CASE REPORT
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SURGICAL MANAGEMENT OF UMBILICAL HERNIA CONCOMITANT WITH GASTROINTESTINAL FISTULA IN CALVES – REPORT OF TWO CASES

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ABSTRACT

Umbilical hernias are one of the most commonly encountered congenital defects in calves. Etiology of the defect can be improper closure of umbilical opening, hypoplasia, or maldevelopment of the abdominal musculature. Defect in mid-ventral line due to failure of closure of umbilical opening at an early embryonic stage could lead to congenital umbilical hernia. Abdominal viscera can pass through this large opening, which leads to further complications. This article reports two cases of umbilical hernia in calves, one with a complication of abomasal tear and other with intestinal tear evidenced by oozing of gastrointestinal contents through the umbilical orifice.

Keywords : Umbilical hernia, Calves Herniorraphy

INTRODUCTION

Hernia is a condition in which part of the organ of abdomen or pelvis, either protruded or displaced with the intact peritoneal layer, through a natural or pathogenic weak opening in the thoracic or abdominal cavity containing it, with intact skin. Omphalocoele (umbilical hernia) is the displacement of part of organ or complete organ through a defect in the abdominal wall at the region of umbilicus with intact skin (Doijode, 2019). Congenital umbilical hernias are common defects in calves, particularly in Holstein Friesian cattle where frequencies between 4-15 per cent have been observed (Hondele, 1986; Müller *et al.*, 1988; Virtala *et al.*, 1996). A genetic predisposition for this condition in cattle has been proposed (Ron *et al.*, 2004). Excess traction of an oversized foetus during dystocia or cutting the

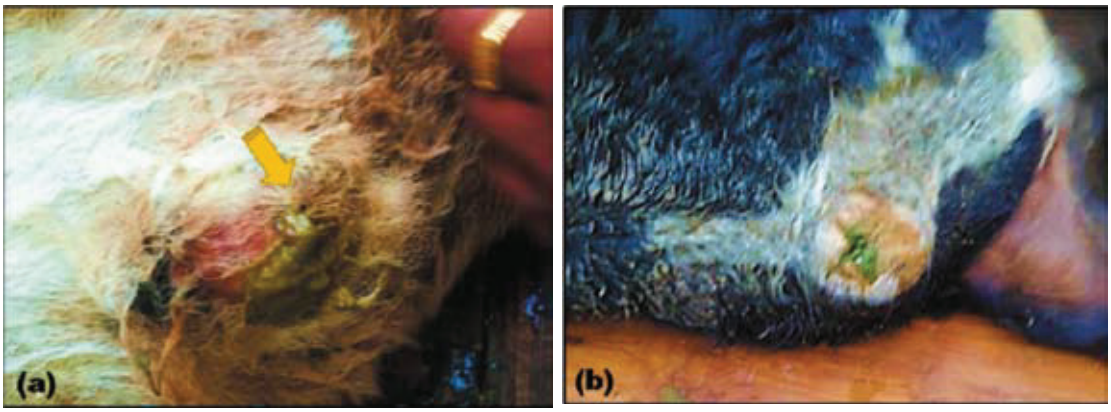

Fig. 1: Umbilical swelling with oozing out of digesta **(a)** shown by arrow (case 1.) **(b)** Case 2.

umbilical cord too close to the abdominal wall are other possible causes (Sutradhar *et al.*, 2009). Simple umbilical hernias are non-painful and reducible when palpated (Baird, 2008). However, hernias are sometimes accompanied by severe pain, which worsens during bowel movements, urination, or straining (Bendavid *et al*., 2001). Occasionally, a hernia can become strangulated, which occurs when the protruding tissue swells and becomes incarcerated. Strangulation will interrupt blood supply and can lead to infection, necrosis, and potentially life-threatening conditions (Heniford, 2015). The surgical management of hernia could be done either by primary repair (herniorraphy), mesh repair (hernioplasty) or laparoscopic correction (Demirkiran *et. al*., 2003). The present paper reports two cases of umbilical hernia concomitant with gastrointestinal fistula in calves.

CASE HISTORY AND OBSERVATION

A 3-month-old Jersey crossbred male calf and a 4-month-old crossbred Holstein Friesian male calf were presented with a complaint of oozing out of digesta

