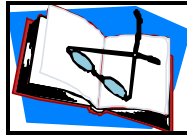


# Jellyfish Sting Newsletter

## No. 23

Joseph W. Burnett, M.D. Department of Dermatology,  
University of Maryland School of Medicine  
**International Consortium for Jellyfish Stings**  
405 W. Redwood Street, 6th Floor, Baltimore, Maryland 21201, USA

### Significant Papers Published



1. Edwards L., Hessinger D. A. **Portuguese Man-of-war (*Physalia physalis*) venom induces calcium influx into cells by permeabilizing plasma membranes. *Toxicon* 38; 1015-1028, 2000.**

Portuguese Man-of-war (*Physalia physalis*) nematocyst venom dose-dependently stimulates calcium ( $^{45}\text{Ca}^{2+}$ ) influx into L-929, GH<sub>4</sub>C<sub>1</sub>, FRL, and embryonic chick heart cells. Venom-induced calcium influx is not blocked by ouabain, vanadate, nor organic calcium channel blockers, but is blocked by transition metal cations, such as lanthanum and zinc. Venom-induced calcium influx is accompanied in a dose-dependent manner by the release of intracellular lactate dehydrogenase, indicating a loss in plasma membrane integrity and cytolysis. Concentrations of zinc that block  $^{45}\text{Ca}^{2+}$  influx also block lactate dehydrogenase release. Lanthanum, which also blocks  $^{45}\text{Ca}^{2+}$  uptake, does not neutralize the cytolytic activity of the venom, but rather inhibits the venom's cytolytic action at the level of the target cell plasma membrane. Our findings indicate that Man-of-war venom causes an influx of calcium into several different cells types, not just those of the cardiovascular system, and this influx likely occurs by permeabilizing the plasma membranes of cells.

2. Carney I., Fenner P. **The Irukandji Syndrome: A Devastating Syndrome Caused By A North Australian Jellyfish. An Updated Review With Symptoms Including Cardiac Failure.**

The "Irukandji syndrome" is a group of delayed (10-40 mins, mean 30 mins) severe systemic symptoms occurring after an initial mild skin sting by small carybdeid (box) jellyfish including *Carukia barnesi*, known colloquially as the "Irukandji". Although the syndrome is well known in tropical Australia waters, the 1998-99 season in north Queensland was notable for the number of victims with severe toxic heart failure who needed admission to intensive care facilities for more complex investigations and treatment than usual. There have also been other severe and unusual symptoms reported this year, which leads to the conclusion that there may be more than one species of jellyfish causing the Irukandji syndrome, or a seasonal variation in the symptoms and/or severity of symptoms caused by *Carukia*. To date there have been no

reported deaths from Irukandji envenomation but there have been a number of patients that were probably only saved by high quality intensive care treatment.

This article describes the updated current state of information on the ecology of jellyfish causing the Irukandji syndrome, introduces the new symptoms, and discusses some treatment regimes that may be effective, as well as problems associated with inappropriate treatment. Research into the cause and treatment of this potentially devastating syndrome is hampered by lack of funding, although there are large costs to the taxpayers for retrieval and medical treatment of victims. These costs are analyzed and presented.

3. Peca G., Rafanelli S., Galassi G., Di Bartolo P., Bertini, S., Alberani M., Beccari G., **Contact reactions to the jellyfish *Carybdea marsupialis*: observation of 40 cases. *Contact Dermatitis* 36; 124-126, 1997.**

The clinical characteristics of 40 patients seen in an accident and emergency department after contact with *Carybdea* while bathing in the sea are described.

4. Radwan F.F.Y., Gershwin L., Burnett J.W. **Toxinological studies on the nematocyst venom of *Chrysaora achlyos*. *Toxicon* 38; 1581-1591, 2000.**

Nematocyst venoms from both oral arms and lappets of *Chrysaora achlyos* were prepared and found to have factors producing mouse lethality, hemolysis and hepatocyte toxicity. These venoms had less potency than those of *Chrysaora quinquecirrha* a phylogenetic, congeneric cousin. Envenomated bathers had significant species-specific anti venom IgG and also cross-reacting antibody to *Chrysaora quinquecirrha* nematocyst venoms. There were similarities and contrasts in the capillary electropherograms and sodium dodecyl sulfate (SDS) gels between *C. achlyos* nematocyst venoms and those of their *C. quinquecirrha* counterparts.

