

Case Report

Surgical Intervention of Umbilical Hernia in Dairy Cross Holstein Friesian Calf

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Abstract | Hernia is a protrusion of an organ or tissue through an opening. The present study describes a typical case of hernia in four weeks old cross Holstein Friesian dairy breed calf with hanging mass in the umbilical region. Tentative diagnosis was made through clinical sign and physical examination; the area was incised under local anesthesia. After surgical procedure site was closed by applying mattress sutures. Adjunct therapy of broad-spectrum antibiotic was administered intramuscularly for five days as a post-operative measure. Catamnesis revealed that the healing was complete in 14 days with no recurrence and untoward consequences.

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Summary

A hernia is the exit of an organ through the wall of the cavity in which it normally resides. Incidence of congenital defects in cross breed cattle is 0.2-3%, with 40-50% born dead. Umbilical herniation is a very common surgical condition in dairy Holstein Friesian and other cattle breeds. It may be inherited by a dominant character with incomplete penetrance, or be conditioned by environmental factors. It is unlikely to be sex linked (Weaver et al., 2005). Congenital umbilical hernias are of concern for heritability. The most common viscera involved in umbilical hernias in cattle were the abomasum with or without omentum. Complication may develop if not treated properly and can increase the complexity and repair expense. The only remedy is surgical operation under local block after proper sedation to obliterate the hernia sac and repair hernia defect.

History and Clinical Examination

Four weeks-old cross Holstein Friesian calf was

brought to the outdoor clinic of Veterinary Teaching Hospital, Department of Animal Health, Faculty Animal Husbandry and Veterinary, The University of Agricultural Peshawar. Clinical signs revealed that hanging mass (reducible) through an opening in ventral abdomen wall around umbilicus region under the skin confirmed the condition of umbilical hernia (Figure 1). The vital parameters of health (pulse beat/min, respiration breath/min and rectal temperature) were within normal ranges.

Surgical Management

The sites were prepared aseptically for surgical procedure. Sedation was given with xylazine hydrochloride (0.1mg/kg body weight; AnaSed, Bayer Corporation, USA; Shah et al., 2013, 2014) and local area made desensitized by infiltrating 2% xylocain hydrochloride (Akhter, 1999). Calf was placed in dorsal recumbency on surgical table and legs were fixed cranially and caudally from surgical field. Clip extensive area of ventral abdominal wall, scrub and disinfect three times. Once abdominal incision of adequate length was completed,



Figure 1: *Before Surgical Procedure*



Figure 2: *Surgical procedure*



Figure 3: *Post-Surgical Procedure*

the wound edges were protected with laparotomy pads moistened with sterile saline solution. Gave elliptical skin incision around hernial base, continue along mid-

line ventral abdominal wall cranial and caudal to limits of hernial ring, dissect subcutaneous tissue bluntly to expose the hernial sac, carefully incised hernial sac at junction of body wall and sac and insert finger into abdominal cavity then closed abdominal wall (i.e., linea alba, rectus abdominis, external oblique muscle, internal oblique muscles), defect by simple interrupted sutures of absorbable material such as polyglactin 910 (DemeTECH's U.S. Small Business Administration South Florida District Office 100 South Biscayne Boulevard, 7th Floor Miami, Florida 33131-2011), apposed the skin edges by vertical mattress sutures (monofilament Nylon). (Figure 2 and Figure 3)

Postoperative Measures

Animal was physically examined for any abnormality and fed on Jantar grass with free excess to water. Give systemic antibiotics for three days to check infection, and skin wound was dressed aseptically with dilute povidone-iodine solution until complete healing followed by removal of stitches on ten day postoperatively, give water and a little concentrate for the first two days, then normal diet was resumed.

Discussion

Incidence of congenital defects in cattle is 0.2-3%, with 40-50% born dead. Most defects are visible externally. Congenital defects reduce the value of affected calves. Umbilical herniation is a very common surgical condition in dairy Holstein Friesian and other cattle breeds. It may be inherited by a dominant character within complete penetrance, or be conditioned by environmental factors. It is unlikely to be sex linked (Weaver et al, 2005).

Congenital umbilical hernias are of concern for heritability (this has been shown to be true for Holsteins). However, many umbilical hernias are secondary to umbilical sepsis. Hernias are made up of hernia sac, peritoneum, and may contain peritoneal fluid and viscera. The most common viscera involved in umbilical hernias in cattle were the abomasum with or without omentum. Hernias may be small at birth and enlarge with age. These should be differentiated from umbilical sepsis. Simple (or uncomplicated) hernias are easily reducible. Complicated hernias (incarcerated viscera usually without strangulation, or concurrent infection of umbilical structures) cannot be completely reduced (Anderson, 2004). Uncomplicated con-

genital umbilical hernias that have persisted until 5-6 months of age, gradually enlarged over time, or failed to respond to conservative therapy (Adam and Fessler, 2000). Complication may develop in congenital umbilical hernias, which can significantly increase the complexity and expense to repair.

The goal of surgical repair was to obliterate the hernia sac and repair of the defect in abdominal wall. Alternatives to surgical repair of hernias include the application of hernia clamps elastrator rings and the injection of irritating substances around the base of the hernia sac. These alternatives were usually successful in obliterating the hernia sac, but do not directly repair the defect in the abdominal wall. The only remedy is surgical operation under local block to obliterate the hernia sac and repair hernia defect in calves.

Authors' Contribution

Dr Zahir Shah performed surgery, Dr Shakoor Ahmad assists in anesthesia, Mian Saeed Sarwar and Dr Javid Ali assist in surgery and Dr Murad Ali remain in contact with owner in post-surgery period.

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