# Aquatic Antagonists: Sea Anemone Dermatitis

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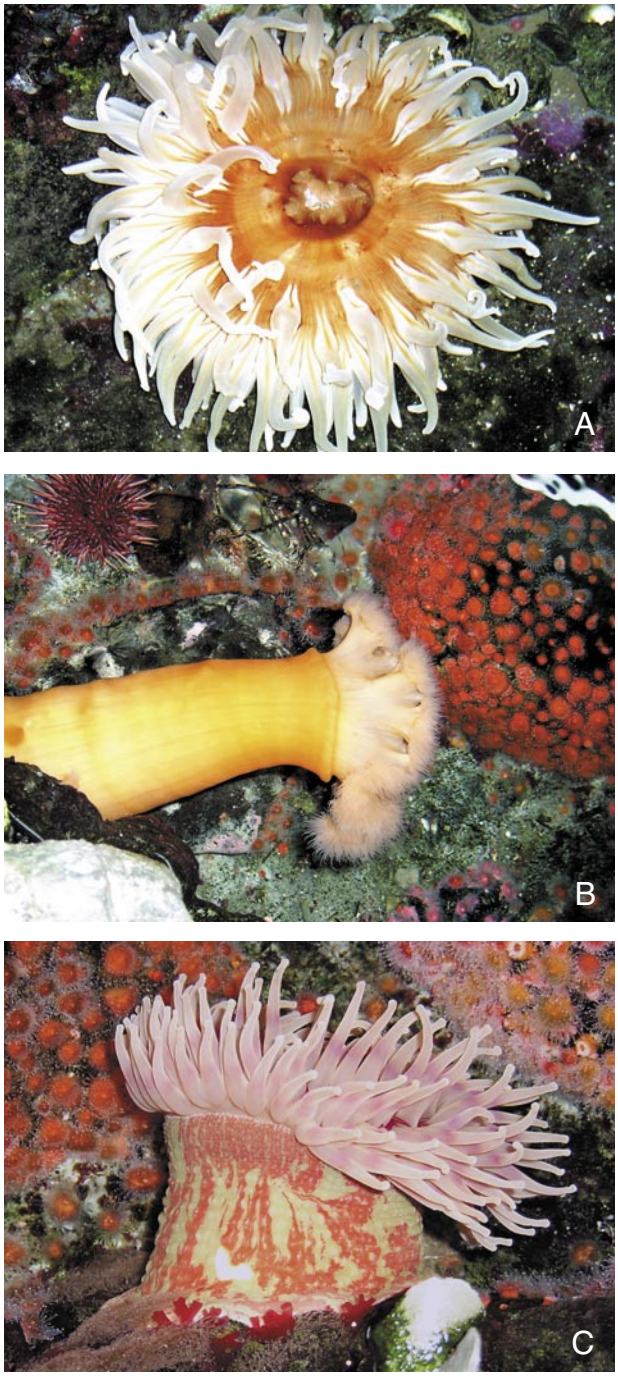
Sea anemones belong to the phylum Cnidaria or Coelenterata, which are hollow-bodied radially symmetrical animals with stinging units known as nematocysts (Figure). This phylum includes the classes Anthozoa (flower animals), including sea anemones and true corals; Hydrozoa (water animals), including the Portuguese man-o'war; Scyphozoa (bowl animals), including true jellyfish; and Cubozoa (box jellyfish). One defining characteristic of the phylum is the nematocyst, a stinging organ containing a coiled threadlike stinger with a harpoon-shaped end. When the nematocysts fire, the thread springs straight out, puncturing the skin of the nematocyst and its victim.

Sea anemones are found in all oceans, with their habitats ranging from tide pools to the ocean floor. They generally attach to a rock, though not permanently, and move slowly to a new position. Some swimming anemones actively move and roll on the ocean floor.[1]

Most sea anemones range from 1 to 8 cm in diameter, but giant sea anemones can reach up to 1 m. Many anemones are scavengers that will eat plant and animal matter. Although they sting and eat fish, they are well-known for their symbiotic relationships with clown fish. The larval stage is called a *planula;* the planula typically is cigar shaped with a fuzzy appearance. It matures into a polyp, but a true jellyfish stage does not exist. Some types of anemones do not have free-swimming larvae but release fully formed young that have matured within the adult.

Sea anemones often are found in groups, but unlike corals, they are not colonial animals. They eat particles collected from the water or catch prey with their tentacles. Some anemones also contain



Sea anemones (A–C).

**Accepted for publication June 10, 2005.**
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symbiotic dinoflagellates or zooxanthellae that carry out photosynthesis.[2]

Sea anemone nematocysts penetrate the skin to varying degrees, resulting in a wide range of manifestations.[3] The stings range from mild to severe, with local edema, necrosis, and pruritus. Most sea anemone reactions are toxic, as opposed to allergic, inducing lethal and sublethal alterations of the keratinocytes. Histologically, ballooning degeneration and nuclear pyknosis are prominent findings.[4] Immune mediated blisters with intercellular deposits of immunoglobulin G and acantholyis mimicking pemphigus also have been described.[4] Although acute renal failure with acute tubular necrosis may occur in association with severe anemone dermatitis,[5] the reaction is more commonly benign and self-limited.

*Haloclava producta,* the ghost anemone, is a burrowing sea anemone found in estuarine sediments off the east coast of the United States and in the Gulf of Mexico.[6] Outbreaks of dermatitis related to this anemone also have been reported off the coast of Long Island, New York. Patients present with pruritic erythematous vesiculopapular lesions on exposed areas. Many of the patients are clam diggers, making the organism responsible for one form of clam digger itch.[6]

Seabather eruption presents with pruritic lesions restricted to areas covered by the bathing suit. Lesions are erythematous and may be macular, papular, or urticarial. Seabather eruption is associated with larval forms of the thimble jellyfish, which can be found along the Atlantic coast of the United States, especially in Florida. Cases occurring off the coast of Long Island have been shown to be caused by planula larvae of the sea anemone *Edwardsiella linate*.[7]

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