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Incidence, anamnesis and clinical manifestation of mechanical intestinal ileus in cattle

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Abstract

The present paper describes retrospective study of incidence, anamnesis and clinical manifestation of mechanical intestinal ileus in 35 cattle presented to the veterinary clinical complex, veterinary college and research institute, Namakkal, Tamil Nadu. Incidence of intestinal obstruction was higher in female cattle compared to males. Higher incidence of mechanical intestinal ileus observed in jersey cross breed in the present study. The incidence of intestinal obstruction was higher in 2 to 5 years of age. Anamnesis revealed acute abdominal pain followed by reduced feed intake, progressive cessation of defecation and abdominal distension. Prominent clinical signs observed were complete absence of feed and water intake, severe dehydration with congestion of mucus membranes, cessation of rumination with rumen atony, distended right flank with ping sound in caecal dilatation. In all the animals per rectal examination revealed, empty rectum with blood tinged or tarry colored faeces.

Keywords: anamnesis, clinical manifestation, intestinal obstruction

Introduction

Mechanical Intestinal ileus is an abdominal emergency and poses a significant diagnostic challenge to clinician. Mechanical intestinal ileus is the major cause of intestinal obstruction which occurs due to wide variety of causes which includes luminal and extra luminal obstruction such as complicated hernias, faecoliths, volvulus, mesenteric torsion, caecal dilatation, intussusception, abscess and tumors (Radostits, 2007 and constable, 1997) [20, 5]. Prominent clinical signs are abdominal colic with anorexia, progressive cessation of defecation, scanty mucoid or blood stained faeces, abdominal distention, severe dehydration and toxemia leading to shock and recumbancy (Anderson & Ewoldt, 2005) [2].

It is an emergency surgical condition results in to death very quickly due to the secondary changes caused by obstruction (Frank, 1981) [9]. The present paper reports incidence, anamnesis and clinical manifestation of mechanical intestinal ileus in cattle.

Materials and Methods

The present work was carried out in cattle presented to the veterinary clinical complex, veterinary college and research institute, Namakkal with a history of not voiding the dung from April 2019 to October 2021. Incidence was studied based on sex, age, breed, season and pregnancy status. Age wise incidence was recorded in below 2 year, 2 to 5 years and above 5 years. Pregnancy wise incidence was recorded as in 0-3 months, 4-6 months and above 6 months of gestation. Season wise incidence was recorded as summer (March –June), monsoon (July-October) and winter (November –February). In the present study anamnesis and prominent clinical signs were recorded regarding duration of illness and feeding history.

Results and Discussion

Incidence of mechanical intestinal ileus predominantly observed in females compared to males. Out of 35 cattle, 95% (n=33) were females and 5% (n=2) were males. The higher incidence of intestinal obstruction in females might be due to the prevalence of females than males in around the Namakkal district. Disposal of male calves and increased rearing of dairy animals could be another factor for more number of female populations. Similar findings earlier reported by Dharmaceelan *et al.*, (2012) [7] and Mann *et al.*, (2019).

Age wise incidence, predominantly observed in animals aged between 2 to 5 years, was 71.5% (n= 25) followed by above 5 years, 22.85% and 5.65% in below 2 years age.

Present findings were in accordance with the Kushwaha *et al.*, (2012) [17], Mann *et al.*, (2019), reported higher incidence of intestinal obstruction in 2 to 4 years age group. In contrary to the present findings, Singh (2015) [22] reported the higher incidence of intestinal obstruction in adult animals above 5 years.

Higher breed wise incidence, observed in jersey cross (62.85%) followed Holstein Friesian cross, (28.57%) and native breeds (8.58%). However, Mann *et al.*, (2019), reported higher incidence in Holstein Friesian cross, (70%) followed by Jersey cross (62.85%). Constable *et al.*, 1997 [5] observed the increased incidence in Brown Swiss cattle relative to the Holstein Friesian. The higher incidence in Jersey cross breed was attributed to raring of more number of Jersey cross breed in and around the Namakkal. Similar finding were observed earlier by Shinde (1996) and Dharmaceelan *et al.*, (2012) [7].