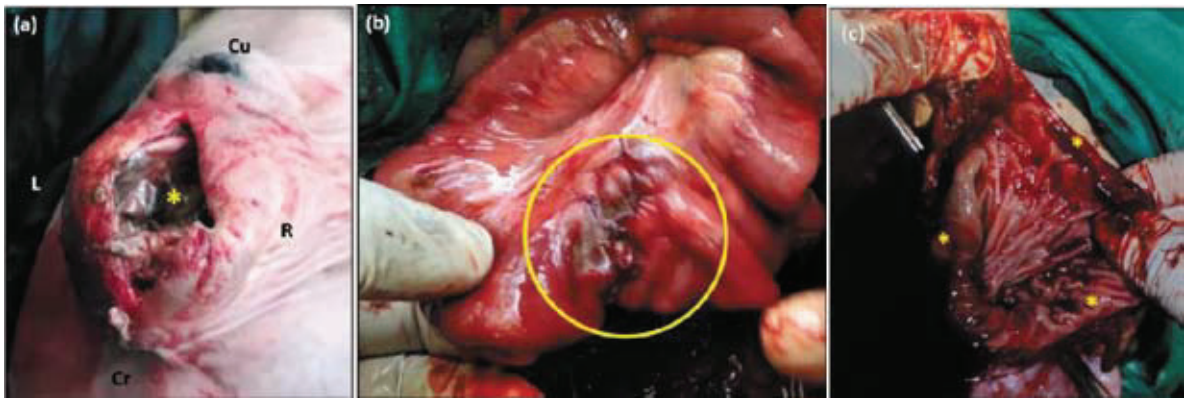

Fig. 2 (a) Opened umbilical swelling in case 1, presence of digesta oozed out (*)**,** Cu- caudal, Cr- cranial, L-left, R-right. **(b)** Tear on intestinal loop shown in circle. **(c)** Abomasal tear in case 2, edges of wound could be visualized.

through the umbilical orifice with a bulging in umbilical region (Fig.1a,b). On general clinical examination, animals were found to be normal except for distended abdomen. The physiological parameters were found to be within the normal range. On palpation of umbilical mass, the hernial ring could be felt. Based on the history and clinical examination, the case was tentatively diagnosed as the umbilical hernia with a complication of digestive tract rupture. For further confirmation, it was decided to perform exploratory laparotomy to identify the point of rupture and to take corrective action.

TREATMENT AND DISCUSSION

In both animals, umbilical area was cleaned and wiped with a clean cotton towel and cotton plugs are applied over the orifice in order to prevent the contamination of the site. The 24 hours fasted animals were administered with antibiotic Ceftiofur (Xceft™ inj.) @ dose rate of 2.2 mg/kg intramuscularly and Nonsteroidal anti-inflammatory drug (NSAID) Meloxicam (Melonex™ inj.) @ dose rate of 0 .3mg/kg intramuscularly. Sedated the animal using xylazine (Xylaxin® inj.) at the dose rate of 0.05mg/kg body weight intramuscularly and ketamine at the dose rate of 3mg/kg body weight intramuscularly. Animal was positioned in dorsal decumbency in order to prepare ventral abdomen for aseptic surgery. Elliptical local anaesthesia was performed by infiltration of Lignocaine hydrochloride (Lox®) 2 per cent @ 0.2 ml/kg body weight around umbilicus by using an 18G needle. Swollen umbilical skin was incised in a simple elliptical manner with a #22 scalpel blade with caution, to ensure adequate skin was available for skin closure after surgery. Then, the hernial sac was exposed after proceeding to the subcutaneous tissue with a Metzenbaum scissor around the mass. In the first case, it was found that the loop of the small intestine had a tear of about 5cm and the contents had being oozed out into the peritoneum and then through the umbilical orifice. The torn intestinal loop was retraced out through the wound, stay suture was applied for major mesenteric blood vessels, and the unhealthy intestinal segment was removed. Enteroanastomosis was performed by placing simple interrupted sutures using chromic catgut (size 1/0). Abdomen was lavaged with normal saline and contents were replaced into the abdominal cavity. Muscles were apposed by using Polyglycolic acid (PGA) (size 1/0) in simple continuous pattern and skin was apposed by nylon. These sutures were removed by 14 day, post-operatively.

In second case, exploratory laparotomy was conducted as previous case and found that the contents being oozed out from a puncture hole of abomasum.

Extensive abdominal lavage was performed by using normal saline. Edges of the abomasal wound were scarified and apposed by Connell's followed by Lembert's suture patterns using chromic catgut (size 1/0). The procedure is represented in Fig. 2. In both cases post-operative antibiotic care was provided and both animals recovered uneventfully.

Singh *et al.* (2006) reported that umbilical hernias were defect in abdominal wall with multi-factorial aetiology which resulted in globular swelling at the point of the umbilicus. Defect in mid-ventral line due to failure of closure of umbilical opening at early embryonic stage leads to congenital umbilical hernia. Abdominal viscera like intestine, abomasum, omentum can herniate through this large opening, leading to further complications. Baird (2016) reported that hernia and associated complications could be surgically corrected by herniorrhaphy. Here, in both cases, herniorrhaphy was performed successfully. The author also stated that incarceration of masses like intestine especially jejunum and abomasum could lead to tearing of viscus and complications as reported in the present study.

Enterocutaneous fistula could also be a reason for oozing out of digesta from abdomen in various animals (Fubini and smith, 1984, Rijkenhuizen and Sickmann 1995). Pyloro-duodenal hernia with enterocutaneous fistula, surgically corrected by ventrolateral herniorrhaphyin a buffalo was reported by Kamalakar *et al* (2015). Umbilical herniation of large colon in a five-month-old foal was reported by Bodaan *et al.* (2014), which suggested the chances of occurrence of even large intestinal herniation through the umbilical region in animals. So the conditions should be properly explored and corrective measures should be adopted.

SUMMARY

Umbilical hernia is one of the common types of hernia seen in calves due to multifactorial aetiologies. It has breed, age and sex predispositions according to previous studies. With appropriative surgical management, hernia and its complications can be corrected completely.

Ethics statement: This study does not involve animal experimentation and was conducted on cases reported in the hospitals, following standard operating protocols of animal handling and sample examination, upon informed consent of owners.

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