

SURGICAL MANAGEMENT OF RECURRENT GENITAL PROLAPSE IN GIR COW BY USING PERVAGINUM OVARIOHYSTERECTOMY

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Abstract: A clinical study on recurrent genital prolapsed and its management in Gir cows was carried out in Saurashtra region of Gujarat. A clinical survey was conducted at different Gaushalas in Saurashtra region of Gujarat to record clinical details of genital prolapse in Gir cows. Total 1470 cows were surveyed and amongst them 93 cows were found to be affected with genital prolapse. The incidence rate of genital prolapse was 6.32 per cent. Cases falling under the 3rd and 4th degree were treated with the use of Pervaginum Ovario-hysterectomy surgical technique. 27 (29.04%) animals had the 3rd degree prolapse and 18 (19.35%) had 4th degree of prolapse. In those cases where the changes in the prolapsed organ appeared irreversible, it was decided to remove entire reproductive tract by per-vaginum ovario-hysterectomy technique. Haemato-biochemical assessment performed in a clinical way of understanding the etio-pathology and therapeutic resolution of this complex malady in cows.

Keywords: Genital prolapsed, cervico-vaginal prolapsed, Ovario-hysterectomy, Gir cow.

INTRODUCTION

Reproductive disorders of domestic animals cause significant economic loss to the dairy farming. Among these disorders, genital prolapse is one of the major problem in cows which considerably affect the animal and its milk production. Genital prolapse is the descent of one or more of the pelvic structures (bladder, uterus and vagina) from the normal anatomical position toward or through the vaginal opening. Two distinct types of prolapses occur in the reproductive tract of cattle: uterine and vaginal (Powell, 2007).

The cervico-vaginal prolapse (CVP) is a condition in which the vagina and cervix evert out over the caudal attachment and protrude from the vulvar commissure with the inside layer out (Whitter, 2007). The vaginal or cervical prolapse most often occurs during the last trimester of pregnancy when placental estrogen production increased. The increased estrogen production leads to increased relaxin production, which leads to relaxation of the pelvic ligaments and associated structures. Further oedema and relaxation of the vulva and vulvar

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sphincter muscles occurs. Other factors which predisposes for the utero-vaginal prolapsed were atony of the uterus, open cervix, slack pelvic ligament and abdominal straining in cattle (Wolfe, 2009).

Hypocalcaemia is considered as one of the factors to interfere with tone of the genital organs leading to genital prolapse (Richardson *et al.*, 1981; Misra, 1998; Youngquist and Threfall, 2007).

MATERIALS AND METHODS

A clinical survey was conducted at different Gaushalas and Panjarapoles of the Saurashtra region. Total 1470 cows were surveyed and amongst them 93 cows were found to be affected with genital prolapse. Cow having 3rd and 4th degree were treated with the use of pervaginum Ovario-hysterectomy surgical technique.

Preparation of animal

Animal was kept on fasting for 24 hours before surgical procedure. The cow was secured in a trevis, urine removed by catheterization and hind quarters were cleaned. Pregnancy diagnosis was carried out by per rectal palpation. Then with all antiseptic precautions the prolapsed mass was cleaned appropriately with mild antiseptic potassium permanganate solution (1:10000). Further Prolapsed genitalia were thoroughly scrubbed. Animal was thus restrained physically and 10-15 ml of 2% lignocaine hydrochloride was administered epidurally between 1st and 2nd coccygeal vertebrae.

Surgical procedure

Ovario-hysterectomy through per vaginum approach was performed under epidural anaesthesia and mild xylazine sedation in lateral recumbency. Tourniquet was applied around the base of the prolapsed mass as near as possible to vulvar commissure to control the haemorrhage. A circumscribed incision between 9 O' clock to 3 O' clock position was made on the outer layer of the prolapsed mass and after that inner layer was incised. The adhesions were removed by blunt separation. By palpation through the incision, both the ovaries and uterus were located and dragged to the vaginal incision by constant firm tension. An utero-ovarian vessel was transfixed. The ovaries, uterus as well as prolapsed mass were excised out. Further, the blunt dissection allowed retraction of cervix attached with the uterus and the ovaries.

The ventral wall of the vagina was cut taking care to retrieve the inner tube of vaginal wall. All bleeders were carefully ligated to ensure complete haemostasis. Care was taken to place this incision beyond urethral meatus. The inner and outer layer of the cut ends of vaginal wall

were sutured using continuous lock stitch suture using catgut number 2, commencing at 9 O' clock position.

Collections of samples:

Blood and serum were collected by scientific procedure on day of surgery (0 day) and 10th post-operative day from the affected cows. About 20 ml of blood was collected aseptically from the jugular vein with 20 ml disposable syringe and 18 gauge needle. Six ml blood was transferred to the vacuette containing potassium EDTA as an anticoagulant. The remaining blood was transferred to serum vacuette for the separation and collection of serum. Those sera were stored at -20° C until further processing.

RESULTS

Clinical observation

The 3rd degree prolapsed mass was seen in four cows, having hard consistency of mass in one cow, soft consistency in three cows, reducible nature in two cow, irreducible nature in two cows, slight tone with highly vascular in three cows, atonic with highly vascular in one cow. In 4th degree prolapsed mass was hard in consistency, irreducible, atonic and highly vascular in nature.

