Surgical Management of Umbilical Hernia in a Holstein Friesian Crossbreed Calf at SAQTVH, CVASU, Chattogram

A Clinical Report Submitted By

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Surgical Management of Umbilical Hernia in a Holstein Friesian Crossbreed Calf at SAQTVH, CVASU, Chattogram

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Abstract

This clinical report discusses the surgical management of an umbilical hernia in a three-month-old Holstein Friesian crossbreed calf. The calf, which exhibited swelling around the umbilical region, was brought to SAQTVH, CVASU, Chattogram. Upon examination, a three-finger-wide umbilical hernia was diagnosed. The calf underwent herniorrhaphy surgery, and post-operative care involved antibiotics and anti-inflammatory medications. After two weeks, the calf had healed without any recurrence of the hernia. The report highlights the effective treatment of umbilical hernia in a hospital setting.

Keywords: Herniorrhaphy, Hernial Ring, Umbilical hernia

Chapter I: Introduction

Hernia is the protrusion of an organ or tissue through an opening. The opening may be one caused by a tearing in the abdominal wall or diaphragm or it may be natural opening like the inguinal canal or femoral canal. (Farman *et al*., 2018). The hernia can be reducible (manually or automatically return the hernial contents into the abdominal cavity) or irreducible (the hernial contents cannot be return into the abdominal cavity). According to their anatomical location hernias are divided into umbilical, inguinal, scrotal, femoral, perineal, and ventral or abdominal hernia (Fossum, 2012; Farman *et al*., 2018).The most common type of congenital hernia in calves is the umbilical hernia and most common site is abdominal wall .(Fesseha, 2020).Though all the breeds of cattle are susceptible, but it is more frequent in Holstein-Friesian, young (5-7 week) cattle's are more affected, and it is more common in female cattle than male cattle (Fesseha, 2020).

Additionally, multiple births (twins, triplets, etc.), external trauma to the umbilicus, secondary umbilical sepsis, hereditary factors, umbilicus inflammation and sepsis, umbilical infection following calving, breakage of the umbilicus during manual traction of the fetus, and hypoplasia of the abdominal musculature are thought to be the cause and predisposing factors (Misk *et al.,* 2008; Kumar *et al.,* 2014). From the history and by palpating the hernial area, the main diagnosis was obtained (Jaman et al., 2018). However, in certain situations, an exploratory puncture of the bulge and the display of intestinal contents serve to confirm the diagnosis (Jaman et al., 2018).

Surgical correction is the best treatment option for hernia (Fesseha, 2020).The most common method primary repair to hernia is known as herniorrhaphy, it is a surgical procedure that includes placing sutures in a straight line in the abdominal area. The second type is mesh repair which is well known as hernioplasty.it is also a surgical procedure that uses network or wires to treat large and complex hernia .Besides, these two surgical methods a combination of primary and mesh is used in complex abdominal hernial treatment(Jaman et al., 2018).The present study describes the successful management of an umbilical hernia in a female calf.

Chapter II: Case presentation

2.1 Case history and observation

Three months old, and weighing around 48 kg, a Holstein Friesian crossbred calf was brought in to SATQVH, CVASU, Chattogram with a history of swelling in the umbilical area. The swelling had been persistent from birth, but it had recently gotten larger. During the clinical examination, recurrent swelling that hangs around the umbilicus was found. The width of the hernial ring was three fingers. The patient's overall health was satisfactory, and other clinical parameters such as heart rate, respiration rate, and rectal temperature were all within acceptable bounds. After a clinical examination, an umbilical hernia was diagnosed and corrected by herniorrhaphy.

2.2 Surgical procedure

2.2.1 Patient preparation

The animal was fasted for 6 hours. Intravenously Diazepam (Sedil 2%; Square Pharmaceuticals, Bangladesh) was used to sedate the animal at a dosage rate of 0.5 mg/kg, the surgical site was aseptically prepared by using savlon three times, 7.5% povidone iodine three times and lastly alcohol three times.

2.2.2 Anesthesia

After patient preparation, a circular local infiltration of 2% lidocaine hydrochloride (Jasocaine, Jayson Pharmaceuticals Ltd., Bangladesh) at a dosage of 8 mg/kg body weight was administrated in the umbilical area for the purpose of local analgesia. The calf was administrated intravenously of 0.9% normal saline (ACME Laboratories Ltd., Bangladesh).

2.2.3 Surgical method

The animal was held in a dorsoventral position. Elliptical skin incisions were used to liberate the parietal peritoneum, and blunt and sharp dissection were used to break the skin adhesions. The section of small intestine that had been withdrawn by evisceration was put back into the abdominal cavity using digital manipulation. The hernial rings were cleaned, exposed, and finally sealed with horizontal mattress sutures by prolene 1 (Ethicon, USA). For more security, simple interrupted suture was given by vicryl 1 (Ethicon, USA). Excess skin was removed for better adhesion after the

subcutaneous tissues were continuously stitched by vicryl 1 (Ethicon, USA). Next, horizontal mattress pattern was used by nylon (Sutures India, India) to give suture on the skin. Povidone iodine was applied on surgical wound.

