

RESTORATION OF LIVESTOCK TRAITS: A STUDY OF DIFFERENT CLINICAL
CONDITIONS AND THEIR SURGICAL RESOLUTION IN SURGUJA,
CHHATTISGARH (INDIA)

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ABSTRACT

Restoration and maintenance of different livestock traits including milk production, draught power and their physiological environment is necessary to confirm output in agriculture and dairy industry. In Chhattisgarh Surguja, the aim behind animal husbandry is draught and milk. In this study the clinical evaluation elicited by the use of surgery we maintain number of animals in their physiology; these included maintaining their rumen function, skeleton function etc.

The present study was conducted on 14 animals subjected to major surgeries (rumenotomy, urethrotomy/cystorrhaphy and congenital defects) and more than 30 animals for desmotomy suffering from the respective surgical affection. All treatment techniques were evaluated based on clinical studies. These included survival rate of treated animal, physical condition, ruminal contraction and micturition, improvement over anorexia and improvement in livestock traits.

The animals suffering from rumen impaction ranged from 4-9 years of age. The quantity of foreign materials removed by rumenotomy varied from 2 kg to 22 kg. The main diagnostic clinical sign noticed in this study was bilateral shrunken flank regions with doughy-hard consistency suggestive of impaction due to a hard mass. In the present study animals were solely fed with paddy

straw and rice bran besides grazing in the field. Paddy straw is very rich source of oxalates if it is given without urea treatment. The salt content of diet can be gradually increased to promote water intake and formation of large volumes of dilute urine postoperatively. Thus, immediate surgical intervention in cases of obstructive urolithiasis in animals could be very useful in preventing the mortality due to this ailment.

Keywords: rumen, rumenotomy, urethrotomy, cystorrhaphy, desmotomy

INTRODUCTION

Restoration and maintenance of different livestock traits including milk production, draught power and their physiological environment is necessary to confirm output in agriculture and dairy industry. In Chhattisgarh Surguja, the aim behind animal husbandry is draught and milk. In this study the clinical evaluation elicited by the use of surgery we maintain number of animals in their physiology these included maintaining their rumen function, skeleton function etc. Some of the clinical conditions like recurrent tympany, urinary retention, upward fixation of patella and other congenital defects are surely corrected by surgery and the animal becomes useful (Tyagi and

Singh, 2001). Primarily rumen impaction occurs in cattle and buffaloes mostly with depraved appetite. Most of these animals eat plastics, rope or leather pieces which make a tight wall inside the rumen due to the churning movement to cause impaction. Dietary luminal impaction is usually encountered in stall cattle fed on straw and poor quality hay with limited water access (Pinsent, 1962). The digestibility of straw is less owing to its high lignin content (Malik, 1984). Rectal palpation is one of the most reliable methods of diagnosing rumen impaction in cattle (Grymer and Ames, 1981).

Urinary calculi form in both castrated and uncastrated males also in females, but obstructive urolithiasis is primarily a problem of castrated adult males. However, cases also have been recorded in uncastrated males, calves of cows and buffaloes (Sharma and Singh, 2001).

Impaired patellar function is characterised by jerky movement during flexion to complete immobilisation of the joint. Since the animal fixes its limb in extension while the patella glides up over the trochlea to its maximum height on the articular surface, the condition should be referred to as recurrent or permanent upward fixation of the patella (Krishnamurthy, 2001).

MATERIALS AND METHODS

The present study was conducted on 14 animals subjected to major surgeries (rumenotomy, urethrotomy/cystorrhaphy and congenital defects) and more than 30 animals for desmotomy suffering from the respective surgical affection which were presented to veterinary hospitals in Surguja district from January 2010 to December 2011. Details of age, sex, breed, reproductive status and species was recorded for all the animals. The duration of illness,

feed intake, rumination, defaecation, milk yield, presence and absence of regurgitation and signs of pain were also recorded. The rectal temperature, pulse rate, respiration rate, rumen motility and rumen pH were recorded in each case.

Animals were divided as per clinical problem into three groups:

In Group 1, the animals were treated with rumenotomy operation under regional anaesthesia (paravertebral nerve block and/or inverted 'L' block with 2% lignocaine hydrochloride) for rumen impaction.

In Group 2, the animals subjected to specific surgical method under epidural nerve block with 2% lignocaine hydrochloride either for post scrotal urethrotomy or paramedian cystorrhaphy.

In Group 3, animals were treated for their congenital defect as per specific surgical approach under local anaesthesia with 2% lignocaine hydrochloride.