Prevalence of intestinal obstruction majorly observed in pregnant animals. Out of 33 female animals with intestinal obstruction, 75.75% (n=25) were pregnant, 24.25% (n=8) were non pregnant. Out of 25 pregnant animals, 64% (n=16) were in 4 to 6 months of gestation, 20% (n=5) were in 0 to 3 months of gestation and 16% (n=4) were in above 6 months of gestation. Higher incidence of intestinal obstruction was observed in pregnant animals in mid gestation (4 to 6 months). The present findings were in accordance with Sharma *et al.*, (2003) [21]. However, Dharmaceelan *et al.*, (2012) [7], observed the gastro intestinal obstructions, equal percentage in pregnant and non-pregnant animals. In contrary to the present findings, Mann *et al.*, (2019) reported the higher incidence (63.33%) in non-pregnant animals.

Out of 35 clinical cases, 34.28% (n=12) were admitted in summer season (March-June), 42.85% (n=15) in monsoon season (July-October) and 22.87% in winter season (November- February). Incidence of intestinal obstruction was observed in all seasons. But moderate higher incidence of intestinal obstruction observed in monsoon season. Present observations were in accordance with Dharmaceelan *et al.*, (2012) [7]. However, Sharma *et al.*, (2003) [21]; Nuss *et al.*, 2006 [19] and Mann *et al.*, (2019) reported the higher incidence in winter season.

Anamnesis and clinical manifestation

i. Feed and water intake

Complete anorexia with suspended rumination observed in all the animals (100%, n=35). Reduced water intake observed 20% of the animals with intestinal obstruction. Similar findings were reported earlier by Kushwaha *et al.*, (2012) [17] and Vishnugurubharabn *et al.*, (2015) [27]. Complete anorexia and reduced water intake might be due to acute abdominal pain followed by reduced or absence of rumen motility (Steiner *et al.*, 2008) [24].

In the present study observed that higher incidence of intestinal obstruction reported in animals fed with poor quality paddy straw and tapioca flour (83.33%). Similar finding were observed by Mann *et al.*, (2019). However, intestinal obstruction was recorded on all types of feeds earlier by constable *et al.*, (1997) [5], Hasunuma *et al.*, (2011) [11] and Fubini and Ducharme (2014) [10]. Sudden change of diet with concentrate and tapioca flour reported in all the cases. It might be the reason for altered intestinal motility and development of intestinal obstruction. Occurrence of intestinal obstruction and caecal dilatation were reported with sudden change in diet by Anderson and Ewoldt (2005) [2]

Karapinar and Kom (2007) [14] and Imran *et al.*, (2011) [13].

ii. Duration of illness

In the present study, all the animals had acute onset of disease and presented the case to the clinics within a period of 2 to 10 days. Average mean duration of illness was 6.78 ± 0.53 days. In Animals with delayed presentation (> 10 days) showed no signs of colic, severe bilateral abdominal distension, dehydration, sunken eyes with congestion of mucus membranes, distended intestinal loops per rectum and in sternal recumbancy (Fig.1 & 2). Present findings were in accordance with Abutarbush and Naylor (2006) [1], Mestry *et al.*, (2011) [18]. However, Nuss *et al.*, (2006) [19] observed no correlation between the duration of the disorder and the severity of symptoms with intestinal impaction in 22 cows.

iii. Faecal output/Types of faeces

Complete cessation of defecation observed in all the cases. As per the history given by the owner, on straining, 66.37% animals passed mucus with scanty faeces and 33.33% animals passed tarry colored faeces. Progressive cessation of defecation with or without mucus discharge has been reported as a prominent clinical sign in intestinal obstruction by Dharmaceelan *et al.*, (2018) [8] Vigneswaran *et al.*, (2019) [26], Khalphallah *et al.*, (2021) [15].

iv. Tympany

History of tympany was not reported in majority of the animals 77.78%. 22.22% of animals showed tympany on early stage or course of intestinal obstruction. Rumen tympany might be due to impairment of eructation process due to ruminal atony. Similar findings reported earlier by Braun *et al.*, (2011) and Hussain *et al.*, (2015) [12].

