

NECROPSY REPORT OF VEGETATIVE ENDOCARDITIS IN A JAFFRABADI BUFFALO

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Abstract: A thirteen year old Jaffrabadi female buffalo carcass with a history of mastitis, loss of body weight, inappetance, pyrexia and respiratory distress presented for necropsy examination. Post- mortem examination revealed consolidation of lung with focal emphysema and froth in trachea. Cauliflower like growth (14- 15cm long, 8cm broad) was observed in heart attach to atrio-ventricular valve occupying lumen of right auricle and ventricle. Bacteriological investigations of heart blood swab revealed grape like colonies of gram positive bacilli of *Staphylococcus aureus* suggesting vegetative endocarditis of infective origin as a cause of death.

Keywords: Mastitis, Cauliflower like growth, *Staphylococcus aureus*.

Introduction

Bacteria-induced vegetative valvular endocarditis is one of the main cardiac disorders in cattle (Healy, 1996 & Andrews and Williams, 2004). Bacterial endocarditis is often linked to a primary source of infection and the presence of other infectious lesions, such as mastitis, metritis, arthritis, or liver abscesses (Maillard *et al.*, 2007). The most frequent pathogens isolated from cardiac valves or the blood- streams of cows with endocarditis are *Arcanobacterium pyogenes*, *Streptococcus* sp., and numerous Entero- bacteriaceae (Reef and McGuirk, 1996 & Maillard *et al.*, 2007). Vegetative valvular endocarditis is a relatively common heart disease in cattle. The right side of the bovine heart is usually affected and cardiac valve function is compromised due to vegetations on the valve leaflets. The prevalence of endocarditis may reach 5.2 cases per 10,000 cows (Reef and McGuirk, 1996), but the disease is often misdiagnosed and only discovered during the slaughtering process or at necropsy.

Material and method

A thirteen year old Jaffrabadi female buffalo carcass was presented to Department of Veterinary Pathology, College of Veterinary and Animal Sciences, Parbhani for conduct of post mortem examination. Animal had history of mastitis, loss of body weight, inappetance,

pyrexia and respiratory distress. Externally, carcass was emaciated, dehydrated, Eye and vaginal mucous membranes were dry, pale, sunken eyes, rough hair coat and dry oral & nasal mucosa. A through necropsy examination was conducted and tissue sample of thrombus, lung, liver and subscapular lymph node were fixed in 10 per cent neutral buffered formalin and processed by routine paraffin embedding technique to obtain 4-5 μm section. The sections were stained with standard Haematoxylin & Eosin (H & E) method (Culling, C.F. A.). Heart blood swab collected aseptically for bacteriological investigation.

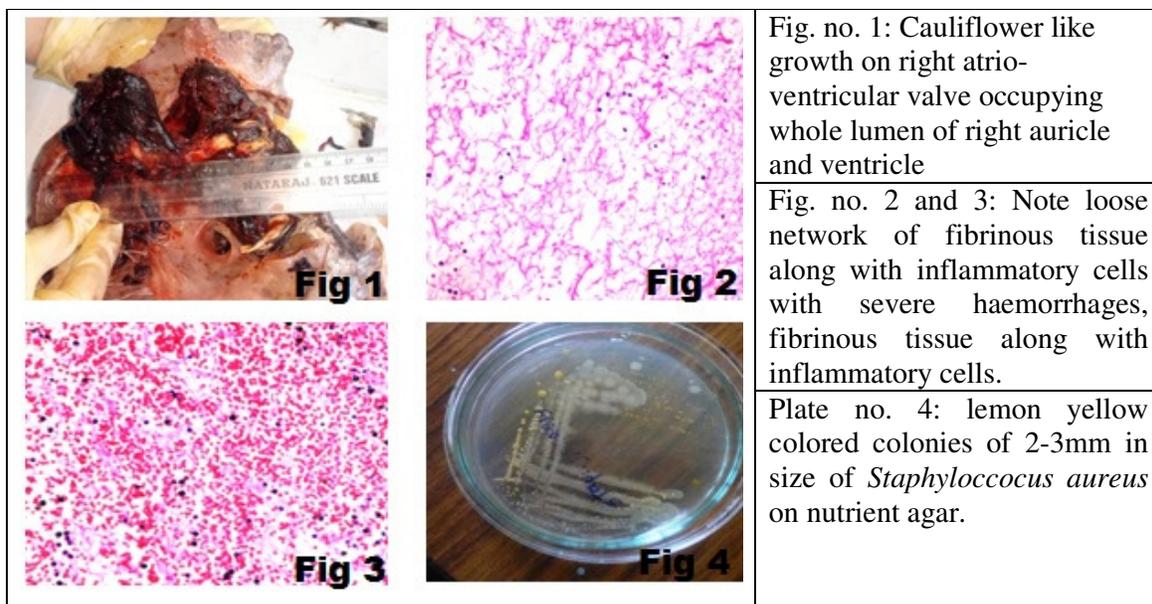
Result and Discussion

Necropsy findings:

Detailed post mortem examination revealed consolidation of lung with focal emphysema, froth in trachea. Subscapular lymph node was swollen with pin point haemorrhages on medulla region. Heart showed cheesy yolk gall like mass, which was difficult to remove. On detailed examination it revealed cauliflower like growth on right atrio-ventricular valve occupying whole lumen of right auricle and most of the ventricle (Fig. no. 1). The growth was 14- 15cm long, 8cm broad, embedded in purkinje fibers, having white to dark red color (at base it was white in color) and firm in inconsistency. Enlargement of mesenteric lymph nodes occurred 2 to 3 times than normal. Hepatomegaly occurred, catarrhal exudates with mild to moderate ecchymotic haemorrhages was present on intestinal mucous membranes.

Histopathological findings:

Microscopic examination of the Lung showed severe congestion with diffuse emphysema of alveoli. Subscapular lymph node showed exfoliation/ infiltration of inflammatory cells with focal haemorrhages Heart valve showed loose network of fibrinous tissue along with severe haemorrhages and inflammatory cells (Fig. no.2 and 3). Liver showed dilation of central vein, congestion with diffuse haemorrhages in liver parenchyma.



Bacterial investigation:

Heart blood swab culture showed lemon yellow colored colonies of 2-3mm in size of *Staphylococcus aureus* on nutrient agar (Plate no. 4). On Gram staining, colony showed spherical, cocci shaped, grape like clusters of Gram positive bacteria.

On the basis of history, PM lesions, histopathological examination and bacteriological investigation, suggests death of animal due to vegetative endocarditis (cardiac thrombi) condition occurred to *Staphylococcus aureus* infection.

There are two types of cardiac thrombi i.e. mural and valvular thrombi. The valves are more often affected because these are exposed to the circulating bacteria and to the force of blood during systole. Bacteria that are present in the blood get implanted on the fatigued/damaged valvular endocardium. The implanted organisms grow on the injured endocardium and release toxic metabolic material which damage local cells, with the liberation of thromboplastin which converts fibrinogen into fibrin. Thus, thrombus is formed. The thrombus is formed slowly but progressively, this is friable and resembles the head of a cauliflower and so is vegetation. Endocarditis in which these vegetation are present called vegetative endocarditis (Ganti and Rao, 2012).

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