Introduction

Calcinosis cutis is a very rare disease characterized by normal serum calcium levels with high amounts of cutaneous and subcutaneous insoluble calcium salt deposits [1]. There are five types of calcinosis, dystrophic type being the most common among them. Dystrophic calcinosis is generally caused by local tissue damage. We present the dystrophic calcinosis cutis case of a patient with no underlying diseases but a burn injury which occurred 10 years ago. She visited the hospital for an ulcerative wound on the same area. She also had sustained a dog bite injury on the same site 9 months ago, which was treated at an oriental clinic with no improvement. Physical examination by palpation revealed a hard mass under the skin. As the mass was of a large size, the possibility of a foreign body was considered. Surgical resection and biopsy of the mass diagnosed it as dystrophic calcinosis cutis. Although clinical features of this case were unlike previous calcinosis cutis cases, performing a biopsy proved helpful towards its diagnosis.

Keywords: Calcinosus; Foreign bodies; Burns; Ulcerative; Dystrophic

Abstract

Calcinosis cutis is a very rare disease characterized by insoluble calcium salt deposits in the skin. There are five types of calcinosis, dystrophic type being the most common among them. Dystrophic calcinosis is generally caused by local tissue damage. We present the dystrophic calcinosis cutis case of a patient with no underlying diseases but a burn injury which occurred 10 years ago. She visited the hospital for an ulcerative wound on the same area. She also had sustained a dog bite injury on the same site 9 months ago, which was treated at an oriental clinic with no improvement. Physical examination by palpation revealed a hard mass under the skin. As the mass was of a large size, the possibility of a foreign body was considered. Surgical resection and biopsy of the mass diagnosed it as dystrophic calcinosis cutis. Although clinical features of this case were unlike previous calcinosis cutis cases, performing a biopsy proved helpful towards its diagnosis.

Keywords: Calcinosus; Foreign bodies; Burns; Ulcerative; Dystrophic

Case Report

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with calcinosis cutis after surgical removal of the suspected foreign body. We obtained written informed consent from the patient. The study was approved by the Institutional Review Board of Kosin University Gospel Hospital (IRB No. KUGH-2020-09-007) and performed in accordance with the principles of the Declaration of Helsinki.

Case

A 69-year-old woman visited our hospital with a main complaint of an ulcerative wound on the right posterior calf. The patient had an unremarkable medical history with no underlying diseases, except for a right posterior calf burn scar from 10 years ago. Prior to the current hospital visit, the patient was treated at an oriental clinic 9 months ago, following a dog bite injury on the existing burn site. However, she visited our hospital because the dog bite site was not healing well for 10 months despite treatment at the oriental clinic.

At the time of presentation, we observed an open chronic wound of 2.3×1.5 cm with purulent discharge, which we considered the dog bite wound. We performed a bacteria culture test of the discharge; however, no bacteria were identified. During physical examination, we palpated a hard mass under the wound which was larger than the wound, and we suspected it to be a large foreign body (Fig. 1). Consequently, an X-ray and lower extremity computed tomography (CT) were performed to evaluate the suspected foreign body. A thin radiopaque plate-like material was detected in the posterior calf by X-ray, and the presence of the foreign body was confirmed by CT (Fig. 2).

We performed a biopsy by resecting 6×4 cm of skin, containing the ulcer and the mass (Fig. 3). Postoperative split-thickness skin grafting was performed on the excision area. The graft site healed, and the patient recovered without any complications. Hematoxylin and eosin staining of the biopsy specimen led to a diagnosis of calcinosis cutis (Fig. 4). No calcified lesions were identified in a follow-up X-ray, and the patient reported no recurrences during a 2-year follow-up period (Fig. 5).
therefore recommended particularly for inoperable calcinosis cutis. HBO is effective for reducing tissue edema and ischemia, and inhibit bacterial growth by enhancing angiogenesis. Reducing ischemia by HBO treatment can increase tissue pO2 levels and to reduce the size of the calcification [8]. And bisphosphonate can be used to control serum calcium and phosphate levels and to reduce the size of the calcification [9]. Patients with trauma-induced calcinosis cutis are not common; however, Larralde et al. [11] reported a case of a patient in whom calcinosis cutis resulted from inguinal fold trauma. In the report, the authors presumed that the tissue injury that caused calcinosis cutis was postoperative inflammation or inflammatory reaction to suture material as a foreign body [11]. In our case, because we initially had limited information from the patient, and considering some reports about complications after foreign body implantation at oriental clinics, we initially presumed the large hard mass to be a foreign body implanted at the local oriental clinic and the un-healing ulcer a result of foreign body infection [12]. However, after the negative bacteria culture, we diagnosed the mass as dystrophic calcinosis cutis, based on pathology examination and trauma history.

While dystrophic calcinosis cutis can occur at the site of a burn scar, the time interval between the burn injury and onset of calcification onset remains very variable. Reiter et al. [3] demonstrated that calcification might occur many years or decades after the injury. Based on literature review, the shortest period of onset was 1.5 years after a pencil tip trauma and the longest period was a report from Heim et al. [13] that occurred 31 years after an injury from boiling water. Therefore, it is difficult to estimate the time from trauma to onset of calcinosis cutis. In our patient, the dog bite injury was too recent to be considered the cause of calcification. Also, the calcification was widely spread under the burn scar, and the area of calcification was wider than that of the dog bite injury. Based on previous case reports and considering the patient's clinical presentations, the cause of calcinosis cutis in the current case was most likely the burn injury.

Meanwhile, there is heterotopic ossification (HO) which develops similar symptoms after burns or trauma [14]. HO is a disease wherein bone formation occurs in soft tissue, and being clinically similar to calcinosis cutis, it is difficult to differentiate by standard imaging investigations. However, HO can...
be diagnosed histologically using biopsy. While abnormal bone formation is observed in HO, only calcium deposition is observed in calcinosis cutis. Therefore, we diagnosed our patient with calcinosis cutis, based on the presence of calcium deposition in the dermis on histopathological examination.

According to literature, the average size of calcinosis cutis is relatively small [15]. However, in our case, the patient had only one lesion, and it was relatively large (6×4 cm). This was one of the reasons why the initial presumptive diagnosis was a foreign body rather than calcinosis cutis.

Calcinosis cutis is a very rare disease, and therefore, a subcutaneous hard mass can be easily misdiagnosed as a foreign body or another disorder. Therefore, it is important to perform a biopsy if a non-healing ulcer or hard mass is identified in a patient with a history of trauma, burn, or systemic disease.

**Conflict of interest**

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