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Surgical management of umbilical hernia in a calf: A case report

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Abstract

Protrusion or displacement of an organ, part of an organ, or tissue outside the abdominal cavity through an abnormal opening in the abdominal wall which can be noted from the outside of an animal's body and can be detected with an external examination near the umbilicus is termed as Umbilical hernia. There are different types of hernia in small and large animals that are classified according to their anatomical locations into umbilical, inguinal, scrotal, femoral, perineal, and ventral (or abdominal) hernias. The present case report describes successful surgical management of umbilical hernia in a calf by herniorrhaphy.

Keywords: Calf, umbilical hernia, herniorrhaphy

Introduction

A hernia is a protrusion of the contents of a body cavity through a weak spot of the body wall. This may be from accidental or a normal anatomical opening, which does not completely fulfill its physiological function. It is a common defect in calves [2]. Hernias may be small at birth and gradually enlarge with age. The contents of an umbilical hernia are usually fat, omentum and, in some larger hernia, segments of small intestines. In cattle, large umbilical hernias are not uncommonly seen with an average frequency of 4-15% [8]. They develop from improper closure of the umbilicus at birth due to the developmental anomaly or hypoplasia of the abdominal muscles or from manual breaking or resection of the cord close to the abdominal wall [7]. Several methods for hernial treatment have been described. Ligation of the hernial sac, use of clamps, suturing of the hernial sac and radical operation are normally performed to correct the umbilical hernia, although open herniorrhaphy is the most common method of veterinary treatment [3].

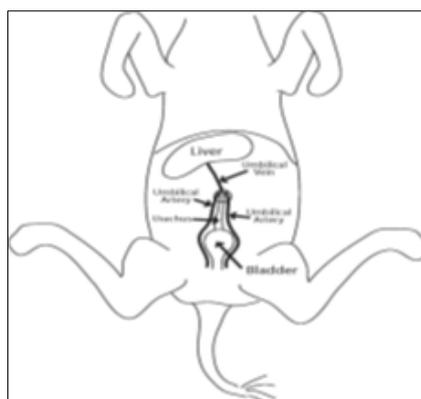


Fig 1: Umbilical remnants

Case History

A 35 day old female calf was presented to University Veterinary Hospital, Kokkalai. College of Veterinary and Animal Sciences, Mannuthy, Kerala. With a history of a reducible swelling in the abdomen since its birth. The size of the swelling was gradually increasing. On clinical examination, the calf had no pain on palpation of the swelling, the swelling was reducible and was protruding for about the length of 8 cms from the umbilicus, the hernial ring of about the width of two finger could be easily palpated. Open herniorrhaphy was planned to reduce the hernial contents.

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Fig 2: Calf with reducible hernia



Fig 4: Contents of hernia

Treatment

The animal was fasted for 24 hours and water was withheld for 12 hours prior to surgery. The site was prepared aseptically for surgical intervention and painted the operative area with Tr. Iodine. Inj. Xylazine @ 0.02 mg/kg Bw and Inj. Butorphanol @ 0.5 mg/kg Bw. were given intravenously as pre-anaesthetics. Inj. Ketamine @ 4 mg/kg Bw and Inj. Midazolam @0.2 mg/kg Bw were given intravenously for induction of general anaesthesia. The animal was maintained in general anaesthesia by administration of Inj. Ketamine+ Inj. Midazolam in 1:1 concentration intravenously upto effect. The animal was controlled in dorsal recumbency and the area around the defect was infiltrated with 5ml solution of 2% lignocaine HCL. An elliptical incision was given on the skin over the herniated mass, the hernial sac was separated from the skin by blunt dissection. A nick incision was made on the hernial sac. Intestinal loops were noticed along with omentum in the hernial sac. The herniated contents were reduced and the hernial ring was closed using polypropylene size 3 by using vaist over pant suture technique. A sterile polypropylene mesh was placed over the closed hernial ring and secured by using simple interrupted sutures using polyglactin 910 size 2. The abdominal muscles were sutured using simple interrupted sutures using polyglactin 910 size 2. Subcuticular sutures were done by using polyglactin 910 size 2. Skin was closed by using nylon by vertical mattress suture pattern. The skin sutures were sealed with tincture benzoin and bandaged. Post operatively Inj. Ceftriaxone+Tazobactam @ 15 mg/kg Bw and Inj. Meloxicam @ 0.2 mg/kg Bw were administered for 5 and 3 days respectively. The skin sutures were removed on 10th post operative day, the animal made an uneventful recovery.



Fig 5: Intestinal loops within the hernial sac



Fig 6: Closure of hernia ring



Fig 3: Surgical site prepared aseptically



Fig 7: Securing the polypropylene mesh



Fig 8: Animal made uneventful recovery

Discussion

The umbilicus in newborn calves consists of the urachus (a tube that attaches the fetal bladder to the placental sac) and the remnants of the umbilical vessels that transport blood between the fetus and its mother. Normally, just after birth these structures shrink until only tiny remnants remain within the abdomen (belly). If the area in the body wall through which these structures passed remains open, abdominal contents can protrude through the defect resulting in an umbilical hernia ^[1]. Hernia size varies depending on the extent of the umbilical defect and the amount of abdominal contents contained within it. Umbilical hernias are the most common birth defects in calves ^[2], especially in Holstein-Friesians ^[5]. Many umbilical hernias are secondary to umbilical sepsis ^[5]. Females calves showed higher incidence than male calves. The incidence of hernia was highest at 5 weeks of age ^[6]. Various methods have been described in the literature for the treatment of umbilical hernia including counter irritation, clamping, transfixation sutures and even safety pins and commercially-available rubber bands. The most popular technique among them is the wooden or metal clamp technique. This method may result in infection, loss of clamp or premature necrosis of the hernial sac. The latter complication can lead to an open wound, and possibly to evisceration or formation of an enterocutaneous fistula. These methods are suitable only for reducible hernia and not for strangulated or complicated ones ^[7]. If the hernia ring is more than one finger in size or persists for more than 2 to 3 weeks, than surgical intervention is indicated ^[4]. Open method of herniorrhaphy is always indicated for older calves when adhesion or abscess is commonly associated with umbilical hernia. Herniorrhaphy can be done by simply closing the abdominal wall with a horizontal mattress pattern of stitches using absorbable or non-absorbable sutures ^[1, 4].

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