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Surgical Management of Small Intestinal Atresia in Sokoto Red Goats

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Abstract: Small intestinal atresia, an inheritable disease has a low incidence of occurrence in animals. In veterinary practice atresia is a commonly encountered congenital problems of the gastrointestinal system of small ruminants. This study therefore reports two clinical cases of small intestinal atresia and its management in Sokoto red goats.

Key words: Atresia, small intestine, goat

INTRODUCTION

Gastrointestinal disorders are commonly reported by clients in small animal practice, ranking second only to skin disease as a reason for veterinary evaluation^[1]. In domestic animals most gastrointestinal disturbances are acute and reversible requiring only supportive or symptomatic therapy to bring about a remission of signs. Chronic gastrointestinal disease is rarely self-limiting and for treatment to be effective it is usually essential to establish an accurate diagnosis and to prescribe specific therapy^[2]. Atresia an inheritable defect of the gastrointestinal system may not be noticed for several days in animals. This mean that faces cannot be passed and there is a build-up of waste material in the upper segment of the gastrointestinal system leading to abdominal distension and failure to thrive^[3].

Case presentation

Case 1: A two day old 3.5 kg Sokoto red goat (kid) was presented to Veterinary Teaching Hospital, Usmanu Danfodiyo University for non defecating since birth. The kid on presentation appeared depressed had a rectal temperature of 39.5°C, pulse rate was 70 min⁻¹ and respiratory rate 25 cycle/min. The abdomen was distended bilaterally with an area of tympharic resonance in the right paralumbar fossa. Distended loops of the intestine could be appreciated under the abdominal muscle. Digital palpation per rectum revealed a normal anus and rectum but only brown mucoid material in the rectum. Haematological examination revealed leucocytosis 23.2x10³ µL⁻¹, PCV was 40%, RBC 13x10⁶ µL⁻¹; neutrophils 24%; lymphocytes 55%; was eosinophils, 3%; monocytes 4%, basiphils 0%. Differential diagnoses included intestinal atresia, volvulus, intussusception and

intestinal incarceration. The kid was mildly sedated with 2% xylazine (Rompum® Germany) at a dose of 0.5 mg kg⁻¹ body weight i.m and 2% lignocaine was locally infiltrated at the right paralumbar fossa (inverted “L”). A right flank celiotomy was performed. Exploratory laparotomy revealed the distal portion of the jejunum to have a small blind portion, which was empty. The proximal portion of the small intestine was distended, filled with faces and fluid. Immediately below the distended portion of the intestine was a 2 cm segment of the atresia jejunum. Resection and anastomosis procedure was carried out on the intestine. The enterotomy was closed with 2-0 polyglycolic acid in horizontal mattress suture. The intestine was lavaged with sterile saline solution. The flank incision was closed routinely. Postoperative treatment included intravenous administration of 5% dextrose solution at a rate 100 mL h⁻¹ and 5% oxytetracycline at the dose of 20 mg was administered intramuscularly once daily for five days. The kid was discharged from the hospital 8 days after, for the next two months the kid maintained a good appetite and grew to the owners expectations.

Case 2: A 2 day old 3.5 kg Sokoto red goat (kid 2), was presented to Veterinary Teaching Hospital with the complain that the kid has not been observed to pass any meconium or faces since birth. On physical examination the kid appeared normal and had rectal temperature of 38.4°C. Respiratory rate was 24 min⁻¹. and pulse rate 75 min⁻¹. The abdomen was distended bilaterally with an area of tympanic resonance in the right paralumbar fossa. Distended loops of the intestine could be appreciated under the abdominal muscles. Digital palpation via the rectum revealed a normal anus and rectum. Haematological examination of the blood showed

WBC was $20 \times 10^3 \mu\text{L}^{-1}$, PCV, 30%, neutrophils, 20%, lymphocytes, 52%, eosinophils, 3%, basophils, 1%. Tentative diagnosis of suspected intestinal obstruction was made. Based on the above clinical signs, the animal was prepared aseptically for surgery. The kid was mildly sedated with 2% xylazine at the dose of 0.5 mg kg^{-1} body intramuscularly. 2% lignocaine was locally infiltrated at the right paralumbar fossa. The exploratory laparotomy of the abdomen revealed an atretic distal portion of the jejunum. A 10 cm segment of the distal portion of the jejunum including the blind end to an area where the diameter of the distended intestine was resected and the remaining ileum was anastomosed in horizontal mattress sutures pattern with 2-0 polyglycolic acid. The flank incision was closed routinely. Five percent oxytetracycline at 20 mg kg^{-1} was administered intramuscularly once daily for seven days. Five percent Dextrose solutions were administered intramuscularly at the rate of 100 mL h^{-1} . On day 2, i.v administration of fluid was discontinued and milk consumption from the doe was increased frequently at will. The kid was discharged from the hospital 10 days after surgery.

RESULTS AND DISCUSSION

In examining the gastrointestinal system, the passage of meconium should be ensured because meconium impaction is the primary cause of neonatal pain. Kids should have fecal matter on the thermometer. If none is present the probability of a non-patent gastrointestinal system in a kid that exhibits abdominal pain or straining to defecate should be considered. The clinical signs and laboratory values of the kids in this report were most consistent with an intestinal obstruction. The high packed cell volume in kid 1 was consistent with dehydration^[4]. The lack of faeces in the rectum and the failure of neonatal kids to defecate are typical of intestinal atresia^[5]. Unlike the literature on colonic atresia which suggests it to be a non-heritable trait, the etiopathogenesis of atresia jejunum has been rarely discussed^[6]. Palpation of the amniotic vesicle at the time of pregnancy diagnosis between 36 and 42 days of gestation has been implicated as one cause of colonic and small intestinal atresia^[7] in animals. Atresia jejunum has been reproduced experimentally by ligation of a jejunal ligation artery plus

the collateral supply from adjacent arteries in calves^[8]. Principles of surgical treatment were extrapolated from treatment of colonic atresia in calves and small intestinal atresia in human beings. The blind end was resected and anastomosed so that the lumen of intestine will remain patent for the normal physiological function of gastrointestinal system.

The study concluded that absence of diarrhea is a significant finding of the gastrointestinal system obstruction in atresia intestine. Borborygmi sound should be detected by auscultation. Abdominal distention or pings noted on auscultation are abdominal findings suggestive of intestinal obstruction in animals.

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