Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year) Subject: Zoology Course Code: ZOC 110 Course Title: Parasitology Unit: 06 Module Name: A brief account of Parasitic vertebrates: Candiru Name of the Presenter: Ms. Karishma Vaman Naik

Notes:

Introduction

Candiru (*Vandellia cirrhosa*), is also known as cañero, camero, urethra fish, toothpick fish, or vampire fish, is a species of parasitic freshwater catfish in the family Trichomycteridae native to the Amazon Basin where it is found in the countries of Bolivia, Brazil, Colombia, Ecuador, and Peru. The genus name originates from Professor Vandelli of Lisbon who first presented a specimen (*V. cirrhosa*) from Brazil for study.

Distribution and Habitat

Candirus (*Vandellia*) are the inhabitants of Amazon and Orinoco basins of lowland Amazonia, where they constitute part of the Neotropical fish fauna. They live in shallow, slow moving, acidic waterways with muddy or sandy bottoms. These demersal fish can be found burrowed in the riverbed most of the time, only emerging to feed or mate.

Morphology

Candiru are small, thin catfish. Though most specimen are smaller, members of the genus *Vandellia* can reach up to 17 cm (7 in) length, but some can grow up to 40 cm (16 in). The body is narrow and cylindrical, with a slightly flattened head. The head is small, and abdomen appears distended after a large blood meal. The scaleless, translucent body, which become

coloured only after feeding, makes it difficult to be spotted in the turbid waters. There are short sensory barbels lined with minute, needle-like teeth near their mouths, together with short, backward pointing spines on the gill covers which help to prevent it from being dislodged while feeding, and large black eyes (relative to body size), which are placed on top of the head.

Parasitism

Candiru are blood feeding parasites of other fish.

It locates a fish host through visual and chemical cues and approaches its gills, forcing itself under the operculum or waiting for it to open naturally. Once past the operculum, these parasites latch onto the ventral or dorsal aortal arteries. Opercular spines help candiru stay attached to hosts' gills and aid in releasing blood. The host's blood pressure pumps blood straight into the candiru's mouth. It is hypothesized that Candiru does not "suck" blood. It does not need any special sucking or pumping mechanism to quickly engorge itself with blood, but simply uses its needle-like teeth to make an incision in an artery. The length of a single blood meal is usually short, from 30-145 seconds. After feeding, candiru sink and burrow into the river bottom.

It occasionally parasitizes man and has been known to enter urethral and other body openings of unprotected bathers and swimming animals. Candiru fish parasitizes humans not because it is urinophilic but due its normal instinct to swim upstream into the water streaming out of a larger fish's gill cavity. Presumably it mistakes the urea for water exhausted from gills. It then locks onto the urethral membrane the same way as it would to a fish's gill cavity by erecting the short spines on its gill covers and thereby causing inflammation, haemorrhage, and even death to the victim.

When inactive, it remains buried in soft, muddy bottom. Candiru are active both during daytime and at night while foraging for blood. When engorged with blood enormously, the ingested blood is visible through the swollen belly.

Treatment

The Candiru penetrates the urethra of a bather urinating in the water. Since it has backward pointing spines on its gill cover spines, it cannot simply be pulled out and if done so, the spines embed deeper into to the urethra causing more damage. Therefore, surgery is the most commonly used method for extraction of Candiru from the urinary tract of the victim. Local natives have been known to amputate the penis as a means of ending the candiru attack. This operation requires some caution and skill because if, in order to withdraw it, the candiru is caught by its tail or by its body, it expands its dorsal and ventral spines into the tissues, which fix it there more firmly than ever. A suprapubic opening into the bladder is made to remove the fish which has penetrated into the bladder.