Case Report

Ocean enemy’s lasting sting: chronic cutaneous reaction after Cnidarian attack

D Naumann, R K Hejmadi, D Evriviades

Abstract

Cnidaria stings cause a wide range of cutaneous and systemic symptoms, normally occurring shortly after the venomous insult (1). We report a case of worsening cutaneous reaction over an eight-year period following a Cnidaria attack sustained whilst maritime swimming. The lesion was characterised by severe, ulcerating chronic inflammation that required wide local excision and skin grafting. Prevention and early identification of Cnidaria envenomation is important for those treating maritime swimmers.

Introduction

The phylum Cnidaria includes hydroids, jellyfish, anemones, and corals, which may inhabit both salt and fresh water. Their name is derived from the Greek cnidos (‘stinging nettle’) and all these diverse sea creatures have tentacles with peripheral stinging cells, which are used to capture and subdue prey such as plankton and fish. Immediate effects of jellyfish envenomation are commonly experienced by swimmers. However, this is the first report of a serious dermal reaction following a common European Jellyfish sting persisting for nearly a decade.

Case report

An otherwise well 55-year-old civilian female patient was stung on her upper lateral right arm by a jellyfish, whilst on a summer holiday swimming in the Mediterranean Sea off the coast of Spain. She had no past dermatological history or diabetes. She reported immediate symptoms of burning pain at the sting site that persisted for several weeks. Two months later, she presented to her UK civilian general practitioner with a red, raised mass in the area of the sting approximately 2cm in diameter, which was gradually enlarging. A skin punch biopsy was performed which showed histological features of granulomatous dermatitis with panniculitis. All routine blood tests (haematology and biochemistry) were within normal ranges, an autoimmune screen was negative and there were no antibodies to jellyfish sting found on serology. An initial diagnosis of morphoea was made by a dermatologist based on clinical examination. She was treated by her general practitioner with topical steroid cream, during which the lesion persisted but remained quiescent for eight years. She remained well in all other aspects. However the lesion then became increasingly pruritic, tender, and started discharging clear yellow fluid. The skin then became progressively more abnormal, with ulceration of the dermis, increase in size of the lesion, and scabbing (Figure 1). The patient underwent wide local excision with a split skin graft from donor thigh skin to cover the deformity. She was pleased with the result and despite a significant contour deformity she declined further reconstructive treatment. The tissue from the excision was sent for histopathological examination.

Histopathology
The excision biopsy comprised an irregular ulcerated lesion with raised, nodular areas in the adjacent skin. There were inflammatory changes extending from the skin into the fat (Figure 2A). Large areas of the dermis and subcutaneous fat showed necrosis, bordered by basophilic material and dystrophic calcification (Figure 2B-C). There were interspersed patchy foci of chronic inflammatory cells. The subcutaneous fat also showed lobular panniculitis. There were focal areas suggestive of lymphocytic vasculitis. Scattered multinucleate histiocytic giant cells were identified. There was one focus showing refractile and polarisable foreign body material within a multinucleate histiocyte, possibly representing body parts (Figure 2D). This foreign material may have represented part of the stinging apparatus, or other jellyfish material.

Discussion
Jellyfish use the nematocysts located in the specialised cnidocyte cells of their tentacles to pierce their victim’s skin and inject venom (2). This venom can cause a wide variety of local and systemic symptoms and may even be lethal (1,3). The usual pattern of cutaneous reaction is characterised by a painful erythematous rash; however, other more unusual cutaneous reactions to jellyfish sting have been described, such as lichen planus and Mondor’s disease of the breast (4-6). Chronic or delayed cutaneous reactions are well recognised, and treatment with topical application of the immunomodulatory pimecrolimus (usually used for the treatment of atopic dermatitis) has been reported (7). To our knowledge a cutaneous reaction lasting over eight years culminating in severe dermal ulceration requiring surgical intervention has not been described previously.

This case report demonstrates the possibility of long-term complications of jellyfish sting, which may have been caused by retained foreign body material from the stinging apparatus. Earlier excision and histopathological examination, in the context of the patient’s exposure history, might have prompted identification of the underlying inflammatory process earlier and therefore influence treatment decisions. In particular, it is important to obtain a careful history of activities, such as exposure to jellyfish, when assessing a chronic unexplained dermal lesion. This is especially relevant to military medical officers treating Service personnel who receive stings after swimming in the ocean.

References

Authors:
Major D N Naumann RAMC1; Dr R K Hejmadi2; Wing Commander D Evriviades RAF3
1Surgical Registrar, General Surgery Department, Heart of England NHS Foundation Trust
2Consultant Pathologist, Department of Pathology, University Hospitals Birmingham NHS Foundation Trust
3Consultant Plastic Surgeon, Department of Plastic Surgery, University Hospitals Birmingham NHS Foundation Trust

Corresponding Author:
Wing Commander D Evriviades, Consultant Plastic Surgeon, Queen Elizabeth Hospital, Birmingham, United Kingdom, B15 2TH.
Tel: 0121 627 2000 Email: Demetrius.Evriviades@uhb.nhs.uk