

Onchocercosis in aorta of cattle - A case report

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ABSTRACT

Ten years old cattle carcass was brought for post mortem examination to the Department of Veterinary Pathology, College of Veterinary Science, Tirupati. On necropsy, the aorta showed whitish, hard, elevated areas of irregular shape and varied sizes with 0.5-1 mm diameter. Histopathologically, aorta revealed cut sections of the worms in the tunica media with calcification and eosinophils infiltration surrounding the cut sections were noticed. Based on the gross and histological examination it was confirmed as Onchocercosis in cattle.

Keywords: Aorta, calcification, cattle, onchocercosis

Parasitic diseases in cattle are a major concern for the livestock industry, as they can lead to significant economic losses, reduced productivity, and compromised animal welfare. There are several external and internal parasites which affects cattle health. One such internal parasite is the Onchocerca. Onchocerciasis is a parasitic disease caused by a nematode Onchocerca that affects both animals and humans¹. It is found residing in the aortic walls of the cattle^{2,3}, buffalo⁴, sheep⁴, goat⁵ and camels⁶. It is also noted in other vessels like brachiocephalic truncus, brachial and cervical arteries and iliac bifurcation of abdominal aorta^{2,7}. However, it also affects brain, tendons, skin, testis as well as mammary glands⁷. *Onchocerca armillata* is commonly reported in the southern parts of Asia and Africa^{7,8}. The affected animals does not show any prominent clinical symptoms¹. Grossly the aorta shows nodules, thickening of intimal layers, parasitic tunnels². The eosinophils infiltration is noted surrounding dead parasites or calcified larvae in the granulomatous nodules^{7,9}. In aged animals, nodules that are calcified may lead to aneurysms^{1,9}.

During necropsy, the lesions in aorta were observed and tissue sample of aorta was collected and fixed in 10% neutral buffered formalin. Collected tissues were dehydrated by passing through ascending grades of alcohol, cleared by using xylene and embedded in paraffin. The paraffin embedded blocks were sectioned around 4-6 micron thickness and sections were stained with hematoxylin and eosin and Von kossa's stain¹⁰.

On gross examination, the aorta showed irregular, reddish elevated areas of 0.5-1 cm in diameter in the intima (Fig. 1). These observations were similar to the findings of earlier authors^{9,11,12}. The aorta was thickened and flexibility was not observed which may interfere with circulatory functions in the body¹³. Histologically, aorta revealed irregular, large cut sections of the parasite with thin layer of connective tissue in tunica intima and few cut sections of parasite were noted in tunica media (Fig. 2). These findings were in close proximation with earlier workers^{8,14}. Some had small round eggs while some had degenerated worms⁸. The surrounding areas of the cut sections of parasite had irregular, bluish areas and infiltration of the eosinophils were predominantly noted along with few mononuclear cells (Fig. 3). These findings were in accordance with the earlier studies⁸. Hyalinization of the smooth muscle cells were also noted. Von kossa's

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staining revealed black coloured deposits around cut sections of the parasite (Fig. 4). The age of the host and weather conditions are the important determinants for occurrence of the disease¹⁵. Based on gross and microscopic examination of the aorta the present case was diagnosed as onchocercosis.

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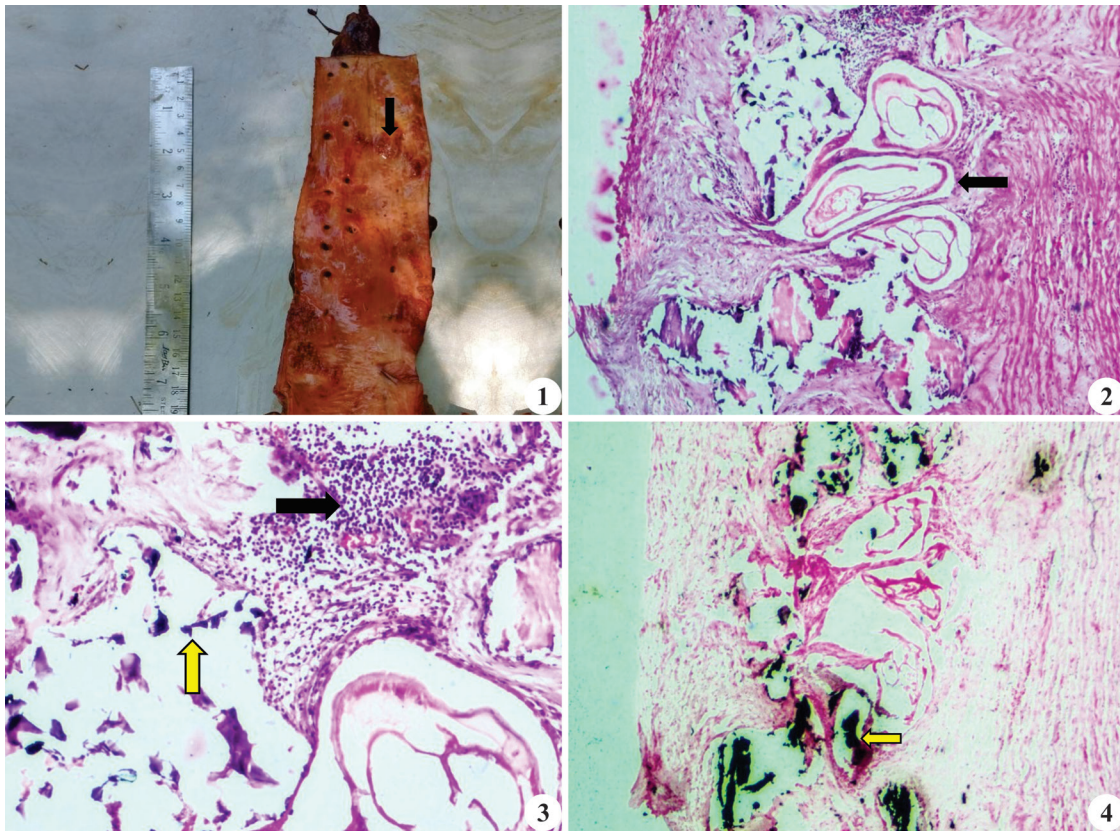


Fig. 1. Aorta showing 0.5-1 cm diameter, irregular, elevated areas in intimal surface (arrow); **Fig. 2.** Cut sections of the parasite with degenerated worms in the tunica media of aorta (arrow) (H&E x40); **Fig. 3.** Tunica media showing calcified areas (yellow arrow) and severe infiltration of eosinophils (black arrow) surrounding parasitic cut section (H&E x400); **Fig. 4.** Note black coloured calcium deposits surrounding cut sections of parasite in tunica media of aorta (arrow) (Von kossa's stain x40).

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