

Surgical Management of Ventral Hernia in a Deoni Crossbred Cow

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Hernia is defined as the protrusion of the contents of a body cavity through a normal or abnormal opening in the cavity's wall, either beneath the intact skin or into another adjacent cavity (Tyagi *et al.*, 2020). There are several types of hernias that can occur in cattle; however, the most common are ventral and umbilical hernias. A ventral hernia occurs when the intestines protrude through the abdominal wall. Ventral hernia develops as a result of external forces or trauma to the abdominal wall, kick, falling on blunt object, weakening of the abdominal musculature, or rupture of the prepubic tendon or due to heavy body weight (Frank, 1981). Type of hernial contents depends on the site of hernia and most commonly the contents will be intestinal loops, mesentery, spleen or liver lobe. Diagnosis of the ventral hernia can be done by physical palpation in standing or recumbent position and radiography (Abdin-Bey and Ramadan, 2001; Singh *et al.*, 2012). Hernias should be treated as soon as possible; otherwise, severe complications such as bowel incarceration, adhesions and strangulation may occur, with a very poor and life-threatening prognosis. The most common surgical approach for treating this defect is exploratory laparotomy followed by herniorrhaphy. Furthermore, when the diameter of the hernial ring increases, the use of various types of synthetic mesh for hernioplasty is required (Elce *et al.*, 2005). The present case describes the surgical management of ventral hernia in a cow by herniorrhaphy.

CASE HISTORY AND CLINICAL OBSERVATIONS

A Deoni crossbred cow weighing around 300 kg was presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Bidar (India) with the history of swelling near the right ventral abdomen and increasing in the size over a period of a time. One month back cow had infighting with the other cow in the herd and again since three days back there was an infighting injury to the swelling and contents were oozing out through the opening on the swelling. Physical examination revealed a round shaped protruding mass with intestinal contents oozing out through the opening on the swelling and it was just below the level of stifle joint on right side of the abdomen (Fig. 1). The mass was irreducible and upon radiological examination it was diagnosed as ventral hernia (Fig. 2). Preoperatively

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physiological and haemato-biochemical status of the animal were assessed and were within the normal physiological limit.

TREATMENT AND DISCUSSION

Before surgery, cow was fasted for 48 h and water was withheld for 12 h. Animal was stabilized with fluid therapy and antibiotics. Preoperatively cow was administered with inj. Amoxicillin (12.5 mg/kg, IV). Anaesthesia was achieved using inj. Guaifenesin (50 mg/kg, IV) and after 5 min it was sedated with inj. Dexmedetomidine (2.5 µg/kg, IV). Cow was induced with inj. Ketamine (3 mg/kg, IV) and maintained under Isoflurane anaesthesia (1.5-2.5%). The cow was taken on left lateral recumbency, surgical site was prepared for aseptic surgery (Fig. 3), and linear incision was made on the protruded mass. Hernial contents were thoroughly washed with lukewarm normal saline solution and examined. Intestinal loop along with the mesentery was the hernial content (Fig. 4). All the adhesions were removed and perforation in the intestine was closed with Cushing suture pattern using 2-0 chromic catgut and rent in the mesentery was also closed with simple continuous pattern using 2-0 chromic catgut. After performing the leakage test intestinal loop along with mesentery was repositioned back into the abdominal cavity. Hernial ring was dissected and exposed (Fig 5). Hernial ring was closed with vest over pant technique using two layer silk No 2 threaded to a large curved needle (Fig. 6). Abdominal muscles, subcutaneous tissues and skin were closed using standard suturing techniques. Ointment Cipladine was applied on the surgical wound and bandaging was done in routine manner. Post-operatively cow was treated with inj Amoxicillin (10 mg/kg,

IV) BID and inj Meloxicam (0.3 mg/kg, IV) for 5 days. Skin sutures were removed on post-operative 15th day. Post-operatively physiological parameters like heart rate, respiratory rate and rectal temperature and haemato-biochemical parameters were recorded and were within the normal physiological limit. Cow was stabilized with 5% dextrose solution.

In the present case right ventral hernia with swelling in the abdomen just below the level of stifle joint was found in

the cow, which was similar to the reports of Singh *et al.* (2012) and Munif *et al.* (2022). Ventral hernia has been previously reported in other species also (Preethi *et al.*, 2018; Doijode and Beerappa, 2019). According to the owner hernia had developed after infighting with the other cow. So the tearing and rupture of the external and internal obliques, rectus and transversus abdominis muscles during infighting might have resulted in the protrusion of intestines out of the



Fig. 1: Swelling near the right ventral abdomen



Fig. 2: Radiography of right lateral ventral abdomen



Fig. 3: Preoperative surgical site

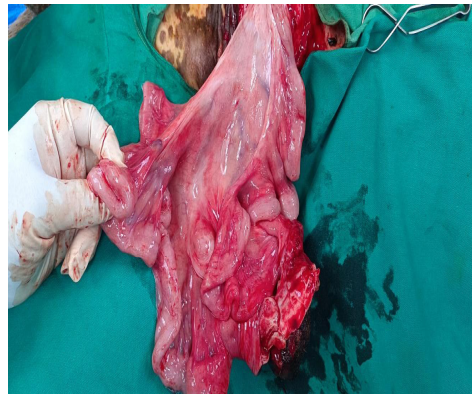


Fig. 4: Hernial contents (intestinal loops)



Fig. 5: Hernial ring

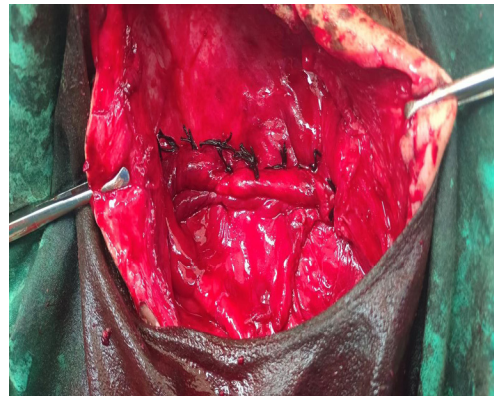


Fig. 6: Hernial ring closure by vest over pant technique

abdominal cavity and beneath the subcutaneous tissues (Munif *et al.*, 2022). Other causes for abdominal hernia might be trauma, congenital, increased intra-abdominal pressure during pregnancy, infection and weakening of abdominal muscles (Al-Sobayil and Ahmed, 2007; Kumar *et al.*, 2019; Amare and Haben, 2020). The present case was repaired surgically using herniorraphy as done by others (Singh *et al.*, 2012; Kumar *et al.*, 2019; Munif *et al.*, 2022). Hernioplasty is used conventionally to repair very large and chronic abdominal hernias (Singh *et al.*, 2012; Doijode and Beerappa 2019). There are other several conservative treatments including pressure bandage, application of hernia clamps and ligatures to repair very small and reducible hernia. In the present case hernial ring was not too large, hence it was decided to perform herniorraphy and the cow recovered uneventfully without any wound complications in 20 days.

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