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ORIGINAL ARTICLE

Dermoscopic Findings of Jellyfish Stings Caused by *Pelagia noctiluca*



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KEYWORDS

Jellyfish stings;
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Abstract

Background and objectives: Jellyfish are free-living members of the phylum Cnidaria who share a specialized stinging cell, the cnidocyte. *Pelagia noctiluca* is the most frequent and toxic jellyfish species found in the Balearic beaches and cnidocytes are arranged in pigmented clusters called "warts". Dermoscopy continues to expand its use much beyond the pigimentary lesions and to date, there is no data regarding dermoscopic findings in jellyfish stings. The aim of the present work was to study the dermoscopic findings of jellyfish stings in the island of Mallorca. **Patients and methods:** We retrospectively reviewed the clinical and dermoscopic images of 25 episodes of jellyfish stings caused by *P. noctiluca* that occurred between 2009 and 2015.

Results: Overall, the following dermoscopic features were found: brown dots (84%), pinkish hue (56%), pinpoint brown crusts (44%), scale-crust (40%), brown "Chinese characters pattern" (32%), "serpentine" ulceration (28%), linear purpura (20%), and whitish-yellow crusts (15%). Vessels were mainly dotted (36%) or reticular (16%). Scale-crust, serpentine ulceration and pinkish hue were significantly more frequent in lesions older than 2 days.

Conclusions and limitations: Our study identifies 4 dermoscopic features that may represent the contact with *P. noctiluca* cnidocytes: brown dots, brown "Chinese characters pattern", pinpoint brown crusts and whitish-yellow crusts. A peculiar finding of "serpentine ulceration" with brown dots would be very suggestive of *P. noctiluca* sting. We believe dermoscopy is a valuable tool in the diagnosis of jellyfish stings when a clear history of contact is lacking. Further studies are needed to validate our findings in other jellyfish species.

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PALABRAS CLAVE

Picadura de medusa;
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Dermatoscopia de las picaduras de medusa causadas por *Pelagia noctiluca***Resumen**

Introducción y objetivos: Las medusas son miembros del phylum Cnidaria que comparten una célula urticante especializada, el cnidocito. En Baleares, *Pelagia noctiluca* es la medusa más frecuente y tóxica. En ella los cnidocitos se encuentran en agrupaciones pigmentadas llamadas «verrugas». La dermatoscopia continúa ampliando su uso más allá de las lesiones pigmentadas, pero hasta la fecha no se ha utilizado en el diagnóstico de las picaduras de medusa. El objetivo del presente trabajo es estudiar los hallazgos dermatoscópicos en esta patología en la isla de Mallorca.

Pacientes y métodos: Revisamos retrospectivamente las imágenes clínicas y dermatoscópicas de 25 episodios de picaduras de medusa por *P. noctiluca* entre 2009 y 2015.

Resultados: Se encontraron las siguientes imágenes: puntos marrones (84%), tono rosado (56%), costras marrones puntiformes (44%), escamocostra (40%), patrón en «letras chinas» marrones (32%), ulceración «en serpentina» (28%), púrpura lineal (20%) y costras blancoamarillentas (15%). Los vasos fueron puntiformes (36%) o reticulares (16%). La escamocostra, la ulceración en serpentina y el tono rosado fueron significativamente más frecuentes en las lesiones de más de 2 días de duración.

Conclusiones y limitaciones: Nuestro estudio identificó 4 imágenes dermatoscópicas debidas al contacto con los cnidocitos: puntos marrones, patrón en «letras chinas» marrones, costras marrones puntiformes y costras blancoamarillentas. La combinación de ulceración «en serpentina» y puntos marrones sería muy sugestiva de picadura por *P. noctiluca*. La dermatoscopia es una herramienta útil en el diagnóstico de las picaduras de medusas, en ausencia del antecedente de contacto con ellas. Se necesitan más estudios para validar estos hallazgos en picaduras por otras especies de medusa.

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Introduction

Jellyfish are free-living members of the phylum Cnidaria with whom they share a highly specialized cell type of mechanoreceptor, the cnidocyte or cnidoblast, each containing an intracellular organelle, the nematocyst. Nematocysts are formed and used only by cnidarians to capture and immobilize preys and to defense against predators. Following an appropriate stimulus, either chemical or mechanical, the cnidocyte discharges its nematocysts and injects the venom into the victim.¹ The venom of jellyfish is composed of potent proteinaceous porins, neurotoxic peptides, bioactive lipids and other small molecules that are responsible for its cytotoxic, cytolytic, haemolytic and antigenic properties.² Jellyfish stings produce direct immediate toxicity, either local (pain, oedema, inflammation and necrosis) or systemic. In a small number of patients, they may also trigger an immune response such as anaphylaxis, pruritus, erythema nodosum,¹ lichen-planus like eruption³ and persistent or recurrent cutaneous reactions.⁴ Long-term complications including granulomatous reactions, keloids, retractile scars, pigmentary changes (hyper- or hypopigmentation) or fat atrophy may also occur.¹

The diagnosis of jellyfish stings is straightforward and is based on the clinical manifestations and personal history of contact with the Cnidarian. When a clear history of contact with jellyfish is lacking, the lesions may be confused with herpes, impetigo, phytophotodermatitis, stings from other marine animals or with other dermatosis

following a whiplash pattern.^{1,5-9} In these doubtful cases, the microscopic examination of a sticky tape applied to the sting site or the visualization of skin scrapings suspended in saline solution, may reveal the presence of nematocysts adhered to the corneal layer and should allow the identification of the species that caused the sting.¹ Also, nematocysts remain attached to the victim's skin from hours to days, and can be detected in a cutaneous biopsy.^{1,10} Dermoscopy is a rapid non-invasive technique that has been used for the diagnosis of infestations such as scabies, pediculosis, cutaneous larva migrans, ticks and *Trombicula* bites among others.¹¹ In a previous study, we evaluated the dermoscopic findings of jellyfish stings in 8 patients and only 3 patients were able to identify the jellyfish species, that corresponded to *Pelagia noctiluca*.¹² The aim of the present work is to study the dermoscopic findings of jellyfish stings in a larger group of patients in The Island of Majorca.

Patients and methods

We retrospectively reviewed the clinical and dermoscopic images of jellyfish stings evaluated in our department during the last seven years (from May 2009 to October 2015). To avoid misdiagnosis, only patients who had identified the jellyfish in close contact with the skin or in the vicinity were included. The identification of the jellyfish was made by the patient or his companions at the time of the sting and was confirmed at the time of consultation by means of a slideshow with pictures that included the

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