

Letters to the Editor

Mild poisoning from box jellyfish stings

Dear Sir,

Jellyfish poison is one of the most toxic substances found in the animal kingdom and contains a mixture of complex toxic polypeptides chains and antigens along with high molecular weight enzymes¹. Human reactions to stings can range from localised to systemic²⁻⁴ and can even be fatal, especially for children^{6,7}.

The following study involves a female patient aged 45, with no relevant medical history who came to us because of a jellyfish sting on her right arm which had occurred three weeks earlier while she was on holiday on Kuala Lumpur (KL), Malaysia.

Twenty-four hours after she was stung, the patient began to experience dermal lesions in the shape of long strips which coincided with the contact she had had with the creature's tentacles (Figure 1). The symptoms seemed similar to those of a burn and the area was painful and itchy. When she was stung the treatment she received in situ involved rinsing the sting with fresh water and rubbing it with sand. The pain did not go away and so she was admitted into hospital in KL and administered a treatment of antialgesic drugs and antibiotics.

Fifteen days after she had been stung, the affected area showed signs of lymphoedema, parts were ulcerous and necrosed (Figure 2) with pain that was less localised but affecting the patient more generally. She was experiencing swelling from her shoulder down to her right calf.

Three weeks after she had been stung she returned to Paris and came to our emergency department where she was in a normal haemodynamic state, afebrile, not experiencing any itchiness but with erythematous lesions and necrotic ulcers,



Figure 2. The state of the wounds after 3 weeks.

lymphadenopathy and intense pain (Visual Analogue Scale reading of 7-8/10).

Given the geographical location and the type of lesions, we thought it was probable that the box jellyfish, *Chiropsalmus quadrigatus*, had caused the accident. This creature is known by a number of popular names including the sea wasp.

She was given 800 mg of paracetamol and 60 mg of dextropropoxyphene orally and the wound was also treated by washing with sterile saline solution, disinfection it with chlorhexidine, the application of silver sulphurdiazine cream, vaseline gauzes and a bandage. The patient was discharged and prescribed a treatment of antialgesic drugs and a check up after 48 hours. The lesions began to heal well and two months after the accident she had no necrotic areas, the swelling had gone down and granulation tissue was covering the wounds (Figure 3). The patient treated the wound daily herself for a



Figure 1. The lesions that appeared 12 hours after she was stung.



Figure 3. The state of the wounds after 6 weeks.

month and after five months she had only light scarring on the inner side of her arm.

Jellyfish are creatures that form part of the zooplankton of marine life and belong to the Cnidarians group. Of the four families that belong to this group, box jellyfish are the most toxic⁸. Generally most stings happen in subtropical waters on the shores of North Australia, Papua New Guinea, Malaysia, Indonesia, the Philippines, Thailand and Vietnam⁹. Occasionally box jellyfish reach Spanish shores because of oceanographic and climatological phenomena. The five most common species that can be found on Spanish shores are *Pelagia noctiluca*, *Chrysaora hysoscella*, *Rhizostoma Pulmo*, *Cotylorhiza tuberculata* and *Physalia physalis* (carabela portuguesa)¹.

Box jellyfish have several tentacles with urticaria-inducing cells called nematocysts which are activated by contact and act like small harpoons by injecting paralysing toxins. This family of jellyfish feed on large fish and therefore need to use a very powerful poison to paralyse them quickly. The immediate reaction to the poison tends to be toxic rather than an allergic given that pain is experienced immediately after exposure^{2,8}.

Mild poisoning involves a localised reaction after contact, linear shapes, intense pain, a burning sensation and itching, angioedema, erythematous papules which are like burns and blisters with flaking skin after 8 weeks, localised adenopathy and secondary skin reactions to the antigenic component of the poison occurring at a distance from the primary lesion, among others^{8,9}. The development of the sting depends on a number of different factors: the type of jellyfish, the area of the body exposed to the sting, the victim's sensitivity to poison, the initial treatment etc.².

