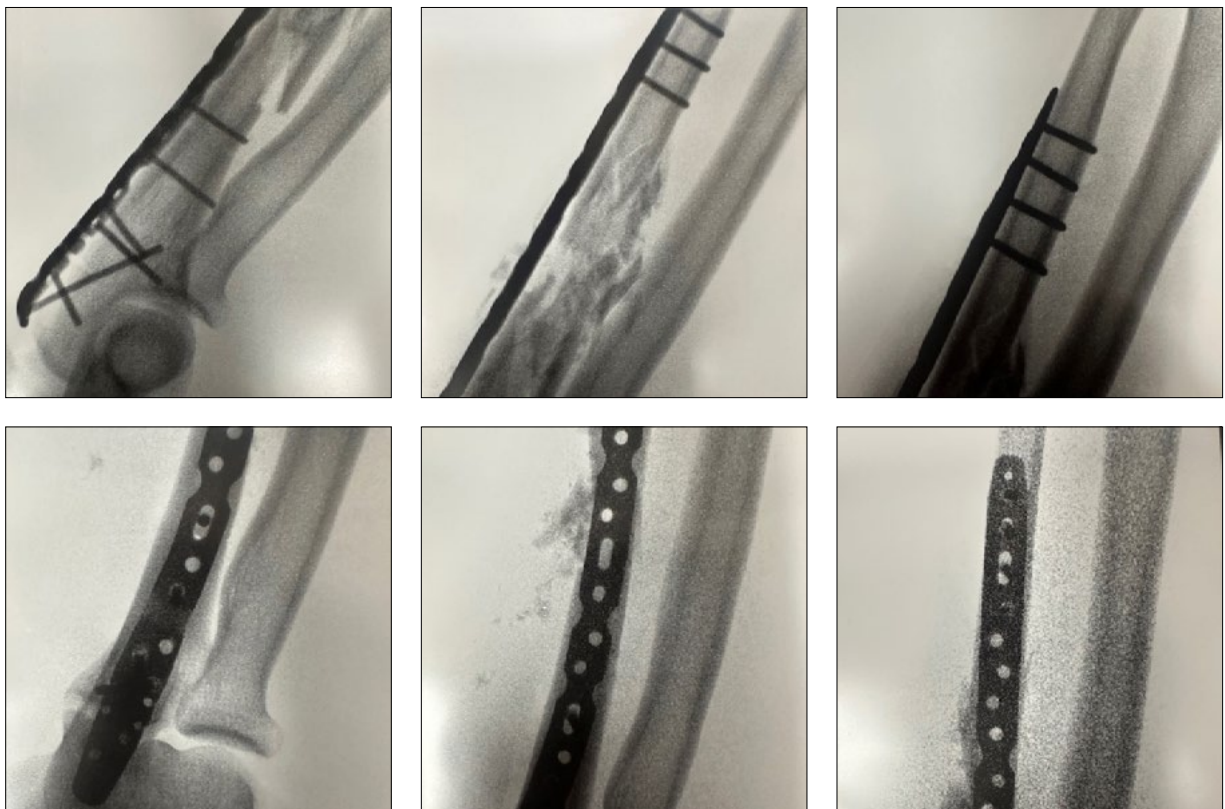


Figure 2: Intraoperative fluoroscopy images along the length of the plate from proximal to distal (left to right) in lateral (top row) and AP projection (bottom row).

As bridge plating is explained, the 2.8 screws are placed in the proximal and in the distal portion of the plate to secure the ulna and maintain the length. The alignment was confirmed with intraoperative fluoroscopy (Fig 2). There was full rotation of the forearm.



Intraoperative Findings

There was significant comminution of the proximal ulnar shaft, extending close to the metaphyseal region proximally. There was mobility across the fracture site as well.



Postoperative Treatment

The patient was placed in a long-arm splint for one week. This was left in place to allow for wound healing and protection of the fixation.

At one week, the patient started therapy to begin range of motion of the elbow and forearm. A long-arm removable thermoplastic splint was fabricated for interval splinting. Follow ups were made at two weeks, six weeks, and 12 weeks postoperatively where X-rays were obtained and healing was confirmed (Fig 3). At six weeks the patient was able to remove the splint and begin strengthening.

