Recurrent Cutaneous Jellyfish Eruptions without Envenomation

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Three patients exhibiting recurrent cutaneous eruptions induced by contact with jellyfish tentacles are presented. The recurrent eruptions appeared several days after the primary exposure without contact with any offending coelenterate. The principal species involved incude *Pelagia noctiluca, Physalia physalis* and probably *Lychnorhiza lucerna*. These three cases, combined with an earlier similar report of recurrent lesions induced by *Physalia physalis* suggest that this phenomenon may be widespread. In two of the three cases, the secondary eruption was more severe than that occurring after the primary envenomation. *Key words: Envenomation; Pelagia; Lychnorhiza; Jellyfish; Coelenterate; Physalia; Man-O'war.* (Received August 3, 1984)

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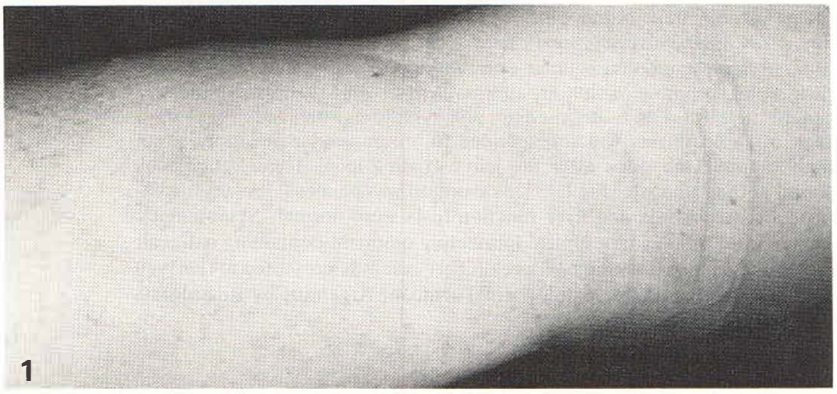
Contact of exposed skin surfaces with tentacles from various marine coelenterates results in erythematous linear urticarial eruptions lasting from several minutes to hours. These lesions may be accompanied by systemic symptoms and result in post-inflammatory hyperpigmentation or keloids. Recently it was reported that a patient envenomated by the Portuguese man-o'war, *Physalia physalis*, developed an initial and two subsequent episodes of a local eruption at the volar arm site exposed to the tentacles (1, case 3). This patient was not in contact with the jellyfish prior to her second and third outbreaks, each of which occurred after 12–13 day intervals. Swelling of the eyelids accompanied the final episode. Mention was made, in a footnote of this report, about a corroborating case induced by the same coelenterate in the Gulf of Mexico. This case is now presented in detail (case 3). The addition of two other case reports illustrates a similar phenomenon produced by different jellyfish species located in various parts of the world.