The localised treatment of the skin should include rinsing of the wound with sterile saline solution or sea water and not fresh water because it helps the nematocysts to open up, which occurred in the case we have described^{2,8}. Furthermore, the wound should not be rubbed with sand. There is debate surrounding whether the affected area should be submerged in acetic acid 5% or vinegar^{2,10} in order to prevent any further release of poison from the nematocysts⁵. If any tentacles remain stuck to the skin, they should be removed with tweezers or a similar instrument. Even though some bibliographies recommend, the use of alcohol there is strong opposition against this because it stimulates inactive nematocysts, increases pain and causes severe dermal reactions^{2,8}. Something cold can be applied locally to reduce the pain but ice should never be used because it could also release the nematocysts².

In hospital, bicarbonate of soda and talcum powder can be applied to eliminate the inactive nematocysts that remain. This should be removed one hour later with a blunt implement. For intense pain topical anaesthetics such as bupivacaine may be used with continued application of something cold to the area and if necessary narcotic analgesics⁵. Treat with antihistamines and systemic or topical corticosteroids. Benzodia-

zepam can be used in cases of severe localised spasms. A tetanus injection and systemic antibiotics should be administered on any signs of secondary infection. The lesions should be treated at a GP clinic with 0.5%-1% hydrocortisone cream twice a day.

Systemic effects can include allergic reactions, cardiac and neurological syndromes², especially when dealing with *Chiropsalmus* stings which is from the *Chiropsodidae* family. The toxin alters the permeability of cell membranes leading to the release of inflammatory mediators and direct myocardial effects^{11,12}, an impact on nerve tissue and, in exceptional cases, on the liver and kidneys. Antigen reactions may occur later because of the toxins and can lead to anaphylactic shock^{2,8,9}.

Jellyfish stings are a medical problem that should be taken into consideration by those who are the first to intervene (life guards etc.) and primary care emergency services, given that incorrect initial treatment can lead to worsening of the affected individual's condition. As we have seen in this case, the emergency department can also deal with mild cases early on, either because of an anaphylactic or systemic reaction, because of a need for a powerful treatment using analgesic drugs or because of serious skin lesions.

1- Pili JM, Nogue S. Toxicidad por picadura de medusas. JANO 2006; 1616:45-6.

2- Peel N, Kandler R. Localized neuropathy following jellyfish sting. Postgrad Med J 1990;66:953-4.

3- Ponampalam R. An unusual case of paralytic ileus after jellyfish envenomation. Emerg Med J 2002;19:357-8.

4- Armoni M, Ohali M, Hay E. Severe dyspnea due to jellyfish envenomation. Pediatr Emerg Care 2003;19:84-6.

5- Fenner PJ, Hadok JC. Fatal envenomation by jellyfish causing Irukandji syndrome. Med J Aust 2002;177:362-3.

6- Tahmassebi JF, O'Sullivan EA. A case report of an unusual mandibular swelling in a 4-year-old child possibly caused by a jellyfish sting. Int J Paediatr Dent 1998;8:51-4.

7- Bengtson K, Nichols MM, Schnadig V, Ellis MD. Sudden death in a child following jellyfish envenomation by *Chiropsalmus quadrumanus*. Case report and autopsy findings. JAMA 1991;266:1404-6.

8- Auerbach PS. Envenomation by aquatic invertebrates. En: Auerbach PS, ed., Wilderness Medicine, 4 th edition. New York, Mosby, 2001,1450-87.

9- Meier J, White J, editors. Handbook of clinical toxicology of animal venoms and poisons. Boca Raton: CRC Press, 1995.

10- Vera C, Kolbach M, Zegpi MS, Vera F, Lonza JP. Picaduras de medusas: actualización. Rev Med Chile 2004;132:233-41.

11- Salam AM, Albinali HA, Gehani AA, Al Suwaidi J. Acute myocardial infarction in a professional diver after jellyfish sting. Mayo Clin Proc 2003; 78:1557-60.

12- Salam AM, Albinali HA, Gehani AA, Al Suwaidi J. Acute myocardial infarction in a professional diver after jellyfish sting. Mayo Clin Proc 2003;78:1557-60.

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Radial artery pseudoaneurysm

Dear Sir,

Arterial gasometry is a complementary test usually carried out in hospital emergency departments (ED) which provides information about oxygenation, ventilation and the acid base balance in the initial values. It also serves as a parameter of development of the treatment indicated for patients.

