

Aquatic Antagonists: Bluegill (*Lepomis macrochirus*)

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Fish infrequently are aggressive toward humans. Rare acts of aggression often appear to be accidental, in self-defense, or for territorial protection. Although uncommon, a number of fish-related injuries are noteworthy. For example, fishing-related injuries from fishhooks or filleting knives are fairly common. Fish spines can cause cutaneous reactions, related to penetrating wounds, foreign body reactions to retained spines, or reactions to envenomation through spines. Infections can further complicate these wounds, causing abscesses, cellulitis, bursitis, tenosynovitis, septic arthritis, osteomyelitis, and necrotizing fasciitis.^{1,2} Infections from aquatic-related injuries are caused by various species including *Vibrio* species, *Aeromonas* species, *Mycobacterium marinum*, *Streptococcus iniae*, and *Erysipelothrix rhusiopathiae*. *Vibrio vulnificus* is the most common cause of skin and soft tissue infections from marine microorganisms.³

Perhaps the most feared fish are sharks, but shark attacks against humans are rare and often unintentional, usually resulting from low visibility in which humans are mistaken for the shark's natural prey or competition for prey.^{4,5} Similarly, the severity and frequency of incidents of piranhas feasting on humans have been greatly exaggerated. Piranhas typically only bite once when they attack a human, usually because of defensive behaviors related to the protection of eggs or spawning territory.⁶

Other fish generally are not associated with harming humans. A review of the literature using PubMed and searching under "fish bite" revealed surveys and interviews with fishermen who reported bites from fish including trairas, dourados, and caimans.^{7,8} Barracudas and stingrays uncommonly bite humans.^{9,10}

There was only 1 report of a man who was bit by a tilapia.¹¹ The patient had caught the fish. After he unhooked it the fish slipped, fell on his foot, and bit him. This wound was complicated by nonpigmented *Chromobacterium violaceum* cellulitis with associated bacteremia.¹¹ Although published reports of attacks by fish are rare, a quick search of the Internet revealed various stories and videos of fish biting humans. Medical care usually is not sought for these bites, as they generally are not serious and resolve without complications. We report a unique presentation of fish bites solely to sites of melanocytic nevi.

Case Report

On vacation in Possum Kingdom Lake, a lake in northern Texas with moderately clear water with a greenish hue, 4 individuals who were floating in the warm shallow water during the late afternoon/early evening began to experience sharp fish bites all over their bodies within 30 minutes. One individual presented to our clinic the following day with photographs taken immediately after being bitten. A total of 7 bites were reported among the 4 individuals. Interestingly, all of the bites surrounded melanocytic nevi; there were no bites on skin free of any lesions. Our patient had multiple bites on his body around dysplastic as well



Figure 1. Fish bite around a melanocytic nevus on the abdomen.

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as compound nevi. The bites caused mildly erythematous, edematous, annular plaques around the nevi (Figure 1). Some of the nevi were hemorrhagic. After the initial bites, our patient did not experience any further pain or itching from the lesions. All sites resolved without any further sequelae. Based on the sighting of the fish through the water with positive identification by a local veterinarian, the bites were believed to have been caused by bluegills.

Comment

Bluegills (*Lepomis macrochirus*) are part of the sunfish family, and their most distinguishable feature is the blue or black flap at the rear of the operculum, a bony flap that covers and protects their gills that is found at the posterior end of the head (Figure 2). Bluegills are widely found throughout North America, often moving in loose schools. Although they can survive in many different environmental conditions, they typically are found in freshwater lakes and streams; they prefer warm shallow environments such as lakes, ponds, streams, and reservoirs. Bluegills primarily rely on sight to identify food sources; therefore, they tend to feed more during the daytime. Because they feed on any available food sources in their environment, their diet widely ranges, mostly limited by what they can fit into their mouths. Insects and crustaceans make up much of the bluegill's diet, but it also will consume small fish, snails, and crayfish when available. When food is scarce, algae, aquatic plants, and fish eggs (including their own) can become a major food source.

We concluded that our patient was attacked by a school of feeding bluegills. The fish took interest in the pigmented nevi that stood out against the relatively light pigmented skin of our patient and his party. Based on visual similarities, the nevi were possibly mistaken for an insect or small crustacean. As opportunistic feeders, the bluegills simply may have been trying a new delicacy and attempted to suction these nevi into their mouths. Bluegills capture prey using high-speed



Figure 2. Bluegill (*Lepomis macrochirus*). Image courtesy of Daniel Blackstone Studio, Sarasota, Florida.

suction and the small teeth that line their mouths.¹²⁻¹⁴ This suction feeding style likely resulted in the distinct clinical presentation of the edematous plaques in the shape of the bluegill's mouth. Fish are not commonly known to bite humans; however, when fish bites do occur, they seem to be in defense of eggs or spawning territory, or in defense against humans who could be mistaken for prey or as competition for prey.

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