Heterotopic Ossification or Dystrophic Calcinosis Cutis in Burn Scars?: A Case Series

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Introduction

- Heterotopic ossification is a fairly-common late effect in burn survivors with larger body surface area burns and usually affects large joints. Calcium is deposited in tendon insertion points or capsules and blocks ROM in the affected joint. HO is considered to be a post-inflammatory process.
- Dystrophic calcinosis cutis is a calcium and phosphate deposit that can be found in scleroderma as well as a late complication of damaged tissue in burn wounds.
- 4 patients presented persisting ulcer-like wounds in regions suffering from 25-55.5-year-old burns.
- Ulcers had a sub-epithelial and deeper, yellow, bone-like calcium buildup within the wound causing chronic irritation, pain, or tenderness.

Purpose

- A literature review was performed with the key terms “heterotopic ossification” and “calcinosis”, which revealed 4 publications on the subject.
- No formal research has been performed to explain this condition. Preventive measures should be explored.

Methods

- Four articles were found addressing this phenomenon in burn scars (see Table 1).
- Four patients’ charts, who were treated at LVHN Burn Center were reviewed and the findings were compared for similarities.
- Patients were treated for calcinosis cutis through surgical extraction of the chalky entity.
- Bone-like deposits were identified underneath the epithelium, mostly along fascial remnants and adjacent to grafted bone.
- These deposits created pressure on the overlying epithelium, leading to necrosis and non-healing wounds.
- X-rays were performed to determine overall involvement of the condition but did not prove to be helpful.
- No formal research has been performed to explain this condition. Preventive measures should be explored.

Case Presentations

- Patient 1- A 57-y.o. female with 55.5-y.o. burns had lesions in lower right leg.
  - Surgical extraction was successful.
- Patient 2- A 55-y.o. female with 51-y.o. burns had lesions in both thighs and underwent multiple debridement procedures which were unsuccessful in treatment. Cellulitis and tenderness present.
  - Only surgical extraction was successful with no recurrence.
- Patient 3- 59-y.o. female with 44-y.o. burns had lesions in lower right ankle and leg. Ossified plaque was densely connected to the anterior tibial muscle fascia at the indentation from the earlier skin grafted bone.
  - Surgical extraction and Integra® placement with split-thickness skin grafting were successful measures of treatment.
- Patient 4- 49-y.o. male with 25-y.o. burns had lesions in the lower left leg. Sharp debridement was unsuccessful.
  - Surgical extraction was a successful treatment.

Patient 3 (top row) and 2 (bottom row)

Images of patients showing calcified lesions and surgical extraction.

Literature Table

Criteria	Article 1:	Article 2:	Article 3:	Article 3 (b)	Article 4:	Patient 1	Patient 2	Patient 3	Patient 4
Age of Burn (in Years)	30	42	54	30	40	55.5	51	44	25
Post-Op Recurrence (yes=1, no=0)	0	0	…	0	0	0	0	0	0
Sex (male=1, female=0)	1	1	0	1	1	0	0	0	1
Patients in Study	1	1	2	2	1	1	1	1	1
Age at Time of Treatment (years)	41	57	76	44	69	57	55	59	49
Pain (yes=1, no=0)	1	…	…	…	0	1	1	1	1
Lesion location (lre= 1, lle=2, ure= 3, ule=4, face=5, abdomen=6, neck=7)	2	1	3	6	2, 4	1	1, 2, 5, 7	1	2
Unsuccessful treatment	Incision/drainage	…	…	…	Curettage (2x)	…	…	…	Debridement
Successful treatment	Excision	Excision	Punch Biopsy	Excision	Excision	Excision	Excision	Excision	Excision
Ulcer Presence (months)	9	6	3	3	…	1	96	24	25

Table 1

Legend: Lesion location abbreviations: lre= lower right extremity, lle= lower left extremity, ure= upper right extremity, ule= upper left extremity

Results & Discussion

- Ulcers were a large, deep, yellow, bone-like calcium buildup within the wound causing pain or tenderness.
- Curettage of the lesions produced bone-fragment-like splinters, but patients were only successfully treated with surgical extraction of bone-like plaques.
- No infection or recurrence occurred in regions treated with extraction.

Conclusion

- Patients did not show recurrence in same region after extraction.
- A formal multi-center study should be performed with metabolic workup and more detailed structural analysis of these plaques.
- Literature and similarities suggest this should be called, “heterotopic ossification of the skin”.

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