PARTIAL THICKNESS BURNS TO THE LOWER EXTREMITY IN A COLLEGIATE DISTANCE RUNNER.

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Background: A 20 year old Division I female long distance runner suffered a scalding liquid burn to approximately thirty percent of the distal one-third of her anterior lower leg and foot. This non-athletic injury occurred when she accidentally spilled boiling water onto her lower leg, entrapping the fluid in her athletic shoe. She sustained four distinct areas of partial thickness burns. A superficial thickness burn measuring 5cm x 8.5 cm was noted along the anteriomedial distal one-third of the lower leg. A deep partial thickness burn presented with an intact bulla measuring 6.5cm x 5 cm, located just superior and anterior to the medial malleolus. A 2 cm x 5 cm broken blister was noted superior to the medial longitudinal arch. A small blister measuring 1cm x 2cm was present along the medial aspect of the first metatarsal. Erythema was visible along the anterior lower one-third of the leg, to the dorsum of the foot, and to the first and second toes. Slight edema was present to the medial aspect of the ankle joint and increased local skin temperature was noted. Subjective pain was rated as 5/10. Differential Diagnosis: Superficial thickness burn (1st degree), superficial partial thickness & deep partial thickness burn (2nd degree), full thickness burns (3rd, 4th, & 5th degree). Treatment: Acute care focused on pain management and prevention of secondary complications common to partial thickness burns. Initially, the bullae were left undisturbed and allowed to desiccate without intervention. The affected areas were cleansed with an antiseptic solution, lubricated with an antimicrobial ointment, and covered with a sterile non-adhesive bulky dressing. An elastic compression wrap was then applied from the distal foot to the proximal aspect of the lower leg to prevent edema. The athlete was prescribed oral antibiotic therapy, acetaminophen with codeine for pain management, and a non-steroidal anti-inflammatory agent. Tetanus prophylaxis was not warranted upon verification of a tetanus booster within the past two years. Two days post trauma, the four major blisters underwent debridement by a soft tissue specialist (MD). Daily treatments in the athletic training facility included antiseptic hydrotherapy followed by minor debridement of devitalized tissue and the application of a sulf-based topical cream using sterile technique. Six days post injury, the athlete began formal rehabilitation to increase range of motion and maintain tissue mobility. Non-impact cardiovascular conditioning began by day eight and progressed to low impact training over the course of two weeks. The supervised cardiovascular phase progressed with a pain free walk to run program on the treadmill during week three. Twenty-seven days post injury, hydrotherapy, range of motion exercises, and cardiovascular training concluded. The athlete demonstrated normal ankle/foot motion, performed pain free functional activity, and the affected areas revealed complete re-epithelialization. The athlete returned to her sport with no limitations. Uniqueness: Superficial burns (1st degree) in the athletic population are typically a result of sun exposure. Partial thickness burns, including their recognition, management, and the establishment of rehabilitation protocols is an athletic rarity. Conclusion: The depth, location, and percentage of surface involvement are critical in determining the medical care and rehabilitation time frame. Infection, loss of tissue and joint mobility due to eschar formation may lead to the development of adhesions or contractures. Maintenance of skin integrity is the focus in treating an athlete who sustains partial thickness burns. The potential complications of cellulitis, extremity edema, and tissue loss due to infection or skin necrosis can be avoided in an athlete, and in this case return to competition in less than four weeks. Key Words: Burns - superficial thickness, superficial partial & deep partial thickness, and full thickness burns.

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