Cases reported for upward fixation of patella were only treated with the stab (closed) method of medial patellar desmotomy under local infiltration with 2% lignocaine hydrochloride in lateral recumbancy.

All animals were subjected to pre/post-operative antibiotics, analgesics, fluid therapy and other supportive medication as per need in all groups. All treatment techniques were evaluated based on clinical studies. Observations were made on day 0, 3rd, 7th, 15th, and 30th days postoperatively. These included survival rate of treated animal, physical condition, ruminal contraction and micturition, improvement over anorexia and improvement of livestock traits (milk yield and draught performance of animals). The quantities of foreign material removed from the rumen and of calculi from urethra or bladder were documented. Rumen pH was monitored at different intervals (0,

3 and 7) days postoperatively in respective cases.

RESULTS AND DISCUSSION

All the animals suffering from rumen impaction (two males and three females) were cattle and bullocks ranging from 4-9 years of age. The quantity of foreign materials removed by rumenotomy varied from 2 kg to 22 kg, out of which one animal contained hair-wall but the severity of clinical signs were similar to animals containing more ingested foreign material. Weakness, inappetence, complete anorexia, low milk yield to complete loss of milk, forced walking, scanty faeces and dehydration were the clinical signs. The main diagnostic clinical sign noticed in this study was bilateral shrunken flank regions with doughy-hard consistency suggestive of impaction due to a hard mass. Impaction has been reported as an important clinical sign (Kohli *et al.*, 1998, Gahlot *et al.*, 2005 and Boodur *et al.*, 2010). The duration of illness varied from 5-7 days, and the animal passes scanty faeces. Either absence or passage of scanty faeces in case of rumen impaction has been reported earlier (Turkar, 2004). History of tympany was recorded in two animals. Pinsent (1962) recorded ruminal distension, atony, hard and infrequent faeces, increased temperature and pulse rate, arching of back, rigidity of stance and a loud frequent moaning grunt in case of rumen impaction.

In Group 2, animals presented to hospital ranged between about 1 to 2 years, and the duration of illness varied from 1 to 4 days. Out of five animals, two had ruptured urinary bladders. All animals showed anorexia, dribbling to complete retention of urine, arching of back and increased respiration. On clinical examination the animals were found to

be dehydrated with abdominal distension. The cases were tentatively diagnosed to be of obstructive urolithiasis and it was decided to perform either post scrotal urethrotomy or cystorrhaphy.

Survival rate

Four out of five animals survived in Group 1 (ruminal impaction) and four out of five survived in Group 2 (obstructive urolithiasis/cystorrhaphy). In Group 3, all animals were in normal physical status. This suggested that timely approach in surgical indications is necessary. Mortality occurs in those cases where approach is delayed and the animals were presented in recumbent state to hospital.

Physical condition

Weakness, forceful walking, and even recumbency was noticed before treatment. These improved more rapidly when medical attention was given post operatively. All animals had timely recoveries and returned to their production and/or work in up to 3 months.

Ruminal contraction and micturition

Ruminal contractions improved more rapidly in Group 1, and regular urine flow was established in Group 2 postoperatively.

Improvement over anorexia

Improvement was only marginal on day 3rd and moderate on day 7th in both groups. Normal feeding was seen as early as 12th day.

Milk yield and/or other performance of animal

Those animals which were lactating at the time of surgery showed improvement 12 to 15% in Group 1 60th day post operatively and draught power was also achieved within 90 days.

The treatment of obstructive urolithiasis is



Figure 1. Removal of hairwall by rumenotomy.



Figure 2. Empty rumen post surgery.



Figure 3. Removal of plastic material by rumenotomy.



Figure 4. Calf with obstructive urolithiasis.



Figure 5. Removal of calculi and urethroplasty.



Figure 6. PVC tube position for urine flow.



Figure 7. Congenital knuckling of knee joint in a calf.



Figure 8. Correction of knuckling post surgery.

Table 1. Various clinical parameters pre- and post-surgery for animals with rumen impaction.