5. Kokelj F., Brutto R., Boccucci N. **Epidemiological study of human injuries following jellyfish stings in the Gulf of Trieste. *Contact Dermatitis* 41; 349- 350, 1999.**

This paper notes that jellyfish stings are common in that area.

**6. Veraldi S., Carrera C. Delayed cutaneous reaction to jellyfish. International Journal of Dermatology 36; 28-29, 2000.**

A 57-year-old woman presented with a widespread papulonodular eruption. The dermatitis had appeared about 1 week after her return from a trip to the Red Sea, where she had come into contact with a shoal of *unidentified jellyfish*; however, that *contact had not been followed by cutaneous lesions and/or symptoms*. The patient also stated that she had had previous contacts with jellyfish during other trips to exotic seaside resorts. The dermatitis was characterized by papulonodular lesions, round or oval in shape, of a few millimeters in diameter, with a color ranging from pink to red to brown, and with a smooth and regular surface. The lesions were grouped in an apparently random fashion or arranged linearly. The patient complained of pruritus and burning. Histopathologic examination showed the presence of some necrotic keratinocytes; in the upper and mid dermis, edema and a predominantly perivascular and periadnexal lymphohistiocytic infiltrate, with numerous neutrophils and eosinophils, were observed. The patient was treated with hydroxyzine (37.5 mg/day) and hydrocortisone butyrate, which resulted in the rapid disappearance of the symptoms; however, the cutaneous lesions persisted for about 3 weeks.

## Book Chapters

- Haddad Jr., V. 2000. Atlas de Animais Aquáticos Perigosos do Brasil. Editora Roca LTDA. Brazil.



## Published Letters

- Queruel, P., Bernard, P., Goy, J., Dantzer E. Envenimations par la méduse *Pelagia noctiluca* sur nos côtes méditerranéennes. La Presse Médicale 2000 29; 188.

(This letter merely mentions the fact that these stings occur.)

- Winkel, K.D., Christopoulos, A., Coles, P., Wiltshire, C., Gershwin, L.A., Fenner, P.J., Angus, J.A. Irukandji (*Carukia barnesi*) Venom contains a potent neuronal sodium channel agonist. Int. Soc. Toxinology, In Press. (This will appear soon)



## Correspondence

- More apparatus for sting treatment has been offered. An aspivenin pump has been developed (vacuum pump). I doubt its efficacy.
- Guy Peterson stated that his secretary withstood erythromycin well but after a *Physalia* sting did not tolerate azithromycin and clarithromycin. Was this due to P450 alteration?
- A mass of *Aurelia* was detected in Zanzibar.
- A mass of *Phyllorhiza punctata* was found in the north Gulf of Mexico.
- Others have tried Diphoterine, a polyvalent washing solution against chemical burns, in a few stings of Mediterranean children. Supposedly this is effective but I doubt it.
- Six barrel Jellyfish, *Rhizostoma octopus*, were washed up on the sandy beach at Ravenglass, Cumbria, in the northwest of England. The definitive blue ring around the base of the bell was present but did not show up on the photograph. This jellyfish does not have stinging tentacles like the similar *Cyanea* species, which are sometimes washed up on the same coast.
- Pelagia* has been common in the California Pacific and both *Aurelia* and *Chrysaora* in the Middle Atlantic States coast.
- Tom Patter, M.D. of Havan writes about an outbreak sounding like Seabathers eruption occurring in Fiji.

### **JELLYFISH STING NEWSLETTER ON THE WORLD WIDE WEB**

All Jellyfish Sting Newsletters from Number 1 to Number 23 are accessible on the WWW at

<http://www.tropmed.org.au.htm>

This format allows the inclusions of colour images and links to other web pages.

The site is administered by **The Australasian College of Tropical Medicine** with Rick Speare as webmaster. Rick can be contacted by email at [richard.speare@jcu.edu.au](mailto:richard.speare@jcu.edu.au).

The International Consortium for Jellyfish Stings also begin place the **JELLYFISH STINGS NEWSLETTER** on the Department of Dermatology Web-page at the University of Maryland.

([www.som1.Umaryland.edu-->Clinical](http://www.som1.Umaryland.edu-->Clinical) Departments---->Dermatology

Also on this site: "To Report Jellyfish Sting" form  
Fax: +1—410 – 328 6098