



## Evaluation of a Silver Collagen based amorphous gel for the use of treatment of a Deep Partial Thickness Burn

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**Introduction:** Burns, over the evolution of wound management, have been treated by different means. The most common treatments used are mechanical and sharp debridement as well as silver sulfadiazine cream. This approach can be very painful for a patient with a partial thickness burn. It is important to note that the burn classification system has added a new way to classify burns. The nomenclature now designates a First degree burn as a Superficial thickness burn. A Second degree burn which involves blisters and clear fluid as well as the papillary dermis is known as a Partial thickness superficial burn. A Second degree burn which involves the deep reticular dermis is now a Partial thickness deep burn and finally, a Third or Fourth degree burn is known as Full thickness. Burns are caused by many sources. Chemicals, friction, electricity, radiation, and extreme cold or hot temperatures are common causes. Traditional casting materials contain calcium sulfate which, when moistened with water, sets up a chemical reaction which produces heat and then cools causing the plaster to harden. Protection of the skin is extremely important prior to cast application. This study follows a 75 year old female with a Partial thickness deep burn created by casting materials to the heel and the use of non-traditional silver and collagen amorphous gel to not only heal the ulcer, but to also provide pain management.

**Methods:** A 75 year old Caucasian female with a history of severe osteoarthritis, CAD, arterial insufficiency, and renal insufficiency sustained a left distal femur fracture with splintering bone chards in to the surrounding soft tissue. It is not clear whether the patient fell and fractured or fractured then fell. With her history and the Xray exam, the latter is more likely. In an attempt to stabilize her fracture, a thin stockinette was placed on the leg and then a posterior splint of plaster material was placed at the posterior portion of the leg from the toes to the upper thigh followed by a soft splinting and ace wrap. Within five minutes of application, the patient complained of severe burning at the heel and Achilles level. The splint was cut, but staff was unable to remove the materials in direct contact with the heel. Pictorials were not available from the acute care system and upon admission to skilled care the area was covered by a Jones soft dressing and was not visualized. Per the surgeon, the area was visualized as a blistered intact area. Within five days, the patient returned to the surgeon to have the Jones removed as the heel started to drain profusely and illicit a foul smell. A pictorial was captured at this point. The area was covered with 80% soft eschar and 10% yellow slough. A splint, provided by therapy was fashioned to suspend the heel and still allow stabilization of the said leg. The area measured 11.2 cm x 11.5 cm x .1 cm. The surgeon declined to surgically remove the desiccated tissue and chemical debridement was immediately started for a period of 11 days. On day 12, the area was clean enough to begin the use of a silver collagen based wound gel. It is important to note that during the ordeal of debridement, the patient complained of severe heel pain. Narcotics were utilized to manage pain. A scale of 1 to 10 was used to grade the pain. On initiation of management her pain was reported to be a 10. The area was cleansed with sterile water. The silver collagen gel was applied followed by an ionic silver contact layer and sterile water moistened 4 x 4 and gauze wrapping. The dressing was applied every 3 days. The periwound was protected by a medical grade cyanoacrylate during each dressing change.



**Results:** Upon application of the new silver collagen gel, the patient reported immediate pain relief. Her narcotic usage declined from every 4 hours to every 6 hours over the first 47 days to every 8 hours during the last part of healing. The patient reported that most of her pain was experienced during dressing change and during therapy once she was allowed to bear some weight on the leg. The healing occurred expeditiously as is evidenced by the measurements below.

May 17, 2008	11.2 x 11.5 x .1 cm	pain reported: 10
May 29, 2008	11.8 x 11.2 x .2 cm	(tx initiated) Pre dsg pain: 10 post: 5
June 14, 2008	10.1 x 9.8 x .1cm	pain reported: 4
June 28, 2008	8.3 x 8.1 x .1 cm	pain reported: 4
July 12, 2008	5.4 x 5.6 x .1 cm	pain reported: 3
July 26, 2008	3.7 x 3.6 x .1 cm	pain reported: 3
August 4, 2008	1.2 x 1.1 x .1cm	pain reported: 1
August 8, 2008	.6 x .3 x .1cm	pain reported: 1
August 15, 2008	Healed.	pain reported: 1



**Conclusion:** The silver collagen gel not only expediently healed the Partial thickness deep burn, but also provided localized pain relief.

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\* This study has been submitted to SAWC/WHS and the WOCN for abstract consideration .