

## CONGENITAL OMPHALOCELE AND ITS SURGICAL MANAGEMENT IN LAMB

Fazili, M. R.\*, H. K. Bhattacharyya, S. H. Dar and H. Athar

Faculty of Veterinary Sciences and Animal Husbandry , Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K), Shuhama, Srinagar, Kashmir, India.

\*Corresponding author: fazili\_mr@yahoo.com

### SUMMARY

A newborn, female, lamb was presented for treatment of congenital omphalocele. The ovoid mass (diameter three inches) hanging from the umbilicus was covered by hairless continuation of the umbilical cord. Herniorrhaphy was successfully performed after enlarging the umbilical opening under sedation using diazepam (@ 0.20 mg/kg) and local infiltration anaesthesia with 3.5 ml lignocaine hydrochloride (1%). The lamb recovered completely and was healthy up to seven months observation period. It is concluded that the surgical treatment of lambs with congenital omphalocele have good prognosis provided they are presented promptly without mutilation of the protruding mass.

**Key Words:** congenital, omphalocele, lamb, herniorrhaphy

### INTRODUCTION

Omphalocele is a rare type of congenital abdominal wall defect that permit intestines (and sometimes a portion of liver) covered by a paper thin membrane (amnion) to protrude from the body (Baird, 1993). The true prevalence in animals is difficult to be determined owing to the unreported deaths (Smeak 1993). In humans, it is frequently associated with other congenital abnormalities, especially one's affecting heart. Other associated congenital abnormalities have not been described in veterinary reports (Baird 2008). In this paper, we wish to put on record the details of omphalocele in lamb, its surgical management and the outcome.

### MATERIAL AND METHODS

A newborn, female, lamb weighing five kilogram was presented within three hours of birth at Teaching Veterinary Clinical Service Complex, Faculty of Veterinary Sciences, with an unusual soft tissue mass protruding from the umbilical area. The lamb was of full term and had born unassisted. At the time of clinical examination, the rectal temperature (102.8<sup>0</sup>F) and respiration rate (60 breaths/minute) of the animal were in normal range (Ninan et al. 2011). The ovoid mass (diameter: three inches) was hanging from the umbilicus and covered with hairless

continuation of the umbilical cord (Fig. 1). The amniotic covering was congested with blood and grossly contaminated. The diameter of the umbilical opening was one and half centimeter. On electrocardiography, using the standard bipolar limb lead-II, the assessed heart rate was 250 beats per minute and no abnormality in the cardiac rhythm could be detected (Fig. 2) preoperatively. Routine blood biochemical (Total Protein 8.8 g/dl., Albumen 4.5g/dl., A: G ratio 3) and hematological (Haemoglobin 9.6 g/dl., Packed Cell Volume 40%., Total Leukocyte Count 8800/ $\mu$ l) values were checked and found within normal limits (Benjamin 1998).

The lamb was given Ceftriaxone (125 mg), and meloxicam (@ 0.2mg/kg) both intramuscularly (IM) and controlled in dorsal recumbency. Intravenous (IV) diazepam (@ 0.20 mg/kg) was followed by infusion of dextrose-normal saline (50 ml). The protruding mass was rinsed with lukewarm normal saline and kept covered with a moist sterile drape in a tray. The area around umbilicus was carefully prepared for aseptic surgery. The body wall in the periphery of the umbilical opening was given field block with 3.5 ml of lignocaine hydrochloride (1%). An elliptical skin incision around the umbilical ring was extended along the linea alba for a distance of additional two centimeters. The urachus was

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meticulously separated, ligated and severed. The amniotic covering and the skin edges were excised. The eviscerated intestines were replaced and the abdominal incision closed in a routine manner.

