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Clinical Article

POLYPROPYLENE MESH FOR REPAIR OF PREPUBIC TENDON HERNIA IN TWO INDIGENEOUS CATTLE

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SUMMARY

A 14-year-old Kankrej cow and a 1.5-year-old Gir heifer were diagnosed with prepubic tendon hernias and underwent surgical repair under general anaesthesia was achieved using a double drip solution of 5% guaifenesin and ketamine as an induction agents and maintained on 1.5% Isoflurane. 30×30 cm polypropylene mesh was used, which is effective for large defects where suture herniorrhaphy is challenging due to high tension. The animal recovered subcutaneous seroma as minor complication.

Keywords: Polyester, Polypropylene mesh, Prepubic tendon hernia, S/Cseroma

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Body wall hernias are abnormal protrusions of organs or tissues through defects in the body wall. In cattle, the prepubic hernia is a common type, caused by the rupture of the prepubic tendon, also known as the cranial pubic ligament. This flat, T-shaped tendon connects the gracilis, pectineal, and abdominal muscles, extending ventrally from the pelvis's brim at nearly a right angle to the pelvic floor. The most common cause is blunt force trauma to the lower abdomen by kicks, blows, horn thrusting, or falls. Prepubic hernia are challenging body wall defects in large animals due to the tension at the site,so achieving tension-free repair is crucial for successful surgery (Wendy and Lanz, 2011). Surgeons use techniques like suture herniorrhaphy (Sharma *et al.*, 2021; Devi *et al.*, 2021) and nylon mesh hernioplasty to repair body wall hernias (Leber *et al.*, 1998; Lannitti *et al.*, 2008).

Two indigeneous cattle (Gir and Kankrej), aged between 1.5 and 14 years weighing 150 and 350 kg, respectively were treated for ruptured prepubic tendons (PPT). Both the animals exhibited a normal appetite and showed no signs of other systemic illnesses. The ruptures were determined to be of acquired nature, with falls onto blunt objects and trauma from kicks, horn gore injury as probable cause. The animals presented with a history of swelling in the caudo-ventral abdominal region, occurring between 15 to 45 days post trauma (Fig. 1 and 2). Rectal temperature (101.4±0.2 F), respiration rate (25±3 breaths/min) and heart rate (68±5 beats/min) at the time of presentation were within normal physiological limits. Haematological examination revealed neutrophilia (40.00±3.31) indicating stress response and infection.

Abdominal defect was manually palpated in both standing and lateral recumbency. A transabdominal ultrasonographic (USG) examination was conducted. It was done in real time B mode with a 3.5 to 7.5 MHz frequency probe in a standing animal. USG was preoperative and 24 hours postoperatively (Fig. 3 and 4). Preoperative USG examination revealed the presence of motile circumscribed hypoechoic structures of intestinal loops toward near field and reduce thickness of abdominal wall (Fig. 3). Prior to surgery, both animals were kept off feed and water for 24 hours.

Polypropylene mesh hernioplasty was performed as the first-choice procedure in both cases. The surgery was conducted with the animals in dorsal recumbency under general anesthesia. Pre-anesthesia was administered using Inj. Xylazine @ 0.1 mg/kg body weight intramuscularly, followed by a 5% double-drip solution intravenously of Guifenesin @ 50 mg/kg body weight and Ketamine @ 1 mg/ml of solution for induction. Endotracheal intubation was performed to maintain anesthesia with a mixture of 1 to 1.5% Isoflurane and oxygen. The surgical site was prepared aseptically. An oblique skin incision measuring 10 to 15 inches was made just cranial to the udder. Adhesions were broken, and the abdominal viscera (intestines and udder) were repositioned back into the abdominal cavity. For the polypropylene mesh hernioplasty, after accessing the defect (approximately 45×50 cm), a polypropylene mesh of 30×30 cm was placed in the abdominal opening. The mesh was fixed in an inlay fashion (Fig. 5 and 6) by suturing it to the surrounding muscles using number 2 polyester suture material in a horizontal mattress pattern. The subcutaneous tissue was then sutured using chromic catgut number 2 in a simple continuous pattern. An 18 French Foley catheter was

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Fig. 1. 14 year old cattle having unilateral abdominal swelling (Black arrow mark)

Fig. 2. 1.5 years old heifer having bilateral abdominal swelling. (Black arrow mark)

Fig. 3. Pre-operative trans-abdominal USG: Hypoechoic intestinal loops toward near field and reduce thickness of abdominal wall at far.

