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Case Report of Terminal Gangrene of Calves Caused by Salmonella Dublin in Iran

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Summary: Calves diarrhoea due to Salmonella dublin occured in a dairy farm of the Native and Holstein friesean cattle (50 Km west of Tehran-IRAN). In order to investigate the disease and the cause of death, 11 calves were studied. Chronic forms of the disease were observed in 3 out of 11 cases.

Extermities gangrene, sloughing and separation of tarsal joints, ears and tail tips were observed clinically. Histopathological investigation revealed that multiple thrombosis were the cause of the gangrene.

Keywords: *Salmonella dublin / Iran / Calves / Gangrene / Diseases*

Introduction

Cutaneous gangrene due to Salmonella dublin was reported for the first time in 1948 (Field 1948). recently Gitter et al (1978) and Jubb & Kennedy 1985 described the extremities gangrene as a chronic form of Salmonellosis. Sloughing of ears and tail tips, associated with lower extremity lesion were reported by O'Conner et al 1972.

This study describes Salmonella lesions in tarsal joints of both legs, ears and tail tips.

As far as the authors knowledge is concerned, this is the first report of chronic lesion of Salmonella dublin from IRAN.

Clinical History:

Fifty calves showed diarrhoea in a dairy farm, following which 8 calves

were died.3 calves showing chronic form of the disease were submitted to the pathology department of the Razi Institute. The infected calves showed clinically dyspnea, coughing, nasal discharge, elevation of body temprature (41-42)°C and diarrhoea, while with those Chronic forms showed mild diarrhoes and normal temprature. The latter ones most specific lesions, were seen on the ear tips, legs and tails (Fig. 1,2).

The animals could not stand up. The joints were swollen and there were sloughing of ears and tail tips and separation of the distal metatarsal joints. In fact, terminal ischemia and gangrene had set in.

Microbiology:

Three alive calves were sacrificed at the autopsy hall of the Razi Institute. The internal organs (liver, gallbladder, bone marrow) and stool of dead and sacrificed calves were cultured on selenite broth, and the results of bacteriological examination, confirmed the presence of Salmonella dublin;

Histopathology:

samples from internal organs (liver, intestine, kidney. mesenteric lymph nodes) skin, and muscle of the affected areas were taken and fixed in 10% formalin saline and sectioned 6 μ and stained by H&E.

In one case, the liver was enlarged and pinpoint necrosis was prominent on its surface, but in two cases, the liver was only slightly enlarged. Typhoid nodules were seen in all cases microscopically. (Fig.3). The mucosa of intestine, showed slight hyperplasia and inflamatory cells, mostly monouclear infiltration. The mesentric lymph nodes were swollen and thrombosis was seen in arteries.

Microscopical findings on the skin and gangrenous areas included necrosis, thrombosis, arteritis, fibrinoid degeneration in the vessel walls. Fig (4,5,7)

Mononuclear cells were prominent around the vessels, and some of the thrombosis, showed recanalization and hemorrhages. Fig.(6)

Fig 1. Showing gangrene of legs and separation of tail (Arrows).

Fig 2. gangrene of legs in native breed (Arrow).

