

Report of Stingings by the Coelenterate *Rhizophysa Eysenhardti* Gegenbaur in California Waters*

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Although members of the coelenterate siphonophore family Rhizophysidae are known to be capable of inflicting venomous stings in humans, detailed clinical accounts have not been previously reported. Rhisophysids have been previously incriminated as venomous stingers by Fish and Cobb [1], Kuroda and Uchida [2], and Southcott [3]. A general view of the venomous properties of these siphonophores has been included in Halstead's work [4]. Unfortunately little of a definitive nature is known about these interesting creatures even by systematists since complete specimens rarely become available for study. This particular report is the result of an envenomation encountered by the senior author while handling some fishing lines in the vicinity of the Sealab III site at San Clemente Island, California (Fig. 1).

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Fig. 1. Experimental sting from *Rhizophysa eysenhardti* on the flexor surface of the forearm of the senior author. Stings from this organism usually appear as a mild erythematous maculopapular rash. (Photograph by T. Cooke.)

MATERIALS

The specimens discussed in this report consisted of pneumatophores and stems entwined around each other along with other unidentifiable fragments. The specimens were removed from nylon fish lines that were attached to fish traps at the Sealab III site at San Clemente Island, California, during June 1969. The site is located at the northeast end of the island approximately half way between the Wilson Cove Pier and the Naval Ordinance Test Station Pier. The specimens were taken about 1200 m from shore at which point the water depth is about 100 fathoms. The specimens were all removed from the upper 30 m of the fish lines. The siphonophores appeared as a sticky, reddish, stringy, mucoid material wrapped about the fishing lines. When the siphonophores were placed in an aquarium they lost most of their reddish hue and became almost transparent. Contact with the stringy material caused it to contract immediately. The stringy objects on some of the lines measured about 15 to 20 cm in length. The specimens were preserved in 70% ethanol.

The specimens were submitted to the Smithsonian Oceanographic Sorting Center in Washington, D.C. and to Dr. Elbert H. Ahlstrom, Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service, La Jolla, California. We are indebted to these persons for their assistance in the identification of these organisms. Unfortunately the specimens recovered consisted largely of

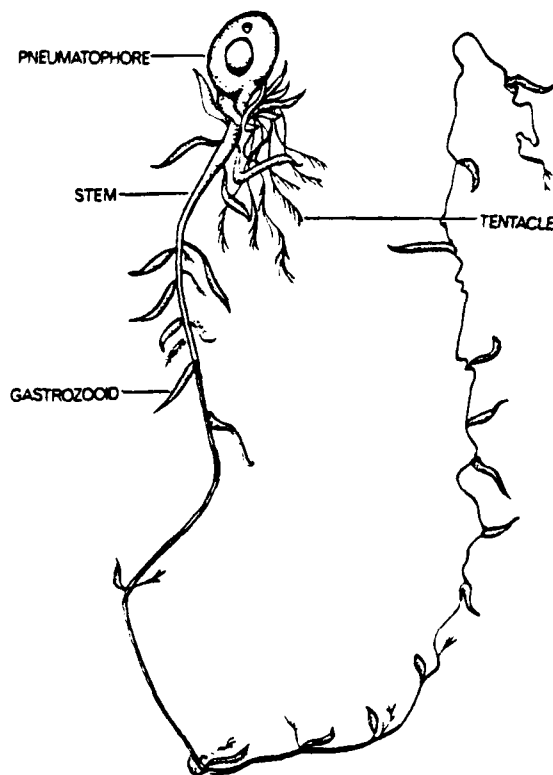


Fig. 2. *Rhizophysa eysenhardti* Gegenbaur showing various parts of the organism. The stem may extend to a length of several meters and can contract to less than 30 cm.
(Drawing by J. H. Danielson, after Lens and Riemsdijk.)

pneumatophores and stems. Species identification of these siphonophores depends upon the presence of gastrozooids and the shape of the tentacles. Since these parts of the animal were absent a definitive identification was not possible. However, the evidence at hand strongly suggests that the siphonophores were *Rhizophysa eysenhardti* Gegenbaur, which has been previously reported from Southern California waters.

BIOLOGY

Totton [5] has defined siphonophores as holoplanktonic, asexual (larval) hydrozoan zooids of polyps having a single tentacle. When they give rise to

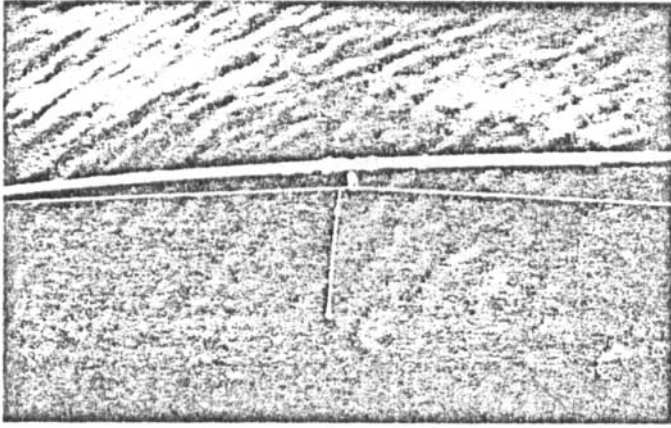


Fig. 3. Living specimen of *Rhizophysa eysenhardti* suspended from a fishing line. Specimen is about 15 cm in length. Taken at Sealab III site at San Clemente Island, California, June 1969. (Photograph by T. Cooke.)

