DIOCTOPHYMA RENALE: A CHANCE FINDING ON BLADDER CATHETERISATION OF A PREGNANT FEMALE

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ABSTRACT

Adult Dioctophyma renale parasite was observed incidentally in the catheter at the time of admission of a full-term female patient posted for elective caesarean section. There was no other evidence of parasitism including normal haematological parameters. The case is discussed due to its rarity.

**Keywords:** Dioctophyma Renale, Catheter, Urinary Bladder, Pregnancy

INTRODUCTION

Dioctophyma renale is most often found in the kidneys and parts of the abdominal cavities of mammalian hosts. Mostly, the right kidney is infected, possibly because it is closer to the stomach and liver. Humans may be infected rarely especially after consuming undercooked paratenic hosts - freshwater fish or frog.

CASES

A 24-years-old female was admitted to the Obstetrics and Gynaecology ward following 9 months amenorrhoea, pain lower abdomen and history of straining while passing urine. She was a vegetarian. General examination showed pallor while systemic examination was normal. Urine analysis showed acidic pH, RBC 4-6/HPF, Pus cells 1-2/HPF with protein in traces. There were no abnormalities in either kidney on radiological examination. Prior to the caesaria section complete blood cell counts showed WBC count of 10200/cu mm, Neutrophils 69%, Lymphocytes 26%, Monocytes 2%, Eosinophil 3%, RBC count 3.1 million/cu mm, haemoglobin 8.6 g/dl with microcytic hypochromic picture. The biochemical profile, showed no abnormal findings. After few hours of admission, a worm was seen passing through the catheter. There were no additional findings related to parasitism. The parasite was placed in saline and sent to the department of Pathology. The worm was brownish red in colour, approximately 26 cm in length, 3-4 mm in diameter, tapering at both the ends and covered with an outer cuticular layer and identified as Dioctophyma renale. There was no history of fish consumption by the patient. Post-caesarean section the patient delivered a healthy female baby weighing 2.9 kg.

DISCUSSION

Historically, Dioctophyma renale was classified as an ascarid, and thought to be the largest roundworm infecting mammals, giving it the nickname giant kidney worm (Measures, 1985; Ferreira, 2010; Measures, 2001). Its complex life cycle requires an oligochaete or aquatic annelid as an intermediate host. Fishes and frogs are paratenic hosts that serve to infect definitive hosts (Dyer, 1998). Dioctophyma renale affects fish-eating mammals, particularly mink, less often dogs and sporadically wolves, coyotes, foxes and humans who eat raw fish (Measures, 2013; Dyer, 1998). There are multiple reservoirs. It has a worldwide distribution with regions around the Caspian Sea having the highest incidence, majority of which occur in Iran.

The worm is cylindrical, has a cuticle with three or more main outer layers which are non-cellular and secreted by the epidermis. The cuticle layer protects the nematodes while they invade the digestive tracts.
of animals. The length of the adult male worms varies from 20-40 cm long and 5-6 mm wide; females can grow to 103 cm in length with a width of 10-12 mm (Dyer, 1998). Both sexes appear bright red in colour and taper at the anterior and posterior ends. Male worms have a bursa, which is used for attaching while mating. The worm in our case was identified as a male parasite due to its morphological characteristics.

Adult worms typically only infect one kidney, usually the right sided; however, migration to other body sites presumably through the bladder, has been documented as well (Garcia, 2007). The present case also shows the expulsion of the worm from the urethra in the catheter. Dioctophyma renale generally feed on blood and tissue cells. Pharyngeal glands and intestinal epithelium produce digestive enzymes to feed on the hosts’ body fluids (Measures, 2001).

Figure 1: Photograph showing adult Dioctophyma renale worm

Mostly, the nematodes are detected as an incidental finding. In the present case also no clinical signs were directly related to the presence of the worm. Without the coming out of the worm in catheter, there was no suspicion of the parasitic worm inhabiting the urinary bladder. There can be associated non-specific symptoms including haematuria, nephritis, loin pain, renal enlargement, and/or renal colic. Majority of times the larvae wind up in subcutaneous tissues without developing any further.

Vomiting often occurs when the third stage larvae penetrate into the wall of the stomach. At times, there can be devastating effects on the host including pressure necrosis caused by the growing worms and their feeding activities reducing the infected kidney to a thin-walled non-functional organ (Measures, 2001). Obtaining history from the patient about consumption of undercooked or raw freshwater fish is an important first step that can be coupled with radiological examination to search for enlarged or calcified kidneys. Urinalysis may reveal haematuria while differential counts may show eosinophilia. The treatment in complicated cases is limited to surgical removal of the parasite and the affected kidney.

Conclusion

Possibly, because of the rarity of human cases, there is no standard treatment for Dioctophyma renale infection in humans. The use of anti-helminths drugs has not yet been evaluated as the proper course of action for treatment. Human infection can be avoided by thorough cooking of fish and boiling of water.

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REFERENCES