

## **SURGICAL MANAGEMENT OF DIAPHRAGMATIC HERNIA IN FOUR JAFFARABADI BUFFALOES AND TWO GIR COWS**

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**Abstract:** In the present study, clinical findings and surgical management of diaphragmatic hernia were reported in six animals (cases-1 to 4: Jaffarabadi buffalo and case 5 and 6: Gir cow). All the animals had a history of dyspnea, recurrent tympany, partial to complete anorexia, come out of regurgitated materials from mouth and nose and suspended rumination. Diagnosis was confirmed by clinical findings, abnormal heart sound and exploratory laparotomy. All six cases were managed surgically under sedation and local analgesia, through post xiphoid approach ring in the diaphragm was identified and repaired using continuous lock stitch suture technique with non-absorbable fishnet. Among the six cases, one Jaffarabadi buffaloes die at ninth day of operation and the other cases were recovered uneventfully.

**Keywords:** Diaphragmatic hernia, Fish net, Gir cow, Jaffarabadi buffalo.

### **Introduction**

Diaphragmatic hernia (DH) is defined as the passage of abdominal viscera into the thoracic cavity through a congenital or acquired defect in the diaphragm (Athar *et al.*, 2010; Bellavance *et al.*, 2010). It has been reported in large ruminants (Sahu *et al.*, 2003; Saini *et al.*, 2007) and mainly occurs due to increased intra-abdominal pressure during advanced pregnancy or at the time of parturition (Krishnamurthy, 1993). It may occur as a result of trauma or progressive weakening of the diaphragm adjacent to a hardware perforation and reticuloperitonitis (Krishnamurthy *et al.*, 1998). The occurrence of DH is common in pregnant buffalo as compared to heifer and non-pregnant buffalo. If untreated, DH may induce mortality in buffaloes (Mohindroo *et al.*, 2007). Herein, clinical findings and surgical management of diaphragmatic hernia were reported in six animals (four Jaffarabadi buffalo and two Gir cow).

### **Materials and methods**

#### **Animals**

A four Jaffarabadi buffaloes aged between 6 to 10 years and two Gir cows aged 7 and 9 years old with history of seven, seven and half and eighth month pregnant of three buffalo

and five month pregnant of one Gir cow were presented with clinical findings like recurrent tympany, anorexic, passed scant pasty feces, were dehydrated, milk production was markedly reduced and symptomatic treatment was ineffective, unthrifty, debilitated and dehydrated and auscultation revealed muffled sound in thoracic region. In cow prominent jugular pulsation is reported with distressed respiration.



**Fig 1:** Jaffrabadi buffalo showing recurrent tympany

### **Clinical findings**

Rectal temperature and respiration were in normal physiological range in buffalo where as in cow prominent jugular pulsation is reported with distressed respiration. The values of diverse haematological parameter were as under: in buffalo the range of haemoglobin (9.0 to 11.0 g %), PCV (28.5 to 33.7 %), DLC (Neutrophils- 67 to 70 %, lymphocytes- 26 to %, Monocytes- 1%), TEC ( $5.2 \times 10^6$  uL), TLC ( $27.9 \times 10^3$  /uL). and in cows haemoglobin (10.0 and 10.6 g %), PCV (28 and 31 %), DLC (Neutrophils- 68.5 and 72 %, lymphocytes- 29 %, Monocytes- 0.8 and 1 %), TEC ( $5.1$  and  $5.7 \times 10^6$  uL), TLC ( $28.9$  and  $30.2 \times 10^3$  /uL).

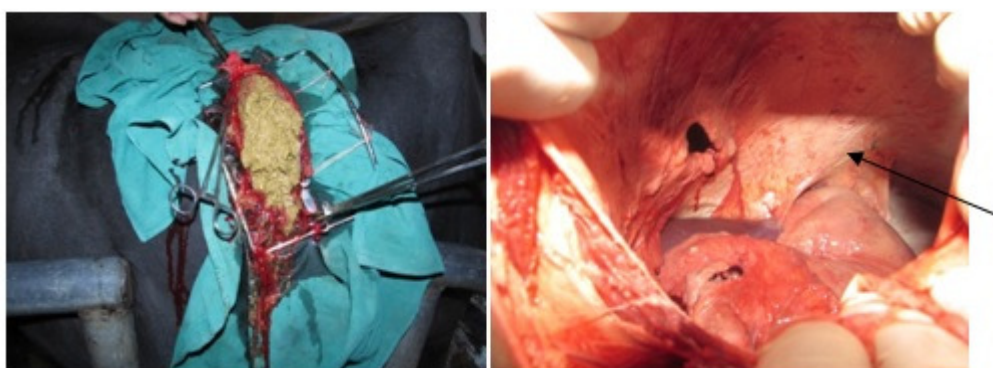
### **Treatment**

Exploratory laparo-rumenotomy in standing position was done in the all cases to remove the contents of rumen. Metallic foreign bodies were found in rumen and reticulum was removed. Reticular hernia was seen through right portion of diaphragm with reticulo-diaphragmatic adhesion in three buffaloes and through right sided tennis ball sized hernial ring in both the cow. Diaphragmatic herniorrhaphy was done 48 hours later through post-xiphoid approach. The animal was restrained in dorsal recumbency and sedation (xylazine @ 0.1 mg/kg) and local anaesthesia (lignocaine HCl 2%) was given at surgical site. A post-xiphoid semi lunar laparotomy incision was given. The hernial ring was palpated and all

