Gnathostomiasis outbreak, Okavango Delta

An outbreak of probable gnathostomiasis recently occurred in staff and South African visitors on a houseboat that was cruising the Okavango Delta, northwestern Botswana. Four persons on board ate freshly-caught raw bream, marinated in lemon juice, on August 28 in the mid-Delta area, west of Moremi Game Reserve. Three of the four developed signs and symptoms of gnathostomiasis, including painful cutaneous larva migrans. Detailed clinical features are only known for one adult male patient, who returned to Pretoria on 31 August.

On 2 September he developed severe diarrhoea and vomiting, followed by headaches and mild fever. Laboratory investigations were negative for malaria and schistosomiasis, and full blood count and liver function tests were normal. The headaches, mild fever and fatigue persisted. On 13 September the patient developed severe pains in his right flank and right axilla, spreading to the scapula area. A clinical diagnosis of gnathostomiasis was made and treatment with albendazole (400 mg daily) was started on 16 September. Pain and headaches subsided quite quickly, but fatigue persisted until almost the end of the 21-day treatment period. Two other patients who respectively received ivermectin and albendazole also recovered well. Ivermectin appeared to be more rapidly effective than albendazole.

Several previous outbreaks of gnathostomiasis acquired in the Okavango and western Zambia regions have been reported in the Communiqué and other publications, and it is probably more common than is realised, being relatively unknown and not recognised locally. The disease is caused by invading larvae of nematode (roundworm) parasites of Gnathostoma species (see http://www.cdc.gov/parasites/gnathostoma/). These parasites have a complicated life cycle involving a variety of mammalian and other hosts, including snakes, birds, frogs, eels, crustaceans and freshwater fish (see http://www.dpd.cdc.gov/dpdx/HTML/gnathostomiasis.htm). Humans are typically infected when they eat raw or undercooked fish, crabs, or crayfish.

The southern African cases have usually acquired the infection by eating raw bream (*Tilapia* species) that has been marinated in lemon juice (that is, a version of ceviche), apparently a popular delicacy among tourists to the Delta. The larvae migrate through skin and subcutaneous tissues (the most common presentation), but sometimes also through internal organs, including the central nervous system in the most serious form of the disease. Effective treatment (albendazole) for cutaneous infection is available in South Africa, but treating central nervous system invasion is more difficult. Gnathostomiasis is well known in Southeast Asia, and Central and South America, and is regarded as an emerging imported disease resulting from increasing international travel and adventurous eating. We strongly advise that freshwater fish caught in southern Africa should not be eaten raw, and that lemon or lime juice does not render raw fish safe to eat.

Source: Centre for Opportunistic, Tropical and Hospital Infection, NICD-NHLS