Managing Degloving Injuries of the Upper Extremity: Buried Treasure

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Disclosure/Financial Support: There are no conflicts of interests or financial support to disclose.

INTRODUCTION: Degloving soft-tissue injuries consist of avulsion injuries in which an extensive portion of the skin and subcutaneous tissue are completely separated from the underlying fascia and deeper structures.[1] These low force injuries can pose great challenges for reconstructive surgeons. Ideally, one would prefer to cover the defect with viable, supple, sensate skin while optimizing hand function.[2] Skin grafting remains one of the most commonly used procedures to treat these injuries; however, its success is often limited and may result in contracture or even amputation.[3]

MATERIALS AND METHODS: We present the case of a 19-year old, 34-week pregnant female who suffered a devastating degloving injury with major soft tissue, bone, tendon injuries to the left upper extremity following a motor vehicle accident. The victim sustained the loss of a large amount of soft tissue and bone defect and underwent complex staged reconstruction with an abdominal wall flap.

RESULTS: Following a normal, spontaneous vaginal delivery, the patient underwent bone grafts and ORIF of the left forearm and metacarpal bones. We then utilized the newly available and pliable abdominal skin to cover the large soft tissue defect. The abdominal wall flap was raised, thinned and then the injured extremity was carefully inset in a subcutaneous abdominal pocket and a meshed bilayer wound matrix was placed peripherally to facilitate tension-free closure.[2,4] Over the next 6 weeks, the patient underwent a series of local flap advancements. The abdominal wall flap successfully covered the extremity.

At 6 months post-initial injury, the patient's wrist pain had resolved and she was able to perform activities of daily living with her left arm. She maintains good range of motion of her digits and wrist, though thumb abduction remains limited. While additional surgical treatments (e.g., tendon transfers, contracture release) have been discussed with the patient, she is satisfied with her current level of functioning and wound healing.

CONCLUSION: This unique case study documents the use of abdominal wall staged reconstruction to successfully treat an extensive degloving injury. By utilizing this flap, we were able to preserve the integrity of the underlying structures, achieve good quality, definitive skin cover to optimize esthetic outcomes and early return of function.

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