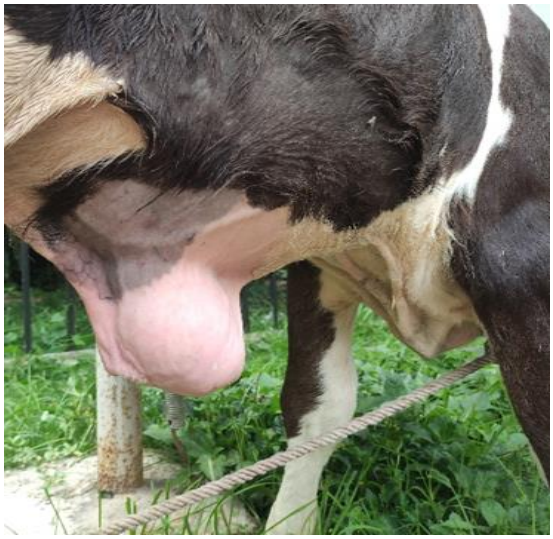

Figure1 : Clinical examination andevaluation of hernial ring

Figure2 : Skin incision and opening of the hernial ring

Figure3 : Apposition of the skin with simple interrupted suture

Chapter III: Results and Discussion

3.1 Post-operative care and Results

For post-operative care the wound was properly dressed twice daily for next five consecutive days with 6% Povidone Iodine ointment (Povidone, Amico Laboratories Ltd., Bangladesh). To check any further bacterial infection a combination of β-lactam antibiotics at the dosage rate of 40000 IU/Kg body weight (Benzylpenicillin + Procaine Penicillin) and aminoglycosides at the dosage rate of 20 mg/Kg body weight (Streptomycin) was given intramuscularly (IM) for five successive days along with non-steroidal anti-inflammatory drug (meloxicam) 0.5 mg/kg body weight (Melocam, Reneta Laboratories Ltd, Bangladesh) and antihistaminic preparation, pheniramine maleate (Asta Vet, ACME Laboratories Ltd., Bangladesh) was administered IM (1 mg/kg BW) once daily for 3 days. After two weeks surgical site was properly evaluated, proper healing without any reoccurrence and other complication was recorded and finally, the skin stitches were removed 14^{th} day post-operative.

3.2 Discussion

Hernia is the protrusion of an organ or tissue through an opening. It is more common in Bangladesh (Salim et al., 2015). Salim et al. (2015) reported that in Bangladesh, among cross breed claves (73.33%) hernia is more and 1-3 months of aged calves (46.67%) are more susceptible. In my study the patient was also a 3 months old cross breed calf which agree with the statement of Selim et al (2015). According to Salim et al. (2015) in comparison to female calves (36.67%), male calves suffered from umbilical hernia at a higher rate (63.33%). But in my study the affected calf was a female.

An external hernia, such as an umbilical hernia, is characterized by a swelling that is external to the body and can vary in size and shape (Doijode, 2019). In my study there was also a naval swelling on that calf which agree with Doijode (2019). Rectal temperature, pulse rate, and respiration rate were all determined to be normal in this type of case, indicating that the calf's physiological state was normal (Prasad et al., 2017; Mishra et al., 2020). The present case was reported in the HF cross breed had normal rectal temperature, pulse rate, and respiration rate which agree with the study of (Prasad et al., 2017) and (Mishra et al., 2020).

Several publications have also recommended herniorrhaphy for big hernial openings (larger than the size of a finger or if they continue longer than 3 to 4 weeks), although hernioplasty is necessary for extensive umbilical hernias (Abdin-Bey and Ramadan, 2001; Kumar et al., 2014; Fesseha, 2020). In this study herniorrhaphy was done as treatment. For the correction of reducible umbilical hernias in calves, closed herniorrhaphy is more effective compared to the frequently utilized open method (Salim et al., 2015)

Chapter IV: Conclusion

This clinical report described the successful surgical repair of a three-month-old Holstein Friesian crossbreed calf's of umbilical hernia. A three-finger-wide umbilical hernia was diagnosed, the calf had a chronic swelling in the umbilical area. Herniorrhaphy was the surgical procedure performed, Antibiotics and anti-inflammatory drugs were used for post-operative care. The hernia was healed after two weeks. Due to lack of sufficient treatment and facilities most of the rural farmers overlook it and sometimes quack gives wrong treatment. The study will improve the knowledge and treatment of umbilical hernias in bovine calves.

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Biography

Myself Zia Uddin , Son of Md Jahangir alam and Khaleda akter parul. I was born on 27th Auguest1997My home district is Feni, Chattogram. I passed my Secondary School Certificate examination in 2014 and gained a GPA of 5.00. I completed my Higher Secondary Certificate in 2016 from Govt. Haji Muhammad Mohsin College, Chattogram, where I achieved a GPA of 5.00. I am interested in volunteering, blood donation, painting, recitation, anchoring, photography etc., other than my academics. In future, I would like to work for the well-being of animals and pursue my dream career as a practitioner and researcher.

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