The animal was given same antibiotic (twice daily) and analgesic (once daily) for 5 and 3 postoperative days respectively. Antiseptic dressing of the incision site was repeated daily for two weeks. On 10<sup>th</sup> postoperative day the cutaneous stitches were removed. On this day, the physiological (rectal temperature 102<sup>o</sup>F., respiration rate 48/minute and heart rate 160/min), blood biochemical (Total Protein 7.6 g/dl) and hematological values (Haemoglobin 10.2 g/dl., Packed Cell Volume 36%., Total Leukocyte Count 8000/ $\mu$ l) were all within normal range (Benjamin, 1998). The animal was examined again during third and after attaining seven months of age.

### RESULTS & DISCUSSION

The wound healing was uneventful and the lamb had normal growth throughout the observation period of seven months.

Omphalocele is a developmental problem that is not necessarily a heritable abnormality, however, other congenital defects and chromosomal abnormalities may be seen concurrently (Baird 1993). In humans, it is frequently associated with other congenital abnormalities; especially one's affecting heart (Baird 2008). In the present study, clinical examination including auscultation and electrocardiography, cardiac problems or arrhythmias could not be detected in the lamb treated for omphalocele.

Unlike umbilical hernia, omphalocele is an emergency surgical condition of neonatal animals that requires utmost care right from the moment it is noticed. More important than the ultimate treatment is the initial first aid delivered by the attendant who first sees the affected animal (Baird 2008). The lamb presented to the clinic was full term, had normal body weight and appeared fair in general body condition.

The animal had intact but contaminated and congested amniotic covering over the mass at the time of examination. In another male lamb reported earlier (Fazili 1998), the covering had been ruptured and the intestines exposed before presentation for treatment. In an omphalocele, the herniated contents are initially covered by a transparent membrane (amniotic tissue) attached to the edges of the umbilical defects until minor trauma ruptures the membrane, exposing the prolapsed contents to contamination (Howard 1973, Klien and Hertzler 1981). It has been advocated that the mass should be covered with moist sterile sponges and wrapped in a bandage to prevent it from rupturing (Baird 1993, Mee 1994), contamination, and further water and heat loss (Burchfield 1997, Wesley 1997).

The heart rate was assessed by electrocardiography (ECG) as it was difficult to count the beats on auscultation. ECG, the non-invasive technique, is a method of choice for evaluating electrical activity of the heart and determining irregularities of cardiac rhythm (Razakhani et al. 2004).

Patients with evisceration require early aggressive supportive therapy. Appropriate fluid, blood and antibiotic therapy is critical to stabilize the patient (Daniel 2002).

Use of benzodiazepine (diazepam) along with infiltration of diluted local anaesthetic recommended in young animals (Galatos 2011), gave satisfactory results in our case.

An elliptical skin incision around the umbilical ring extended along linea alba to enlarge the opening, ensured easy replacement without harming the eviscerated intestine and also preserved sufficient abdominal wall and skin for effective closure of the rent.

Protruded mass comprised of evisceration of intestine only. Any other abnormality was not detected on laparotomy. Baird (1993) reported piece of liver in addition to the intestine in a calf with omphalocele. In children omphalocele often contains liver and intestine (Klien and Hertzler 1981).

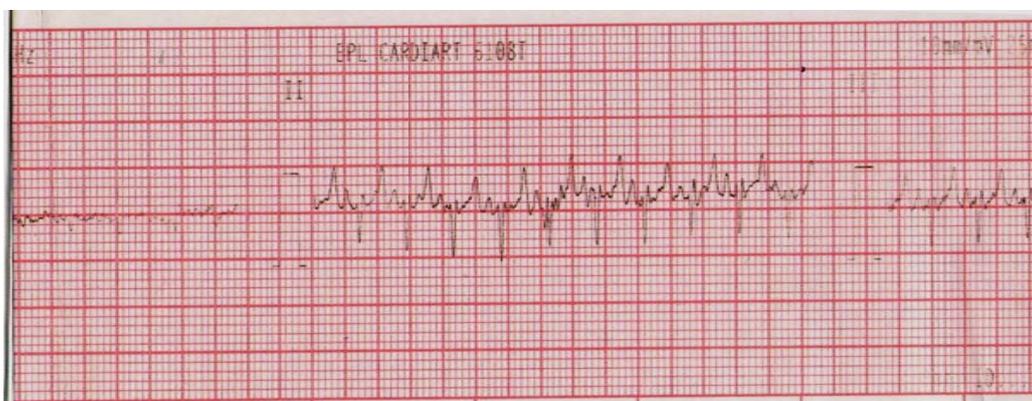
The animal had an uneventful recovery and normal growth. Complications were also not encountered postoperatively.