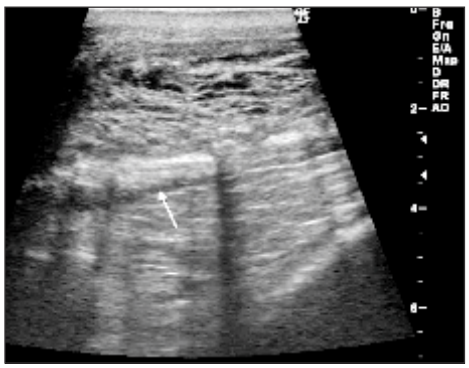

Fig.4. Post operative trans-abdominal USG: Mesh appeared as a thin hyper-echoic line (white arrow mark) image) toward near field.

Fig.5. Placementof polypropylene mesh (30×30 cm) by inlay method in 14 yrs old kankrej cattle.

Fig.6. Placementof polypropylene mesh (30×30 cm) by inlay method in 1.5 years old Girheifer.

Fig. 7. Fixing of 18 frenchfoley catheter for drainage of fluid.

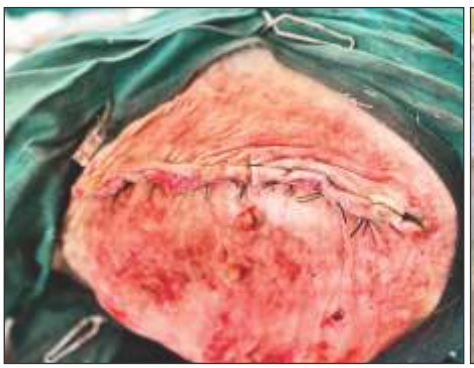

Fig. 8. Closure of skin incision by silk No. 2.

Fig. 9. Cotton tape body bandage to support body mass.

Fig. 10. In case No. 1 recovery with minor seroma formation (mark)

Fig. 11. In case no. 2 recovery with no complication

placed in the subcutaneous space for drainage of fluid (Fig. 7). Finally, the skin was closed with silk No. 2 in a horizontal mattress pattern (Fig. 8).

Post-operatively, the animals were treated with Streptopenicillin @10,000 IU I/M, Meloxicam @ 0.2 mg/kg B.W. and Chlorpheniramine maleate @ 30-50 mg T.D I/M for five days. A body bandage consist of Cotton tape (Fig. 9) was recommended for supportive care and dietary management of feeding small quantity

but increased frequency of both dry and green fodder was advised for one month following the surgery.

Dhaliwal *et al.* (2021) has reported reoccurrence with prepubic herniorrhaphy in one buffalo out of six undergoing surgery and recommended use of nylon mesh hernioplasty. Both the animals treated with polypropylene mesh recovered with minor subcutaneous seroma as complication. Following 24 of surgery, USG examinations revealed subcutaneous edema in 14 years old cow, anechoic fluid in near field indicated the formation of seroma in 14 years old cow (case no. 1) and the mesh was seen as a thin hyper-echoic line (Fig. 4) below the skin. The abdominal wall appeared intact in both the patients, confirming successful hernia repair. No infection or abscess formation was observed during 3 month follow-up period (Fig. 10 and 11). In conclusion, hernioplasty using 30×30 cm polypropylene mesh is an effective technique for repairing larger prepubic tendon defects, especially when the tension at the suture is significant.

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