

Use of CellerateRX Surgical, Hydrolyzed Collagen Powder in Open Distal Femur Fracture

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Patient History

69 yr old female involved in motor vehicle accident sustained an open distal femur fracture. The fracture was complicated with a previous Total Knee Replacement. Surgery was delayed almost 24 hours due to other medical issues that needed to be addressed. At this point her wound was contaminated .

The patient was taken to surgery where the wound was irrigated, debrided and underwent retrograde intramedullary femur fixation. To reduce the bacterial load in the wound and reduce the risk of complications including infection, 1 gm of CellerateRx Surgical powder was combined with 1.2 gram of Tobramycin and placed in the wound prior to closure. The wound was closed and an incisional Wound Vac was applied. The patient was placed on Vancomycin 1 gm 30 minutes prior to surgery and received 1gm Vancomycin q12 until the culture came back at 48 hours which were negative. During the post op care she was place on a Continuous Passive Motion machine and progressed to partial weight bearing. The patient was discharged to home on Post op day #4. The fracture healed without any wound complications.

Rational for Treatment

Open fractures represent a unique challenge to treat. The injury causes soft tissue destruction which worsens in the immediate post injury period because of the instability of the fracture and localized swelling. These tissues are exposed to the environment and the patient's skin. Skin is colonized by bacteria and the warm moist environment of the open wound is a perfect culture medium for the propagation of these bacterium into a full blown infection. These areas of devitalized, necrotic, tissue have diminished blood flow which makes it difficult to deliver adequate antibiotics to the site.

Treatment of open fractures include stabilization of the fracture, debridement of devitalized tissue and IV antibiotics. There have been several methods used to address the bacterial contamination including repeat debridement and local antibiotics. The traditional method used to deliver local antibiotics is to combine the antibiotic with methyl methacrylate cement and make beads that are placed into the wound. Two (2) problems with this method are: 1.) there is only a small zone of bacterial kill around the bead and 2.) the beads require later removal. CellerateRx powder is very hydrophilic and forms a gel when placed into a wound. This property can be used to deliver the antibiotic throughout the wound increasing the efficacy of the antibiotic and improving the bacterial kill which does not require later removal. This is in addition to its wound healing properties.



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