

SURGICAL CORRECTION OF AN OMPHALOCELE IN A NEW BORN CALF-A CASE STUDY

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Abstract: An omphalocele is a congenital defect in the body wall in which eviscerated abdominal organs are covered by a thin transparent amnion rather than the skin. A new born calf was presented within hours of unassisted calving with a protruding mass from the umbilical region. Clinical examination revealed umbilical hernia due to a congenital defect at the abdominal region called omphalocele. The condition was successfully corrected by herniorrhaphy under general and local anesthesia. The calf recovered completely.

Keywords: Omphalocele and herniorrhaphy.

1. Introduction

Omphalocele is an uncommon congenital condition due to midline defect in the umbilical and skin area that allow visceral organs (usually small intestine and a portion of liver) to protrude from the abdominal cavity. It occurs when one of the four body folds fails to migrate normally during embryologic development (Baird, 2008). Herniated contents are initially covered by a thin transparent membrane (amnion) rather than hair and are attached to the edges of the umbilical defect. Minor trauma resulted from improper handling of new born calf by the attendant or allowing dam to clean the calf without human intervention ruptures the membrane revealing the prolapsed contents to external contaminations which ended up in poor prognosis of the condition (Baird, 1993). Thus keeping the amnion intact by appropriate first aid measures by the attendant who is seeing the condition initially is much more significant than the ultimate treatment, herniorrhaphy.

2. Materials and Methods

2.1. CASE HISTORY AND OBSERVATIONS

A new born Holstein-Friesian crossbred calf was presented within few hours of unassisted birth with a history of protruded mass at the umbilical region. The farmer separated the calf

from the dam soon after calving to avoid accidental rupture of the herniated mass and covered with a clean cloth. On palpation the mass was non painful, soft and doughy in consistency. On gross examination intestine loops were visible through the transparent amniotic membrane. Based on history and gross examination the condition was diagnosed as an omphalocele and it was decided to correct by herniorrhaphy.

The contents of the swelling were non-deductible, even on application of moderate pressure.



Fig 1. Herniated mass covered by transparent amniotic membrane

2.2. Surgical intervention and treatment

The calf was sedated with xylazine hydrochloride at the rate of 0.1mg/kg body weight. The animal was restrained in lateral recumbency and the protruding mass was cleaned gently with normal saline solution. The area around the abdominal defect at the umbilicus was prepared for aseptic surgery and the operative area was painted with Tr. iodine. The area around the defect was infiltrated with 2-3ml of 2% lignocaine hydrochloride as local anesthesia. The amnion covering the herniated mass was incised and the contents (small intestine) were exteriorized. Since the herniated small intestine was not reducible through the defect in the body wall, the cranial & caudal end of umbilical opening was widened by incisions of 1-inch length on either side. The animal was then controlled in dorsal recumbency and the intestinal loops were carefully pushed into abdominal cavity. Carboxymethyl cellulose was placed in the abdominal cavity to reduce the adhesions before the incision was closed routinely by using polyglactin 910. Skin wound was closed by horizontal mattress sutures using monofilament nylon. The skin wound was sealed with Tr. Benzoin.

Postoperatively an antibiotic coverage was given with Inj. Amoxicillin Cloxacillin combination at the rate of 10 mg/kg body weight and Inj. Ketoprofen@ 3mg/kg body weight

intravenously as analgesic for three days. The owner was advised to restrict the feeding of milk to the calf for a week.

3. Result and Discussion

The animal had an uneventful recovery and was presented on 10th postoperative day for suture removal



Fig 2. Calf on 10th day after surgical correction of omphalocele

The umbilicus in newborn calves consists of the urachus (a tube that attached the fetal bladder to the placental sac) and the remnants of the umbilical vessels that transport blood between the fetus and mother Luet P (1991). Normally, soon after birth, these structures shrink until only tiny remnants remain within the abdomen (belly). If bacteria gain entry through the umbilicus, those remnants can become infected and require surgical removal Herrmann *et al* (2001). Additionally, 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. Umbilical hernias are the most common birth defect in calves and may be more common in the Holstein-Friesian breed.

Omphalocele is a congenital defect in the body wall in which eviscerated abdominal organs are covered by amnion rather than skin (Baird 1993). Protrusion of abdominal viscera through a congenital defect in umbilical opening may be primarily hereditary in origin due to dominant gene with low penetration, autosomal recessive gene as reported by Tyagi and Singh (1995). Faulty closure of the abdominal opening in the prenatal life results in the protrusion of parts of the abdominal viscera with its serous sac (Rings, 1995). This condition should be corrected immediately to avoid the injury and contamination of abdominal viscera. After surgery, the

animal was confined and feed may slowly reintroduced, to some extent to prevent tension on the surgical repair.

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