Wound Center Open Toe Amputation: “Stump” Cavity Management
with Hydroxyethylmethacrylate 78 Nanometer Sphere Powder Dressing

1. The resulting amputation cavity is 3.5 to 4.0 cm deep. Removing the transected bone end must be covered with adequate amount of devitalized tissue and colonized bacteria. An open wound is a surgical challenge. Open amputations dependably heal in spite of profound ischemia and infection because devitalized fat, tendon, cartilage, clot and bone are illustrated with photos in one ambulatory dialysis dependent patient with dry gangrene due to ischemia.

2. Negative Pressure Wound Therapy (NPWT) has improved “stump cavity” healing in the face of bacterial colonization, profound arterial ischemia, devitalized tissue in the cavity walls and the daily blunt trauma resulting from ambulation. Note the lack of peri-wound edema and the presence of skin cornrow furrows resulting from the 5th metatarsal osteotomy. Edema decreases skin perfusion. As hand surgeons know, edema is the enemy of healing.

3. Working behind a large paper drape the digit is removed by nephrology and internal medicine due to exudate. Decision to proceed with Wound Center open toe amputation after patient is unable to be “cleared for surgery” by nephrology and internal medicine due to exudate. Planned small toe auto-amputation abandoned when bone end is “smooth.”

4. Stump cavity POD #14. Granulation tissue now covers the cornrow furrows on the foot.

5. Stump cavity POD #23. Cavity is now closed, remarkably, over the foreign material that will cause late infection if not removed. NPWT draws fluid from the wound surface via a mechanical vacuum. NPWT draws fluid from the wound surface via a mechanical vacuum. Hydroxyethylmethacrylate 78 nm nanosphere gel (*), a novel powder wound dressing that can be applied directly to the surface of the wound, generates a high Moisture Vapor Transpiration Rate (MVTR). Nanoparticle gel generates a high MVTR.

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References:


Conclusions:

Wound dressings that reduce infectious complications and promote granulation tissue formation are critical in the management of chronic wounds. Positive clinical outcomes with the novel powder dressing (Hydroxyethylmethacrylate 78 nm nanosphere gel) have been observed in patients with chronic wounds. Hydroxyethylmethacrylate 78 nm nanosphere gel is a novel, cost-effective, therapy for stump cavity management after ambulatory open toe amputation.