adhesions with reticulum were freed cautiously. The reticulum was reposed back to abdominal cavity. The hernia ring was closed with continuous lock stitch pattern using fishnet non absorbable suture material and abdomen and skin was sutured by routine manner. The range of the pulse rate (59 to 63/minute), respiration rate (18 to 21/minute), heart rate (57 to 60/minute) and rectal temperature (100 to 101.1 °F) reported in buffalo where as in cows the range of the pulse rate (56 to 59/minute), respiration rate (20 to 22/minute), heart rate (53 to 55/minute) and rectal temperature (100.1 to 100.7 °F) were found in normal range. Postoperatively, the animal was given antibiotic (dicrysticin 5.0 gm I/M), analgesic (Meloxicalm @ 0.2 mg/kg b. wt. i/m) and Tonophos 15 ml I/m for 5 days. The appetite of animal was restored from next day of operation and animal appeared alert and improved. The animal was kept on soft diet for one week and antiseptic dressing of suture line was done and advised to spray scavon for 5 days to promote the healing process and skin sutures were removed after 12 days.

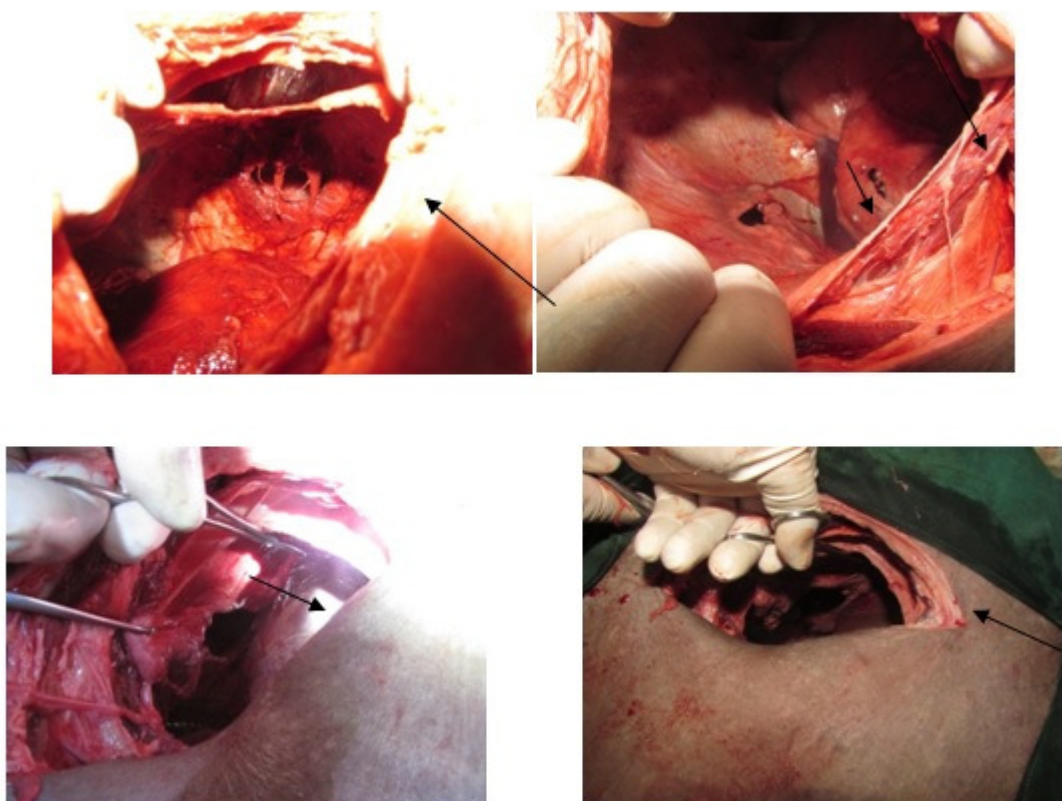


**Fig 2:** Buffalo and Cow prepared for Laparo-rumenotomy



**Fig 3:** Removal of rumen content

**Fig 4:** Diaphragmatic hernial ring



**Fig 5:** Diaphragmatic hernial ring

### Discussion

Diaphragmatic hernia has been considered as a serious digestive disorder in buffaloes. Higher prevalence of diaphragmatic hernia in buffaloes versus relatively lower prevalence in cows may be attributed to the lesser collagen content, elasticity, and vascularity of buffalo diaphragm. They also observed that habit of wallowing found among buffaloes may also be an exciting factor for the rupture of diaphragm. The clinical signs of partial anorexia with suspended rumination, recurrent tympany, and scanty faeces were in accordance with those reported previously and frothy mouth and nasal discharge at the advanced stage of case. Interference of rumen peristalsis owing to reticular adhesions was regarded as major cause of tympany.

In present study potential foreign body was recovered from reticulum and the hernial ring size was small to large with adhesion. The three buffaloes and one cows were advance pregnant of seven, seven and half, eight month and five months respectively which was in contrast to the theorem that diaphragmatic hernia could be a result of foreign body penetration together with of intra-abdominal pressure (Krishnamurthy, 1993). However, in the animal of present study the two Jaffarabadi buffaloes which was pregnant of seven and half and eight month were die on fifth and eleventh days after herniorrhaphy. In the animals

of present study the three buffaloes and one cow was pregnant, the metallic foreign body injury to diaphragm could be an etiological factor for occurrence of diaphragmatic hernia. In the Present study the Diaphragmatic hernia was common to occurs in pregnant animals could be due to increased intra-abdominal pressure. The case was the range of 6 and 10 years old three pregnant and one non pregnant Jaffarabadi buffalo and among two Gir cow, one was pregnant with 5 month aged 7 and other was 9 years old, which is very common in occurrence.

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