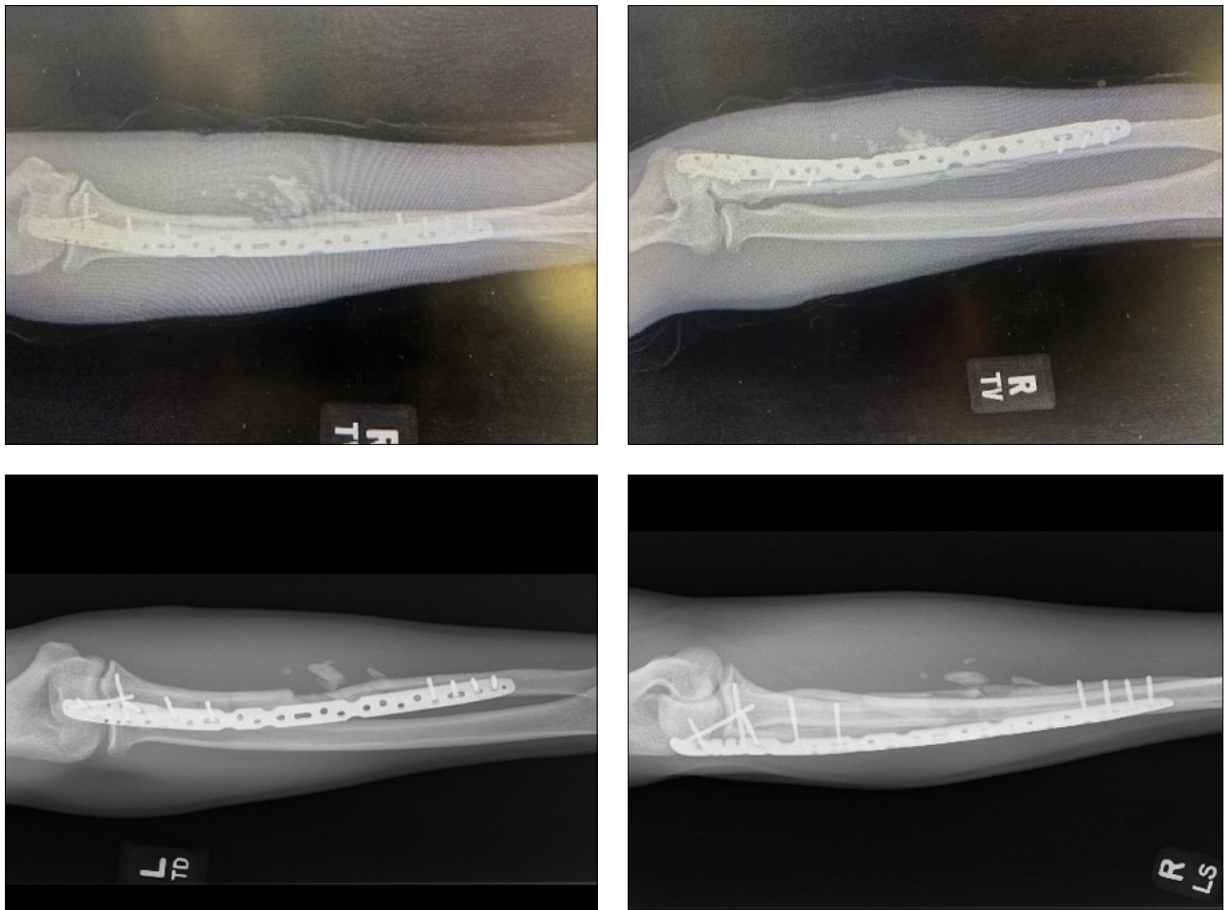


Figure 3: Postoperative X-ray images after 2 weeks (top row) and 12 weeks (bottom row).



Conclusion

Treatment of high-energy forearm fractures may require careful consideration of surgical fixation technique as well as deviation from the typical plates used for these types of fractures. In a comminuted ulnar shaft fracture, the preferred treatment was spanning the fracture using the Medartis Dorsal Olecranon Plate. Each fracture should be evaluated independently when deciding technique and implant.



References

- 1) Schneider P, Bajammal S, Leighton R, Witges K, Rondeau K, Duffy P. Operative versus non-operative management of isolated ULNAr diaphyseal fractures (OPERA-Ulna): protocol for a randomized controlled trial. *Bone Jt Open.* 2024;5(5):411-418. Published 2024 May 20. doi:10.1302/2633-1462.55.BJO-2023-0123.R1
- 2) Ghilzai U, Ghali A, Singh A, Mitchell TW, Mitchell SA. Management of gunshot wounds near the elbow: experiences at a high-volume level I trauma center. *Clin Shoulder Elb.* 2024;27(1):3-10. doi:10.5397/cise.2023.00801

Disclaimer: This case report presents the outcome of an individual patient case and it does not imply any guarantee or warranty in regard to treatment success. A surgeon must always rely on her or his own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. The professional must always comply with the individual product's Instructions For Use (www.medartis.com/documentation/instructions-for-use) as well as all laws and regulations. Medartis is not giving any medical advice. The devices may not be available in all countries due to registration and/or medical practices. All content – such as texts, video and pictures – was created by healthcare professional mentioned in the case report. For further questions, please contact your Medartis representative (www.medartis.com). This information contains products with CE and/or UKCA marking.
For US only: Federal law restricts this device to sale by or on the order of a physician.

© Medartis 2025. Everything herein is protected by copyright, trademarks and other intellectual property rights, as applicable, owned by or licensed to Medartis or its affiliates unless otherwise indicated. It is forbidden to redistribute, duplicate or disclose, anything herein, in whole or in part, without the prior written consent of Medartis.