Ulcerations that extend to deep tendon, Esterified hyaluronic acid (HA) has been used to aid in granulation over exposed bone, or with exposed hardware present a challenge to heal. Traditionally in wounds with exposed tendons or bones, soft tissue flaps are recognized as the best option. Esterified hyaluronic acid (HA) has been used to aid in granulation over exposed tendon. Hyaluronic Acid promotes fibroblast proliferation and angiogenesis and additionally exhibits anti-oxidative and anti-inflammatory properties.

**METHOD**

Case series of 10 patients with post surgical dehiscence with application of esterified hyaluronic acid to demonstrate time to healing over exposed tendon or hardware.

**LEVEL OF EVIDENCE:** IV Case Series

**INTRODUCTION**

- Ulcerations that extend to deep tendon, bone, or with exposed hardware present a challenge to heal. Traditionally in wounds with exposed tendons or bones, soft tissue flaps are recognized as the best option.
- Esterified hyaluronic acid (HA) has been used to aid in granulation over exposed tendon.
- Hyaluronic Acid promotes fibroblast proliferation and angiogenesis and additionally exhibits anti-oxidative and anti-inflammatory properties.

**METHODOLOGY**

**PATIENT COURSE**

Patient 1: 57 male with post op heel ulceration deformity reaction wound with exposed Achilles tendon underwent Achilles tendon debridement and PHL transfer. Serosa in clinic and received at least two HA matrix applications resulting in complete epithelialization of tissue in 73 days.

Patient 2: 59 female with post op heel ulceration deformity reaction wound with exposed Achilles tendon underwent Achilles tendon debridement and PHL transfer. Underwent a second application of HA matrix resulting in complete wound healing in 91 days.

Patient 3: 78 male with chronic exposed Achilles wound referred to clinic for non-healing wound refractory to other wound care techniques. He did not undergo any surgical debridements and received 3 applications of HA matrix in clinic resulting in complete closure of wound in 126 days from first application.

Patient 4: 58 male with bulbar and underlying deep wound with exposed Achilles tendon. Underwent surgical debridement and 6 clinical applications of HA matrix resulting in coverage of Achilles in 57 days since first application and complete wound healing in 169 days.

Patient 5: 65 female with history of left first tarsometatarsal fusion underwent achilles tendon debridement and FHL transfer. Seen in clinic and received 2 applications of HA matrix resulting in complete wound healing in 92 days.

Patient 6: 66 female with posterior leg wound and exposed achilles tendon underwent achilles tendon debridement and PHL transfer. Underwent 6 applications of HA with complete healing in 137 days after surgical debridement of wound and 2 HA matrix applications in the clinic.

Patient 7: 61 female with left anterior leg wound following hematoma received 3 applications of HA matrix in clinic resulting in complete wound healing in 77 days post first application.

Patient 8: 65 female with left anterior leg wound following hematoma with exposed hardware was compared to exposed deep soft tissue.

**RESULTS**

- The ten patients had the average age of 61 years (40-78). 50% were male and 50% were female.
- The average time to wound healing was 102 days (28-226).
- Shorter duration to achieve 100% healing in the non diabetic group compared to the diabetic group.
- No statistical significant difference found in the number of applications of HA matrix required for healing when exposed hardware was compared to exposed deep soft tissue.

**DISCUSSION**

- The results appear to be favorable despite advanced age, diabetes, and social factors to include tobacco use.
- HA appears to be a useful adjunct in healing in the high-risk patient population with deep surgical wounds without the need for autologous tissue transfer.
- Our case series demonstrated adequate healing without scar contraction or diminished function.
- Esterified Hyaluronic Acid in cases of chronically exposed wounds with exposed tendons in dysvascular areas.
- Limitations include retrospective study design and too small of a sample size to analyze non parametric distribution for statistical significance at this time.
- Case control studies in the future would be useful in comparing results of HA to standard wound therapy as well.

**REFERENCES**