The following case involves a 73-year-old female with a history of rheumatic heart disease and prosthetic mitral and aortic heart valves who was under treatment with acenocumol. The patient came to the emergency department complaining of a painful, pulsating tumour that was 1.5 centimetres in diameter, in the radial artery trajectory on the right wrist and vascular sensitivity was not compromised in the hand. The patient's history mentioned an arterial gasometry that had been carried out a week earlier in the same emergency department because of an episode of shortness of breath linked to slight deterioration in her condition in relation to the heart disease.

An echocardiogram was requested to confirm the presence of a radial artery pseudoaneurysm, which was dependent on the radial artery with a short neck and turbulent flow (Figures 1 and 2).

The patient was referred to the Angiology and Vascular Surgery Department where she underwent surgery. The pseudoaneurysm was cut out and the arterial defect was sutured. The patient made a good recovery.

The technique for carrying out arterial gasometry follows a series of recommendations in order to avoid possible complications and the radial location is the first area that should be examined^{1,2}. In the ED the arterial gasometry is a technique that is often performed. Recent studies defend the use of topical analgesics before it is carried out, especially in non-emergency situations, for people who are highly sensitive to pain or for vulnerable subjects such as the elderly and children^{3,4}.



Figure 1. The longitudinal cross section image which shows the pseudoaneurysm connected to the right radial artery through the neck.

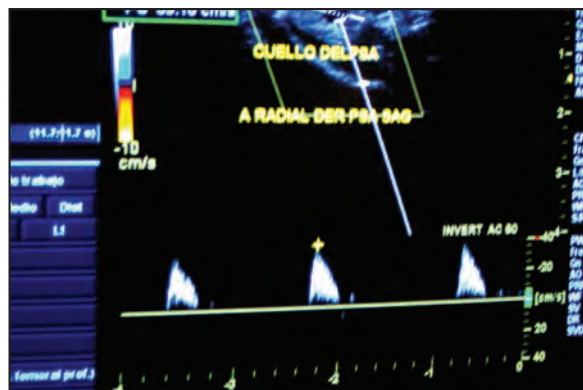


Figure 2. The high resistance flow at the neck of the pseudoaneurysm.

However, we believe that few emergency protocols have been included in this recommendation.

Radial artery pseudoaneurysms are an uncommon complication, even in research series including complications involving radial access for study and treatment in haemodialysis, angiography and cardiology^{5,6}. Nevertheless, since this technique is commonly practised in the ED and more importantly, since it is repeatedly practised during a particular case, medical security programmes warning us of adverse events could increase incidence rates in the future⁷.

We did not find any references in the literature on the possible causal influence of anticoagulant treatment on arterial pseudoaneurysms.

1- Rodríguez-Roisin R, Agustí GNA, Burgos F, Casan P, Perpiña M, Sánchez-Agudo L, et al Normativa SEPAR sobre la gasometría arterial. Arch Bronconeumol 1998;34:142-53.

2- Muñoz Vidal A. Gasometría arterial. Jano EMC 2001;60:60-2.

3- Giner J, Casan P, Belda J, Litvan H, Sanchis J. Use of the anesthetic cream EMLA in arterial puncture. Rev Esp Anestesiol Reanim 2000;47:63-6.

4- Cassinello F, Martín-Celemin R, Herrero E, Palencia J, de Stefano J, Perez-Gallardo A. Efficacy of the EMLA cream in the reduction of pain caused by venipuncture in children premedicated with oral midazolam. Rev Esp Anestesiol Reanim 1995;42:360-3.

5- Blasco A, Oteo JF, Fontanilla T, Salamanca J, Ocaranza R, Goicolea J. Complicaciones inusuales del cateterismo por vía radial. Rev Esp Cardiol 2005;58:1233-5.

6- Gómez Fernández M, Pereira Leyenda B, Amoedo Fernández B, Guillén Goberna P, Vázquez Álvarez A, Veiga López M, et al. Manejo y seguimiento de las complicaciones postcateterismo cardiaco transradial. Enferm Cardiol 2005;35:20-23.

7- Ministerio de Sanidad y Consumo. Plan de Calidad del Sistema Nacional de Salud. Disponible en URL:<http://www.msc.es/novedades/docs/notaPrensa2006.323Resumen>.

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