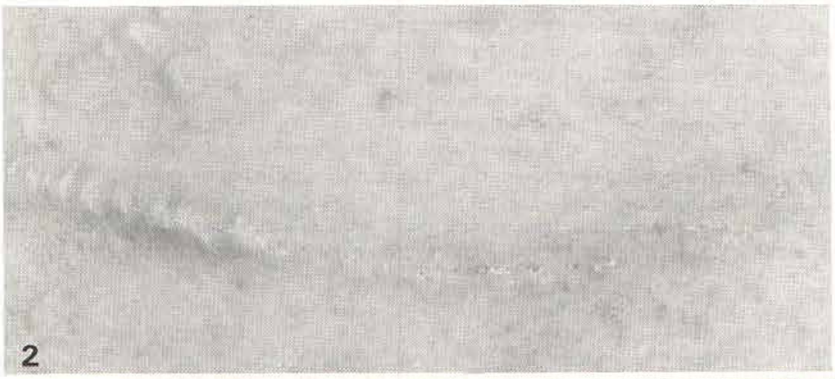
Case 1

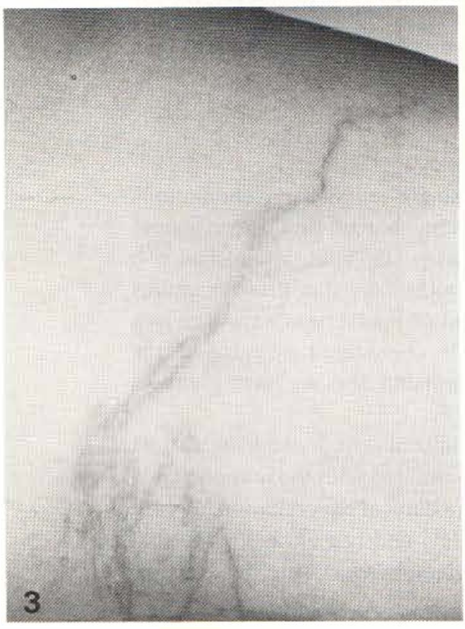
A 43-year-old caucasian Swedish woman was stung while bathing in the Mediterranean Sea off Hersonissos, Crete on October 12, 1983. The patient observed a school of small, rose colored jellyfish having a bell diameter of approximately 7 cm. These animals lacked long tentacles, yet free floating tentacular structures were seen in the water nearby. The patient instantly noticed an erythematous, linear, pruritic, burning papular eruption on the right arm, which spontaneously resolved within 24 hours. Four days later the patient returned to Sweden. One week after the original envenomation, a recurrence of her cutaneous lesions appeared in exactly the same pattern, but were more severe because of the presence of vesicles and bullae (Figs. 1 and 2). No systemic symptoms were present and the dermatitits responded rapidly to local therapy with betamethasone 17-valerate cream. No further recurrences were observed. The patient had no chronic diseases and was taking no systemic medications at the time of envenomation.

Case 2

A 27-year-old caucasian female was stung by an unidentified jellyfish on both anterior thighs and the dorsal right wrist while swimming off Playa Bristol, Mar del Plata, Argentina on January 22, 1970. The







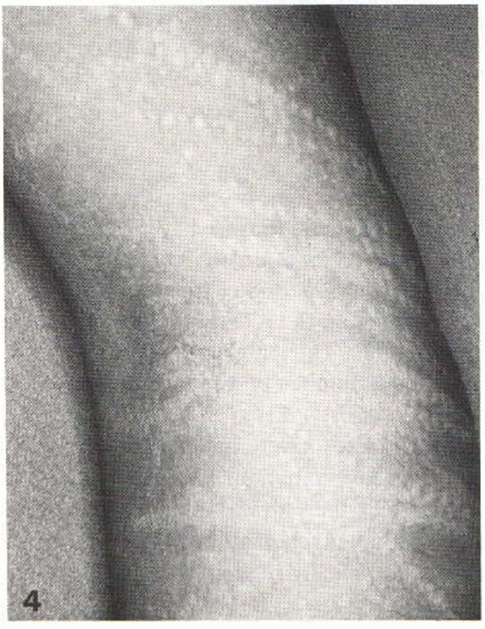


Fig. 1. Case 1: A linear, urticarial eruption on the extremity of a patient stung off Crete.

Fig. 2. Case 1: Note the vesicular lesions in this patient.

Fig. 3. Case 2: A linear urticarial eruption in this Argentine patient.

Fig. 4. Case 3: A linear urticarial eruption on the arm one week after an envenomation in the Gulf of Mexico.

patient complained of acute pain, burning, impaired mobility and articular "numbness and tightness" at the site of tentacular contact. Chills, shivering, restlessness and insomnia accompanied the envenomation. A linear edematous, erythematous, papular eruption appeared on the affected skin. The patient was treated with a topical ammonia solution, an emollient cream, two 5 mg tablets of diazepam and a "hypoallergenic" diet. After 24 hours the pain and symptoms subsided. Three days later she suffered a mild attack of cholelithiasis which responded to intramuscular injections of an anti-spasmodic and magnesium sulfate. One week after the jellyfish sting local, linear, cutaneous lesions spontaneously reappeared at the same site (Fig. 3). This eruption was painless, less erythematous, but much more pruritic. CBC, urinalysis and liver function tests were normal. Symptomatic relief was achieved with an oral antihistamine and a topical lubricating ointment containing oatmeal. Progressive resolution of the eruption occurred within one week. (This case was presented at the 1970 annual meeting of the Asociación Argentina de Dermatologia in Tucumán, Argentina by Ricardo M. Mandojana, M.D. and Ricardo O. Bastida, Ph.D.)