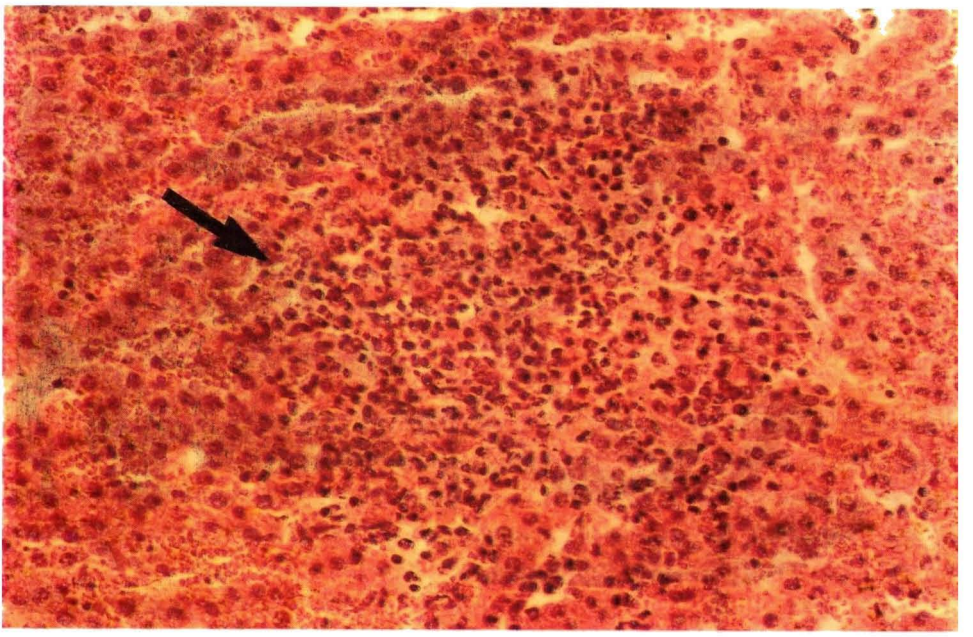

Fig 3. *Typhoid nodule (Focal necrosis and inflamatory cells) in the Liver. H&Fx250.*

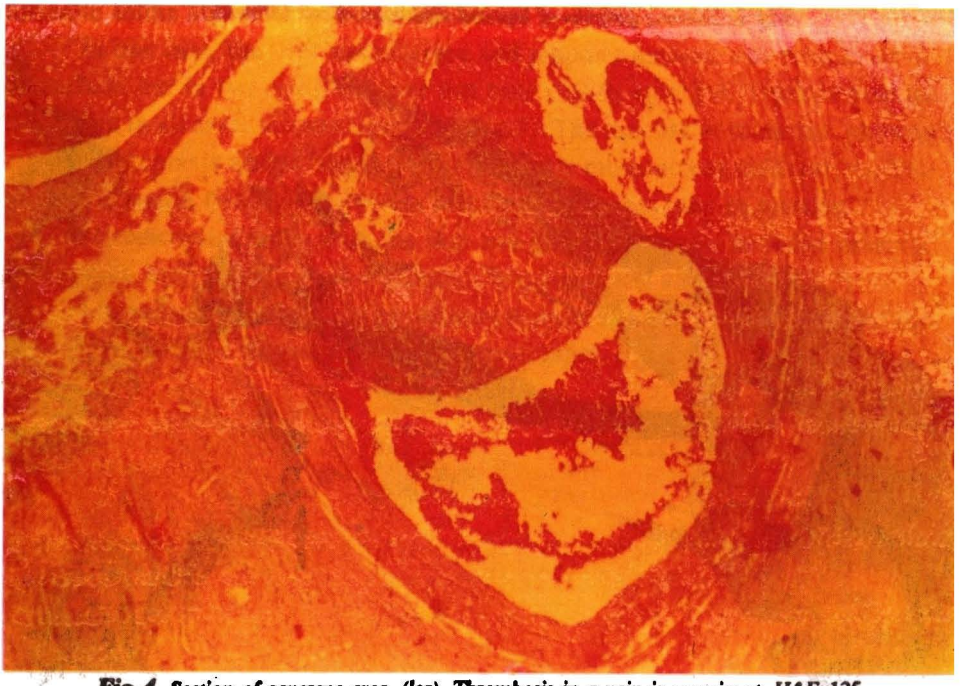

Fig 4. *Section of gangrene area, (leg). Thrombosis in a vain is prominent. H&Ex125*

Fig 5. Section of gangrene area (leg), Organized thrombosis had occluded an artery H&Ex125