Parameter	Bullock 1		Bullock 2		Cattle 1		Cattle 2		Cattle 3		Mean		Normal
	Pre Surgery	Post Surgery	Pre Surgery	Post Surgery									
Rectal temperature (°F)	101.4	101	100.4	100.4	100	101	100.6	101.4	100	100.8	100.6	100.9	100-102.5
Respiration rate/minute	42	38	30	31	29	31	36	33	24	26	32.4	31.6	16-24
Pulse rate/minute	62	67	69	66	64	60	67	67	69	68	65.6	66.2	42-60
Rumen motility/5 minute	3	5	4	1	4	7	2	6	4	7	2.8	5.8	5-7
Rumen consistency	Hard	Firm	Viscous	Doughy	Hard/doughy	Viscous	Hard	Viscous/firm	Doughy	Viscous/Watery	Firm to Hard	Doughy to viscous	Watery to viscous
Rumen pH	5.5-6.0	6.0-6.5	6.0-6.5	5.5-6.0	5.5-6.0	6.0-6.5	5.5-6.0	6.0-6.5	5.5-6.0	6.0-6.5	5.5-6.0	6.0-6.5	6.3-7.0

primarily surgical (Van Matre *et al.*, 1996, Larson, 1996). The animal recovered completely after removal of calculi and normal flow of urine was established. The healing was uneventful in a time span of 10 days. Urolithiasis occurs especially in cattle receiving ration of high in cereal grains, oil meals or grazing in pasture containing large quantities of oxalates, estrogens or silica (Radostits *et al.*, 2000). In the present study animals were solely fed with paddy straw and rice bran besides grazing in the field. Paddy straw is very rich source of oxalates if it is given without urea treatment. The surgical treatment was adopted as per the standard procedure outlined by Kumar (1996). The salt content of the diet can be gradually increased to promote water intake and formation of large volumes of dilute urine postoperatively. Thus, immediate surgical intervention in cases of obstructive urolithiasis in animals could be very useful in preventing the mortality due to this ailment.

REFERENCES

- Athar, H., J. Mohindroo, Kiranjeet Singh, and Tarunbir Singh. 2010. Clinical, haemato-biochemical, radiographic and ultrasonographic findings in bovine with rumen impaction. *Intas Polivet*, **11**(2): 180-183.
- Boodur, P., B.V. Shivakumar, V.R. Kasaraliker and D. Dilipkumar. 2010. Rumen impaction in bovines with indigestible foreign bodies and its surgical and therapeutic management. *Intas Polivet*, **11**(2): 184-188.
- Gahlot, T.K., P. Bishnoi, S.K. Jhirwal, S. Palecha, S. Purohit, A. kumar, G. Rajpurohit, M.C. Parashar and P. Kajoria. 2005. Peculiar rumen impaction in cattle of Bikaner, p. 282-287. *In Pre-Proceedings of the 1st Round Table Conference on Rumenology*, Bikaner, India.
- Grymer, J. and N.K. Ames. 1981. Bovine abdominal pings, clinical examination and differential diagnosis. *Comp. Cont. Educ. Pract.*, **3**: 311-118.
- Kohli, R.N., F. Naddaf and A. Ghandram. 1998. Bovine indigestion due to chronic ruminal engorgement associated with ingestion of plastic materials: A retrospective study of 54 cases. *Indian J. Vet. Surg.*, **19**: 105-106.
- Krishnamurthy, D. 2001. Tendons and ligaments, p. 313-317. *In Ruminant Surgery*. C.B.S. Publishers and Distributors, New Delhi, India.
- Kumar, A. 1996. Surgery of urinary organs. *In Veterinary Surgical Techniques*. Vikas Publishing House Pvt. Ltd., New Delhi, India. 327p.
- Larson, B.L. 1996. Identifying, treating and preventing bovine urolithiasis. *Vet. Med.*, **91**: 366-377.
- Malik, N.S. 1984. Proper utilization of straw. *Liv. Adv.* **10**: 29-31.
- Peshin, P.K., J. Singh and R.P.S. Tyagi. 2001. General surgical consideration and fluid therapy, p. 5-6. *In Ruminant Surgery*. C.B.S. Publishers and Distributors, New Delhi, India.
- Pinsent, P.J.N. 1962. The differential diagnosis of abomasal disorders of bovine animals. *Vet. Rec.*, **74**: 1282-1284.
- Radostits, O.M., D.C. Blood and C.C. Gay. 1995. Diseases of the bladder, ureters and urethra, p. 448-455. *In Veterinary Medicine: A Textbook of the Diseases of Cattle, Sheep, Pigs, Goats and Horses*. ELBS with

Bailliere Tindall, London, England.

Sharma, S.N. and J. Singh. 2001. The urinary system. In Ruminant Surgery. C.B.S. Publishers and Distributors, New Delhi, India. 265p.

Van Metre, D.C. 1996. Obstructive urolithiasis in ruminants; Medical treatment and Urethral surgery. *Comp. Cont. Educ. Pract.*, **18**: 317-328.