Post-operative complication

Anorexia and weakness were observed in 2 cases may be due to blood loss during surgery which was recovered after 6 days post-operative treatment with fluid therapy, antibiotic and supportive treatment. Pus formation was not observed in affected animals.

The mean Pre- and Post-operative value of different parameters given below

1) Physiological parameter

	Rectal Temperature (°F)	Heart Rate (Beats/min)	Respiratory Rate (breaths/min)	Ruminal Motility (no/2 min)
Pre-operative	100.4 ± 0.26	63.83 ± 3.44	22.50 ± 0.84	1.66 ± 0.21
Post-operative	101.8 ± 0.33	60.50 ± 1.14	24.50 ± 0.99	1.83 ± 0.16

2) Haematological Parameter

	Hb (g per cent)	PCV (per cent)	TLC (thousands/cu.mm)	TEC (millions/cu.mm)
Pre-operative	9.93 ± 1.37	36.16 ± 5.22	12.78 ± 0.84	6.63 ± 0.80
Post-operative	12.45 ± 0.63	45.13 ± 2.95	9.30 ± 0.20	8.10 ± 0.30

3) Biochemical parameters

	Ca (mg/dL)	P (mg/dL)	ALT (IU/L)	AST (IU/L)
Pre-operative	9.92 ± 0.47	5.9 ± 0.43	37.58 ± 0.91	90.64 ± 2.40
Post-operative	11.75 ± 0.30	6.32 ± 0.46	31.77 ± 1.40	87.00 ± 3.53

DISCUSSION

The analgesia was achieved by the administration of xylazine as a sedative at the dose rate of 0.05 to 0.1 mg/kg body weight and lignocaine hydrochloride (2%) was given epidurally in all twelve cows.

Epidural anaesthesia was used to block the sacral and coccygeal nerves so as to desensitize the tail, anus, perineum, vulva and vagina (Ramsinghet *et al.*, 2013). Similarly in present study, epidural anaesthesia was used to desensitize whole perineal region.

Tank *et al.* (2006) stated that to deroot pathology and alleviate the pain suffering, the Pervaginumovario-hysterectomy is the only way. Mahida (2008) also reported Pervaginumovario-hysterectomy as salvage surgical management of chronic recurrent genital prolapse in 12 cows. There was uneventful recovery in four cows and two cows died after 1 month of surgery, which suggests the effectiveness of performing ovario-hysterectomy in cows suffering from chronic recurrent genital prolapse. Nayak and Samantara (2010) also had used this procedure for chronic cervico-vaginal prolapse in Red Sindhi cow. The cow had uneventful recovery with normal appetite, defecation and urination during the observation period. Similarly in present study, all the cows were survived postoperatively with minimum postoperative complications which were resolved by regular dressing and under the umbrella of antibiotics and analgesics.

Pre-operative values of Hb found to be low because of chronic inflammation present in body, anorexia and loss of appetite. Similar findings were reported by Kinney in 1967. He stated that decrease in Hb concentration in prolapsed animals may be due to loss of body fluid.

PCV levels could be due to the recoument of body condition after ten days of surgery, supported by haematinics administration and elimination of stress. The comparative low pre-operative values (in prolapsed animals) may be due to the release of ADH as a result of stress (Kinney, 1967) and may be due to anorexia and toxemia (Agrawal, 1987).

The decreasing in the pre-operative TEC values might be due to low intake of feed, impaired digestion and trauma on the exposed prolapsed mass. The increase TLC levels might be due to profound inflammatory response to the cervico-vaginal prolapse. It could be due to

depletion of circulating pool of neutrophils, longer duration and continuing loss of neutrophils from tissues in the chronic inflammatory conditions. It might be due to toxemia resulting from long standing prolapsed condition. The finding of lower TEC values in prolapsed animals as compared to control group in our study is similar to the finding of Tarjinder and Singh (1993). It might be due to degeneration of hepatocyte and also the muscular coat of the gravid uterus leading to the leakage of the enzyme into the blood.

The hypocalcaemia resulted in loss of muscular contraction and ultimately uterine prolapsed in buffaloes. Moreover, estrogen hormone suppresses the blood calcium levels causing relaxation of pelvic ligaments leading to genital prolapsed. Similarly, Roberts, (1971) and Odegaard, (1977) reported that decrease calcium level lead to atony of the uterus and a delay in cervical involution, both of which could predisposed to uterine prolapsed in dairy cows. Increased calcium levels in the post-operative animals as compared to the pre-operative animals near control group values, indicate the recoument of the general health of animal.

Cultural isolation and antibiotic sensitivity of genital prolapsed

3 cows had Gram positive (+ve), 2 cows had Gram negative (-ve) and 1 cow had mixed organism found. As per the result of A.B.S.T. Ceftriaxone was used.

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FIGURES



		
4) Exposed genitalia by making incision on dorsal wall of vagina	5) Trans-fixation of utero-ovarian vessels	6) Sutured vaginal wall by taking continuous lock-stitch suture