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Bovine surgical management of external hernia: A review of 8 cases

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Abstract

Protrusion or displacement of an organ or part of tissue outside the body cavity was presented for surgical management (n=8); where 25% were males (n=2) and rest all 75% were females (n=6). Amongst type of hernia lateral and umbilical hernia both were 3 each, while remaining 2 were ventral hernia; where all hernia were acquired except umbilical hernia, which might be genetic in origin. Smaller hernial rings (<5 finger) were surgically managed by herniorrhaphy, whereas larger hernial rings were corrected by placing nylon mesh for hernioplasty procedure under xylazine sedation along with lignocaine local anaesthesia infiltration. Recovery rate was observed 100% in herniorrhaphy, whereas 50% recurrence was recorded in hernioplasty. Hernioplasty complication was observed in one cases; where ulcer formed by friction and gradually nylon mesh exposed. Overall recovery time was recorded 12 days for herniorrhaphy, while 20-28 days for hernioplasty which includes 2nd attempt of hernioplasty in two cases.

Keywords: Hernia, herniorrhaphy and hernioplasty

Introduction

A hernia was the protrusion or displacement of an organ or part of tissue outside the body cavity through an unusual opening in the cavity wall [2, 3]. Hernia parts including the ring, the sac and the contents. Various types of hernias were found in both small and large animals, which could be categorized according to the anatomical locations, such as abdominal (lateral/ventral), incisional, inguinal, umbilical, diaphragmatic, femoral, scrotal and perineal hernias [3, 4]. High incidence of hernias was recorded in females; the sex distribution was 72.4% females and 27.6% males [7].

The lateral abdominal hernia; where the abdominal contents protrude through an unusual orifice of the abdominal wall and the hernia was lateral to the stifle skin fold [1]. Lateral abdominal hernia was mainly caused by trauma due to horn thrust, animal kicks, blunt objects, jumping, falling, external force, automobile accidents, abscess in the abdominal wall, and weakening of the musculatures [4]. Moreover, congenital defects may also induce herniation in some cases [3]. Lateral abdominal hernias were usually acquired in origin [5]. In animals, hernia reduces performance and production along with lowering the market value [3, 6].

Reduction and retention by bandage, blisters or injection of irritant solutions close to hernial ring after reducing hernia, ligature or through and through mattress sutures at the base of hernial sac and herniorrhaphy surgery were different modalities to repair hernia. Amongst herniorrhaphy was preferred most by veterinarians [8]. Post-operative care of patient minimizes the load on the surgical repair [9].

Case enrolled

A total of 8 cases of bovines were presented at Surgery and Radiology, Veterinary College, Kamdhenu University, Anand, Gujarat for surgical management of various types of hernia. Out of total affected cases only 25% cases were males (2/8), whereas remaining 75% were females (6/8); whereas breed involvement revealed 37.50% Gir cows, 37.50% Buffaloes 12.50% ND bullock and 12.50% HF heifer (Table 1). Lateral and umbilical hernia both were recorded 3 each, while remaining 2 were of ventral hernia; where all hernia were acquired except umbilical hernia, which might be genetic in origin.

Table 1: Types of hernia, treatment and outcome

Sr. no.	Species	Age	Type of hernia	Treatment	Outcome
1	ND Bullock	4 years	Three figure ventral hernia	Herniorrhaphy	Recovered
2	Gir cow	6 years	1 sq.ft. Lateral hernia	Hernioplasty	Recovered
3	Buffalo	9 years	Traumatic foreign body induced ventral hernia	Hernioplasty	Recovered
4	Buffalo calf	6 months	Two finger umbilical hernia	herniorrhaphy	Recovered
5	H.F. heifer	10 months	Four finger umbilical hernia	Herniorrhaphy	Recovered
6	Buffalo calf	4 months	Two finger umbilical hernia	Herniorrhaphy	Recovered
7	Gir cow	7 years	>2 sq.ft Huge lateral hernia	Hernioplasty	Ulcer after 2 nd attempt recovery
8	Gir cow	6 years	2 sq. Ft. Huge lateral hernia	Hernioplasty	2 nd attempt recovered

Materials and Methods

All affected large animals (n=8) were presented to department of veterinary surgery and radiology for surgical management. Small hernia ring up to five figure hernia was treated with over lapping suture technique by using nylon non-absorbable suture material, whereas bigger hernia rings were managed by using smooth nylon mesh hernioplasty (Table 1).