From the success of our earlier reported and the present case, we concluded that following surgical treatment, the lambs with omphalocele have good prognosis. The initial vigil by the

owner or attendant at delivery, quick separation from the dam, intact amniotic cover over the eviscerated mass and, early presentation (without mishandling) for surgery are important prerequisites for survival of the neonates suffering from congenital omphalocele.



**Fig. 1:** Newborn lamb with congenital Omphalocele.



**Fig. 2:** Preoperative Standard Lead II Electrocardiograph of the neonatal lamb with congenital Omphalocele

#### REFERENCES

- Baird, A. N. (1993).** Omphalocele in two calves. *Journal of American Veterinary Medical Association.* 202: 1481-1482.
- Baird, A. N. (2008).** Umbilical surgery in calves. *Veterinary Clinics of North America: Food Animal Practice.* 24: 468-477.

- Benjamin, M. E. (1998).** *Outline of Veterinary Clinical Pathology.* 3rd ed., Kalyani Publishers, New Delhi. pp. 80, 108-115.
- Burchfield, D. J. (1997).** Abdominal wall defects. In: Barkin RM (ed). *Pediatric Emergency Medicine: Concepts and Clinical Practice.* 2nd ed., St Louis: Mosby. pp. 213.

## CONGENITAL OMPHALOCELE AND ITS SURGICAL MANAGEMENT IN LAMB

- Daniel, D. S. (2002).** Abdominal hernias. In: Slatter D (ed). Textbook of Small Animal Surgery. 3rd ed., Vol.1, Philadelphia: Saunders. pp. 449-470.
- Fazili, M. R. (1998).** Congenital intestinal prolapsed in a lamb. Indian Veterinary Journal. 75: 943-944.
- Galatos, A. D. (2011).** Anesthesia and analgesia in sheep and goats. Veterinary Clinics of North America: Food Animal Practice. 27:47-59.
- Howard, D. R. (1973).** Omphalocele in a litter of kittens. Veterinary Medicine: Small Animal Clinic. 68: 879.
- Klien, M. D. and Hertzler, J. H. (1981).** Congenital defects of the abdominal wall. Surgery Gynecology & Obstetrics. 152: 805-811.
- Mee, J.F. (1994).** Omphalocele in aborted and full-term dairy calves: a case series. Theriogenology 42: 1125-1131.
- Ninan, J., Arya, J. S. and Wadhvani, K. N. (2011).** Physiological parameters in neonatal lambs and kids. Indian Journal of Veterinary Research. 20:56-61.
- Razakhani, A., Papahan, A. A. and Shekarfroush, S. (2004).** Analysis of base apex lead electrocardiograms of normal dairy cows. Veterinarski Arhiv. 74:351-358.
- Smeak, D. D. (1993).** Abdominal hernias. In: Slatter D (ed). Textbook of Small Animal Surgery. 2nd ed., Philadelphia: Saunders. pp. 433-454.
- Wesley, J. R. (1997).** Omphalocele. In: Greenfield LJ, Mulholland MW, Oldham KT, Zelenock GB, Lillemoie KD, (eds.). Surgery: Scientific Principles and Practice. 2nd ed., Philadelphia: Lippincott-Raven. pp. 2029-2032.