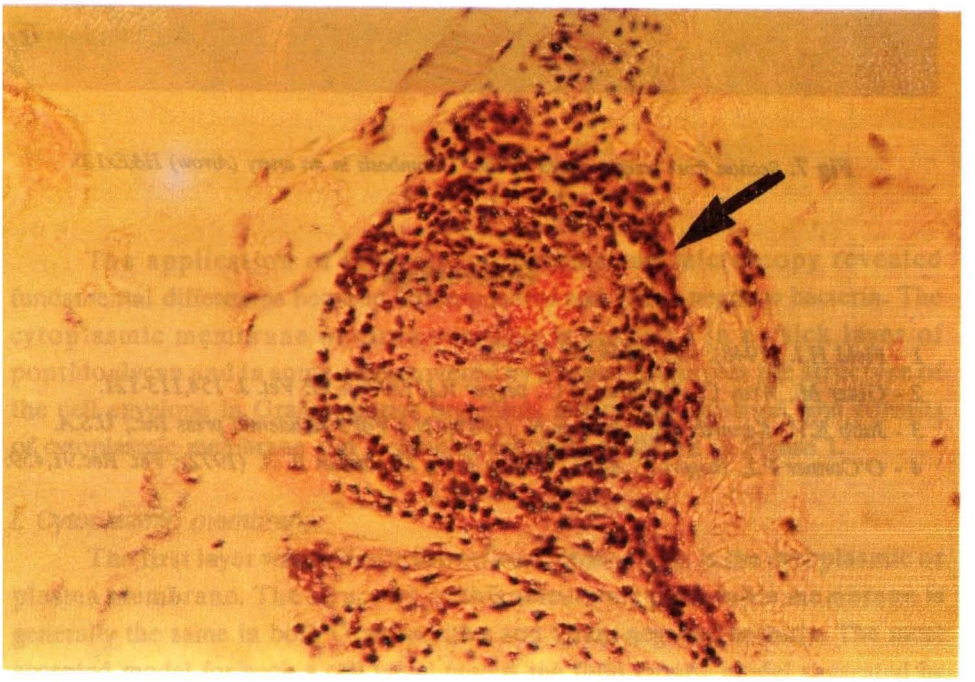

Fig 6. Arteritis, in a section of gangrene area (leg). Inflamatory reaction presented, mostly by monoucleare cells infiltration (Arrow) H&Ex250.

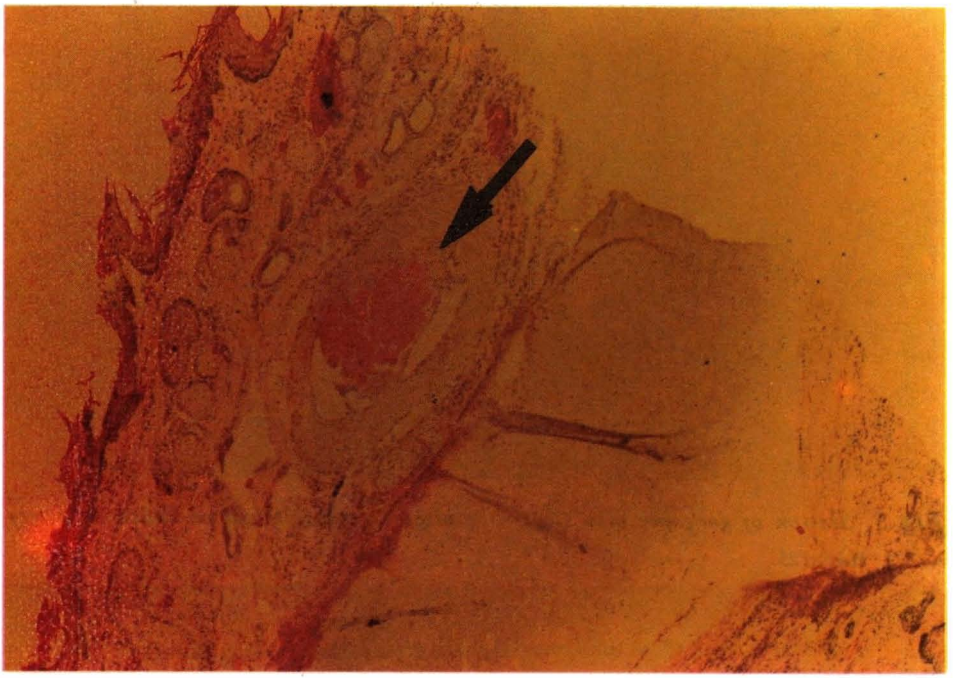

Fig 7. *Section from gangrene area of ears, Thrombosis in an artery (Arrow) H&Ex125.*

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