Case Report

A RARE INCIDENCE OF PROVENTRICULAR INTUSSUSCEPTION IN A DESI CHICKEN

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ABSTRACT

A two months old desi chicken carcass was received for necropsy. On necropsy the oesophagus was found directly entering into the gizzard and the proventriculus could not be located grossly. Further complete telescoping of proventriculus into the gizzard was observed. Based on the gross findings, the case was diagnosed as proventricular intussusception into gizzard. On histopathological examination, the proventricular mucosa revealed diffuse moderate diphtheritic proventriculitis. The incidence of intussusception of proventriculus is rare and this condition might be due to increased peristalsis associated with intestinal helminthiasis.

Keywords: Desi chicken, Intussusception, Proventriculus

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An intussusception is a condition in which a part of the gastrointestinal tract has prolapsed into another section of intestine, similar to the way in which the parts of a collapsible telescope slide into one another. The part which prolapses into the other is called the intussusceptum and the part which receives it is called the intussuscipiens. This type of pathology is usually associated to the intestine tract of mammalian species (Neves, 2007). Usually the anterior portion gets telescoped into the posterior part and occurs mostly in jejunum and caecum in dogs and cattle (Sastry and Rao, 2001*)*. This condition is rare in fowl (Peckham, 1965). Intussusception occurs most frequently in the intestine, but sometimes in the proventriculus (Sharma, 1972). Intussusception and volvulus were reported in chicken secondary to enteritis or abnormal peristalsis caused by nematode or coccidial infection (Crespo and Shivaprasad, 2013). The present case reports the rare and peculiar incidence of proventricular intussuception in a desi chicken.

A two months old female desi chicken carcass was received for necropsy

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to the Department of Veterinary Pathology, Veterinary College and Research Institute, Orathanadu, Thanjavur. The tissues from proventriculus and gizzard were preserved in 10 per cent formalin, processed, and routinely stained with Haematoxylin and Eosin (H & E) (Bancroft and Gamble (2008)).

Examination of the chicken carcass revealed moderate emaciation, soiled vents and the distal part of oesophagus was found directly entering into the gizzard region (Fig. 1) with bulging on dorsal surface of the gizzard (Fig. 2). The Proventriculus could not be observed grossly. On detailed examination, the proventriculus was found completely telescoped (invaginated) into the gizzard and was everted (Fig. 3). The invaginated portion was in opposition with the gizzard mucosa. The proventricular serosa was edematous and the mucosa revealed diphtheritic membrane formation (Fig. 4). Hence, this case was identified as proventricular intussusception. Crop contained watery feed materials and the gizzard contained very little ingesta. Both small and large intestinal lumen contained huge number of round worms (*Ascardia galli*) (Fig. 5). Histopathological examination of proventricular mucosa revealed diffuse, moderate diphtheritic proventriculitis (Fig. 6). Gizzard showed no changes of pathological significance.

Most cases of intussusception occurring in small and large intestine were reported by many researchers. The incidence of intussusception of proventriculus into gizzard was very rare except few reports (Sharma, 1972). The etiology of intussusception of proventriculus into gizzard was unknown (Sharma, 1972; Shrivastava *et al.,* 1989; Reimers *et al*., 2019). However, it is possible that weakness of the musculature, especially near the junction of the proventriculus and gizzard or hypertrophy of the wall followed by dilatation, caused by dietary factors or microbiological agents, may be pre- disposing etiology for the development of this condition. Intussusception of intestine was also related to abnormal peristalsis, ulcer, growth or swelling caused by coccidian parasite (Sharma, 1972). Intussusception is usually associated with active inflammation that severely disrupts the motility and promotes the narrower segment to get into the lumen of the broader one (Samour, 2000). In the present case, proventriculus was completely invaginated into gizzard and this finding was in accordance with earlier studies of Sharma, 1972 who reported three cases of complete and one case of partial invagination. Histopathological examination showed diffuse patchy diphtheritic proventriculitis and this lesion was in consistent with Ikezawa *et al.,* (2008) who reported pseudomembrane proventriculitis in intussuception of proventriculus in chicks. Diffuse necrosis and ulceration of the proventriculus mucosa (Reimers *et al*., 2019) and degenerated mucosa with infiltration of lymphoid cells (Sharma, 1972) were reported. In the present case, intestinal lumen impacted with huge number of round worms (*Ascardia galli*). This may or may not be the predisposing factor for development of intussusception of proventriculus into gizzard. However, this condition might have led to weakness of musculature between proventriculus or increased peristalsis associated with intestinal helminthiasis (*Ascardia galli* infection).

Fig. 1. Abdorminal cavity - Esiogagys durectkt ebterubg ubti guzzard

Fig. 2. Gizzard having bulging on the dorsal surface

Fig. 3. Cut section of gizzard with partial inavagination of proventriculus into the gizzard

Fig. 4. Proventriculus muscosa showing diphtheretic membrance

Fig. 5. Interstine lumen contained huge number of roundworms

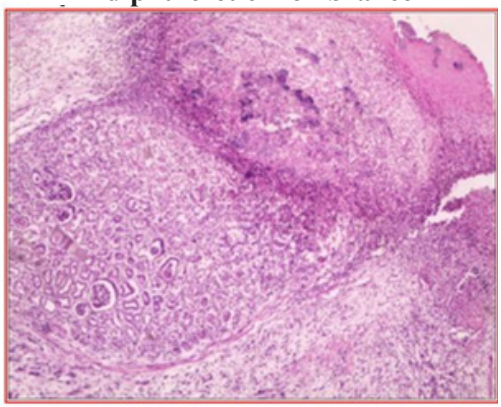

Fig. 6. Microscopically proventriculus muscoasa revealed diphtheretic membrance formation (H&E) - 400X

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