COMPLICATIONS FROM THE USE OF SILVER NITRATE ON WOUNDS WITH CELLULOSE DRESSINGS

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Background
Complications from the use of products in the wound center are frequently underreported in the literature due to many reasons: lack of evidence (multiple products being utilized at the same time or in rapid sequence), insufficient time allotted to report, and attributes associated to the wound and not to the product.

Observation
The use of silver nitrate is well established in the care of wounds for two main purposes: hypergranulation and to cauterize bleeding wounds that do not stop with simple compression. We report two cases that involved the use of silver nitrate on wounds with the subsequent choice of a cellulose dressing over the wound. In both cases, the cellulose dressing liquefied the silver nitrate in the wounds and resulted in periwound leakage in the surrounding healthy skin. In one of the patients, the leakage resulted in pain where the silver nitrate leaked; in the other patient, the patient and the spouse were concerned about damage to the periwound area due to discoloration but no pain occurred.

Actions
Due to these two cases, we no longer use cellulose dressings if silver nitrate has been applied to the wound as part of the treatment plan. The cellulose dressings are unique in that they purport to have dual properties as it relates to moisture control in the wound: absorption of fluid and tissue hydration depending on the wound. This interaction of these two classes of products has not been reported in the literature.
The wounds due to calciphylaxis are challenging to heal. A literature search reveals descriptions of these wounds but very little guidance related to the treatment.

Case Report
We cared for a 67 year old female that developed nodular lesions subcutaneously in her upper thighs. A reluctant surgeon performed surgery to remove these nodules due to the pain they were causing. Subsequently, the healing process was stalled and she presented to our wound center eight months after the surgery was performed with multiple, painful, violaceous wounds. Debridements were limited due to pain and lack of improvement in the wounds. In addition, multiple dressings were attempted to close the lesions including antibiotic impregnated dressings, hydrofiber, and honey-based products. Finally, a bioelectric dressing was used to treat the wounds with success in both the closure of the wounds and for pain control (apart from the healing process). The attached pictures demonstrate two of the lesions. In the second lesion the patient choose to continue her own dressings in the home setting until closure. Case management confirmed the closure of the wound.

Discussion
Wounds due to calciphylaxis are due to the breakdown of skin from the calcification of microscopic vessels. Treatment regimens for these wounds are not established. Due to the underlying pathophysiology, debridement of the wounds may not be helpful except to remove colonized devitalized tissue. Referral back to the nephrologist to determine if hyperparathyroidism is being addressed or treated is always warranted. This is the first case in which a bioelectric dressing, a novel wound product with electrical activity, has been documented to work on wounds due to calciphylaxis. Six months after closure of her wounds, she remained healed and free from pain.