buds the zooids become asexual larval nurse-carriers (paedophores) of other polyps (larvae) and of the sexual (adult) medusoids as well as of other asexual (adult) medusoids (nectophores) that provide propulsion of the whole or of separate parts. The adult siphonophore is an overgrown hydrozoan oozoid polyp that remains juvenile and asexual, but carries with it large numbers of other asexual juvenile polyps (gastrozooids and palpons) as well as sexual adults (medusoid gonophores) and asexual adults (medusoid nectophores), all budded either from the original and frequently elongated oozoid or from juveniles. The adults sometimes separate and become independent, generally in association with one or more secondary juveniles having a protective buoyancy device known as the bract. The complex morphology and systematics of siphonophores has been discussed at great length in Totton's [5] excellent and well-illustrated monograph.

Gegenbaur [6] has described fully extended specimens of *Rhizophysa* drifting and writhing about at the surface of a calm sea. The elongated gastrozooids were said to be actively searching for prey while the tentacles sank into the depths like long fishing lines. When these siphonophores are placed in an aquarium tank, they take up a vertical position with the pneumatophore at the surface. They resemble *Physalia* in their actions in that there is constant and repeated contraction of the stem.

The pneumatophore of *Rhizophysa eysenhardti* Gegenbaur (Figs. 2-5) is up to 18 mm in length and pale pink in color with a very deep red patch around the apical pore. The stem may measure several meters in length



Fig. 4. Living specimen of *Rhizophysa eysenhardti* in a contracted state in a Petri dish. The pneumatophore appears as a dark dot at the upper end of the light-colored stem. Length about 1 cm. (Photograph by E. Rich.)

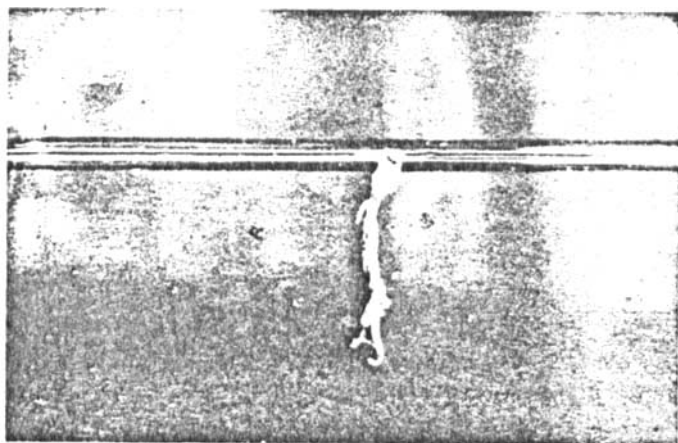


Fig. 5. Living specimen of *Rhizophysa eysenhardti* floating in an aquarium. Only the pneumatophore and stem are observed. Length about 2.5 cm. (Photograph by E. Rich.)

when expanded, but contracts to less than 30 cm. The gastrozoid measures about 12 mm in length, possesses short endodermal villi, and is pediculate. The tentacle is about 25 mm in length in contraction, extending to two or three times that length and appearing as a slender thread. The unilateral tentilla extends to about 12 mm. The nematocysts are spheroidal, measuring 0.084 mm in diameter. The gonodendron or thread-like pedicel is 1.5

cm in length. There are side branches each with a single palpon, an asexual nectophore, and several gonophores. These siphonophores tend to be more abundant in deep water. Little appears to be known regarding the habits of these creatures. *R. eysenhardti* is repeatedly present in the warmer waters of all oceans.

MECHANISM OF INTOXICATION

Rhizophysa eysenhardti is equipped with spheroidal nematocysts measuring 0.084 mm in diameter. The venom-charged nematocysts inflict the stings. Stings are frequently contracted by fishermen as a result of handling fishing lines and nets to which the tentacles of these siphonophores are adhering.

CASE REPORT

The significance of this report is that it is the first time a confirmed clinical report on the stinging ability of a *Rhizophysa* species has been available. It should be noted, as in the case of most coelenterate stings, that persons hypersensitive to the envenomations of these creatures can develop more serious reactions. The application of alcohol, sun lotion, oil, and various other lotions is generally helpful in attenuating further effects from the discharging nematocysts. The use of oral antihistaminics and topical antihistaminic creams are useful in alleviating urticarial lesions and symptoms. In general, treatment is symptomatic.

SUMMARY

This is believed to be the first documented clinical report of a case caused by a species of *Rhizophysa*. Definitive diagnosis of the species was not possible because of the absence of gastrozooids and the tentacles, but the evidence at hand strongly suggested the species *Rhizophysa eysenhardti* Gegenbaur. The stinging ability of the organism was experimentally confirmed. The ability of *Rhizophysa* to sting is dependent upon the use of its nematocyst apparatus. Stings from siphonophores are generally mild in nature. Treatment is largely symptomatic.

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