Surgical procedure

Herniorrhaphy was performed in four animals having small ring of hernia (2-4 fingers) with the help of xylazine sedation 0.02mg/kg i/v and 2% lignocaine hcl infiltration around hernia. Aseptic surgical site was prepared by saving, scrubbing and application of antiseptic solution at surgical site. Herniorrhaphy was performed with the help of fish net nylon suture material by placing overlapping sutures to close hernia ring followed by skin sutures (Fig.3 & 4).

Huge lateral and ventral hernia were managed with hernioplasty by placing nylon mesh under xylazine sedation 0.02mg/kg i/v and 2% lignocaine hcl infiltration around hernia. Vertical metres sutures were placed around Brocken/pendulous peritoneum to provide extra support to the weak peritoneum to withheld abdominal pressure (Fig. 1).

Hernioplasty along with rumenotomy was performed in buffalo suffered with foreign body induced ventral hernia case no.3, where plenty of sharp metallic foreign bodies along with 61.4 kg plastic bags were removed from rumen and reticulum before performing hernioplasty (Fig.2).

All animals were treated with Inj. Dicrysticine 2.5 20,000 IU/kg i/m., Inj. Meloxicam 0.5 mg/kg i/m, Inj. Pheneramine melete 2-5 ml i/m for 7 days, whereas antiseptic dressing with liq. Povidone iodine and oint. Povidone iodine was carried out till recovery.

Results

Herniorrhaphy was performed in four animals; where hernial ring was smaller (<5 fingers) and resulted in uneventful 100% (4/4) recovery within 12 days. Hernioplasty was performed in four animals, single layer nylon mesh was placed in medium size hernia (<1 sq. Ft.), while larger ernia rings (>1 sq.ft.) were supported by double layer of nylon mesh. Recurrence of hernia after hernioplasty was recorded in 50% cases (2/4); where huge ernia rings were larger (Table 1). Recurrence of hernia despite of hernioplasty cases were re-operated for the same with extra support of sutures in hernioplasty. Recovery rate was observed slight slower (20-28 days) as compared to herniorrhaphy (12 days).

Complication

Post-operative complication was observed in one huge lateral hernia case number 7(2nd attempt hernioplasty); where ulcer was developed on skin after 20 days of recovery and nylon mesh exposed gradually. Surgically affected nylon mesh was removed under xylazine sedation 0.02mg/kg i/v and 2% lignocaine hcl infiltration. Surgical wound was closed by placing overlapping nylon sutures (Fig.1).



A huge lateral hernia



Recurrence after hernioplasty



Repeated hernioplasty surgery



Recovery with skin wound at site

Fig 1: Lateral hernia management in Gir cow by hernioplasty in 2nd attempt



Ventral hernia with pointed foreign body

Ferroscopy detect metallic foreign body.



61.4 kg plastic & metals removed surgically

Recovery by hernioplasty

Fig 2: Foreign body induced ventral hernia in buffalo managed by hernioplasty and retrieved 61.4 kg Plastic and Metallic foreign body



Umbilical reducible hernia

Four finger hernia



Herniorrhaphy

Recovery

Fig 3: Four finger umbilical hernia managed by herniorrhaphy



Herniorrhaphy in bullock & male buffalo calf

Fig 4: Hernia repair in males by herniorrhaphy (Before and after)

Conclusion

Recovery in hernia is faster when hernial rings are smaller (<5 fingers) with less abdominal pressure at hernia, but as ring become larger and abdominal pressure increased at hernia ring leads recurrence (50%) despite of surgical repair of hernia.

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