Case 3

(Referred to in a footnote of reference 1)
A 14-year-old caucasian girl was stung by a Portuguese man-o'war in the Galveston, Texas beach area in July 1981. She was treated in a local hospital with "meat tenderizer" (papain), which relieved the burning. Her "rash" improved for several days and had mostly subsided after one week. At that time she started experiencing itching and swelling in the envenomated areas. She applied a topical calamine diphenydramine lotion and a corticosteroid cream without relief. On examination there were linear marks with marked edema on the arm (Fig. 4). Later superficial desquamation and oozing appeared. She received 10 mg of prednisone, 400 mg erythromycin, 25 mg diphenhydramine q.i.d. for the first week and 5 mg prednisone q.i.d. for the second week. At the end of the first week the edema was markedly reduced and there was minimal pruritus. The lesions healed without further sequelae. The patient had had a normal medical history without known allergies. No complications have arisen in the ensuing three years.

Special laboratory tests

Case 1. Sera from this patient obtained in June 1984 in Sweden, was lyophilized, shipped to Baltimore, and analyzed by the enzyme linked immunosorbent assay (ELISA) for antigen specific antibodies against various crude coelenterate venoms. (*Pelagia noctiluca, Chrysaora quinquecirrha, Chironex fleckeri,* and *Physalia physalis*) (2). No IgG or IgE antibodies to any of these antigens were detected.

DISCUSSION

Recurrent linear erythematous eruptions resulting from single jellyfish envenomations without repeated tentacular exposure have been reported to be induced by the Portuguese man-o'war (*Physalia physalis*) off the coast of North Carolina (1). That patient had two recurrent eruptions over a period of four weeks. It was hypothesized that these reactions could possibly result from the release of sequestered venom or inadvertent exposure to a cross-reacting allergen. The latter possibility was recently considered because of the demonstration that a number of venoms from various unrelated species have identical antigenic sites (3).

The negative ELISA tests were obtained on shipped lyophilized sera drawn from patient 1 eight months after envenomation. These data are to be contrasted with those reported in an earlier case in which the sera was obtained at the time of a clinical exacerbation (1, case 3). In that instance, an envenomation by *Physalia*, serum IgG and IgE antibodies to that jellyfish and a geographically related anima! (*Chrysaora quinquecirrha*) were demonstrated.

The three patients reported in detail here corroborate the phenomenon that cutaneous eruptions induced by contact with jellyfish tentacles can recur without additional envenomation. We regard this to be a not uncommon event and emphasize that none of the presently reported patients were envenomated in the same body of water or by the same jellyfish. It is most probable that case 1 was stung by *Pelagia noctiluca*, an animal infesting

the waters off Crete during the autumn months. *Pelagia noctiluca*, the "mauve stinger", is rose colored and fits the patient's description well. The offending jellyfish in case 2 was not captured, but *Lychnorhiza lucerna* was regarded by local Argentine marine biologists as the most probable culprit.

Cases 1 and 3 are of particular interest since the recurrent eruptions were clinically more severe than the primary lesions. This fact is similar to that of the patient reported earlier (Fig. 1, case 3) where eyelid edema accompanied the final recurrent linear eruption. The appearance of localized distal inflammatory eruptions after coelenterate envenomations has also been described earlier in the case of a woman developing an oral inflammatory lesions several hours after being stung on the ankle by *Physalia physalis* (4). Until the exact pathogenesis of these envenomations is uncovered, no concise explanation for these clinical phenomena can be formulated.

The opinions in this article are those of the authors and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

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