Use of Acellular Dermal Matrix for Reconstructing Fascial Defects from Both Bone Fractures in the Upper Extremity

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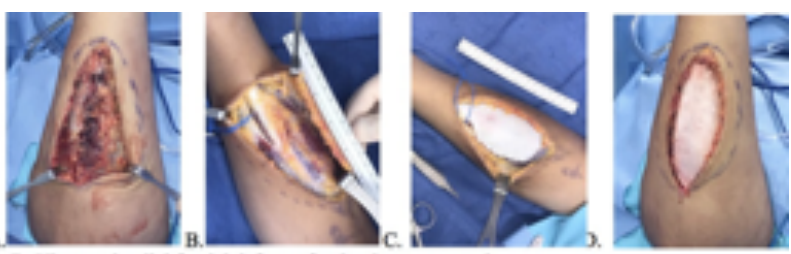
Purpose: Acellular dermal matrices (ADMs) fulfill the niche for a synthetic, integrative biologic substitute that avoids the morbidity, quantity, and quality limitation associated with autologous tissue grafting. We report here a novel surgical technique and 2 case reports for the use of ADM for fascial defects in the extremities. Without repair, these defects can lead to painful muscle herniation. To date we have found no literature reported on this technique.

Methods: We identified 2 patients who underwent removal of hardware after both bone forearm fracture open reduction andinternal fixation that necessitated ADM placement for fascial defects identified at the time of surgery. A standard surgical approach was taken for removal of their diaphyseal radius and ulna hardware utilizing the original incisions. After plate and screw removal, fascial defects with resultant muscle bulge were noted. The fascial edges were undermined, and an ADM measured to the defect size was sutured using a 4-0 absorbable monofilament suture in a running simple inlay technique.

Results: Postoperatively patients were placed in a forearm-based short arm splint and maintained non-weight- bearing for 3 weeks postoperatively. At 3 weeks they were transitioned to a custom thermoplastic splint and started on occupational therapy for active range of motion exercises of the wrist and hand until 6 weeks postoperatively, at which time they were weaned out of the splint and allowed to advance weight-bearing as tolerated. At final follow-up both patients were pain-free with no recurrent hernia.

Conclusion: We believe that our technique utilizing ADM provides an innovative and effective solution to this previously unreported problem.



A, B: Ulnar and radial fascial defects after hardware removal
C, D: coverage after placement of ADM