v. Abdominal contour

Abdominal distension was observed in 88.89% of the animals. Unilateral right side distension was observed in 66.67% animals, bilateral distension in 22.23% animals and normal abdominal contour in 11.1%. Right flank distension predominantly observed in animals with intestinal obstruction. Abdominal distention could be due to the accumulation of fluid and gas in the intestine proximal to the obstruction. Present findings were in line with Anderson and Ewoldt, (2005) [2] and Radostits *et al.*, (2007) [20]. However, Smith and Jones (2009) [23] observed the normal left flank in animals with intestinal obstruction and stated that it might be due to the less filling of fore stomach during course of disease

vi. Abdominal pain

History of colic recorded in initial course of disease up to 12-16 hours and animal showed signs of kicking at the belly, frequent lying down and getting up, straining to defecate and with abnormal posture (Radostits *et al.*, (2007) [20].

vii. Physiological parameters

Significant alteration in the body temperature and heart rate was observed in animals with intestinal obstruction compared to the normal values. The mean \pm S.E of temperature, heart rate and respiratory rate were 39.87 ± 0.34 °C, 81.24 ± 0.28 and 22.34 ± 0.18 . Present observations were in accordance with the Anderson, (2008) and Khalphallah *et al.*, (2021) [15]. Increased temperature and heart rate could be due to the abdominal pain, inflammation and intestinal necrosis. However sub normal temperatures were reported by Imran *et al.*, (2011) [13]

and Mann *et al.*, (2019).

No significant variation was observed in respiratory rate among the animals with intestinal obstruction and was found to be within the normal range. Kumar, (2014) ^[16] observed no alteration in respiration rate in cases of intestinal obstruction. However, Anderson *et al.*, (1993) and Singh *et al.*, (2001) reported increase in respiratory rate.

In all the animals (100%, n=35) dehydration was evident and varied from 6 -10%. Varied degree of dehydration in intestinal obstruction could be due to reduced or complete absence of water intake and sequestration of fluids in to proximal part of intestine. Similar findings earlier reported by Tharwt, (2011) and Anderson *et al.*, (2003)

Complete cessation of rumen motility observed in 88.88% animals Results were in agreement with the Zavita and Zavita (1960), Braun, (1985), Abutarbush and Naylor, (2006) ^[11] and Steiner, (2008) ^[24]. Reduced or complete absence of rumen motility observed because of colic due to excessive distension of intestine during intestinal obstruction (Smith and Jones, 2009) ^[23].

viii. Per rectal examination

Empty rectum observed on per rectal examination with mucoid or scanty faeces in all the cases. Tarry colored / raspberry jam consistency of faeces observed in animals with intestinal intussusception (Fig.3&4). Results were in accordance with Constable *et al.*, (1997) ^[5], Ortolani *et al* (1995) and Kushwaha *et al.*, (2012) ^[17]. Per rectal examination revealed distended loops of intestine in all the animals (100%) with intestinal obstruction. Distended cylindrical organ was palpable close to the right flank corresponded to the caecal dilatation. Similar findings observed earlier by Braun *et al.*, (2012) ^[4] and Dhar *et al.*, (2015) ^[6], stated that per rectal examination has been used as an important diagnostic tool to study the caecal dilatation and torsion. Palpable mass was observed only in 60% of the animals with intussusception. Rumen was impacted and doughy on per rectal examination in all the animals. Present findings were in accordance with the Mestry *et al.* (2011) ^[18] and Mann *et al.* (2019).



Fig 1-2: Photographs showing bilateral distension of abdomen with sternal recumbancy in animals with delayed presentation in intestinal obstruction



Fig 3-4: Photograph showing tarry colored faeces and mucoid faeces with blood strain on per rectal examination

Conclusion

Incidence of intestinal obstruction was higher in female, pregnant cross breed population compared to native breeds.

Sudden change in feed, feeding of poor quality fodder with concentrate and tapioca flour might be the predisposing factors for the development of intestinal obstruction.

Incidence of intestinal obstruction observed in all the seasons. The anamnesis and clinical manifestation were also important in diagnosis of intestinal obstruction and to choose appropriate surgical procedure and prognosis.

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