

Original Research Article

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Standing Patellar Desmotomy and its Outcome in Cows

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Patellar desmotomy is a successful surgical procedure for stringhalt in cattle. In this paper describes about prevalence of upward fixation of patella respective of breed, age, status of the animal and level of mineral inclusion in Thalaivasal block of Salem, Tamilnadu. Also surgical procedure, outcome of standing patellar desmotomy and response of veterinarian particular about this condition were studied. Besides it achieves good outcome of patient with minimal restraining and it would be beneficial for the field veterinarians and farmers about the condition.

Introduction

Upward fixation of patella is one of the surgical condition which is mostly neglected by veterinarians, due to need of skilled surgical personnel. Upward fixation of patella also known as stringhalt/dharuk (hindi)/sundu vadham (tamil) in cattle. This is most commonly noticed in cattle and buffaloes. The causes are (multifactorial) Hereditary, nutritional deficiency, over exploitation, breed, external traumas, intense contraction of the crural triceps muscle and morphological changes in stifle joint (Chandrapuria *et al.*, 2012 and Singh *et al.*, 2015). Because of the

limitation of patellar movement, the clinical signs shows that inability to flex the hind limb and dragging of toe while sudden progression of animal (Greenough, 2015). But after few steps it may disappear as patella glides normally over the trochlear ridge. But when bilateral upward fixation of patella restricts the animal activity more, which is very unsightly for viewer. Medial patellar desmotomy is considered as gold standard of therapy. There are various form of conducting procedure standing, lateral recumbency with BP blade or silk (Naveen *et al.*, 2013 and Sherif, 2017) In this research study we discuss about the outcome of standing patellar

desmotomy procedure and prevalence of condition in (Thalaivasal block) in fifteen cases.

Materials and Methods

The study was conducted in Thalaivasal block, Salem district of Tamilnadu over a period of 3 months. Clinically diagnosis was made based on the signs of hesitation of stride, dragging of the toe on the ground and subsequent hyper flexion of stifle (Hanson and Peyton, 1987). On call basis cases attended, medically history, course of ailments (in months), breed, sex, age (in years which completed) and status of animal (lactating/non-lactating/trimester of pregnancy), response of previous veterinarian (Postponed/No-response) and level mineral supplementation (50 g per cattle considered as optimal, below 50 g considered as sub-optimal) of about the problem were recorded. Surgically standing patellar desmotomy carried followed by surgical parameters clinically severance of ligament (%), surgical site Swelling, Bleeding, Outcome after surgery (100 % normal activity considered as good and if below its considered as bad) and any other complications were recorded and analysed with average and percentage of basic statistics.

Surgical procedure

Preemptively 5 g of streptomycin-penicillin antibiotic and 15 ml of meloxicam administered intramuscularly. All the animals made stand on either tree or pole or Travis. The tails switch restraining done by one person from the back of the animal. Inner aspect of the thigh in which where medial line of flap of the flank attaches with limb prepared aseptically for surgery. The medial patellar ligament identified with digital guidance and over and beneath that 5 ml of 2% lignocaine infiltrated. After 5 minutes of

local analgesic infiltration, with left index finger guidance, right hand with No. 21 Bard parker blade inserted into the dipression between middle and medial patellar ligament. Then the blade turned towards medial side like horizontal transection of ligament. Complete severance of the ligament confirmed by the palpable depression. After that 5 ml Tincture iodine infused into the wound cavity. Animal trotted fast and examined for gait and activity.

Results and Discussion

In this study all animals were crossbred cows. The medical and surgical parameters represented in the table 1 and 2 respectively taken into the consideration for results and discussion. The condition more prevalent in cross bred jersey cow than cross bred HF. As the Thalaivasal block mostly plain hot and humid area (SDDM, 2018 and DSR, 2018). Hence the breed of choice here mostly jersey and sex wise all the animals are female due to economic reason in rural areas. Average age of occurrence of stringhalt in cattle is 5 years as reported in other studies (Singh *et al.*, 2015). Duration of illness is on an average 5.6 months. Response of veterinarian about the therapy is about 46.66 % postponed and 40% unattended. This duration of illness and on call response of veterinarian merely evidenced that lack of skill regarding patellar desmotomy procedure. Prevalence of upward fixation of patella is 46 % in Lactating, 40% in last trimester of pregnancy and 13.33% in non-lactating cows. Also it was found that 86.66 % in sub-optimal mineral supplemented animals.

In comparison of status of animal and level of mineral supplementation giving an inference that during high mineral needs and sub-optimal level of mineral inclusion may be potential cause for upward fixation of patella. This result has similarities with other studies

(Silva *et al.*, 2004 and Dhillon *et al.*, 2009). Although many causes intrinsic factors reported, this may be one of the common cause in Thalaivasal block as reported in other studies. In this study all animals were undergone detailed clinical examination, to rule out for other possible causes like conformational abnormality of stifle and exploitation of animal at work. About 2/3 of the cases were shows unilateral upward fixation of patella. It is attributed by progression of clinical signs from one to another limb rather sudden bilateral.

Although standing patellar desmotomy shows good surgical outcome as bringing normal activity of animal, mild swelling and bleeding noticed in some animals. But there is no known complications were noticed. In conclusion standing patellar desmotomy would be better surgical technique in the field. Pregnant animals have less risk in this technique than lateral recumbency (unpublished data). So skill development program with cadavers and training courses for field veterinarians may bring decreased course of illness.

Table 1 Clinical Parameters of Luxation of Patella in Cows

S. No	Breed	Sex	Age	Status of animal	Duration of illness (months)	Severity unilateral/bilateral	Response of previous veterinarian	Level of mineral supplementation
1	CBJ	F	4	Lactating	3	Unilateral	Postponed	Optimal
2	CBJ	F	4	Last trimester of pregnancy	6	Unilateral	No response	Sub-optimal
3	CBHF	F	5	Last trimester of pregnancy	5	Unilateral	Postponed	Sub-optimal
4	CBJ	F	5	Lactating	12	Unilateral	Postponed	Sub-optimal
5	CBHF	F	6	Last trimester of pregnancy	12	Unilateral	Postponed	Sub-optimal
6	CBJ	F	6	Last trimester of pregnancy	4	Bilateral	No response	Sub-optimal
7	CBJ	F	6	Lactating	3	Unilateral	Postponed	Sub-optimal
8	CBHF	F	5	Lactating	6	Unilateral	No response	Sub-optimal
9	CBHF	F	5	Last trimester of pregnancy	3	Unilateral	No response	Sub-optimal
10	CBJ	F	5	Non-lactating	1	Unilateral	-	Sub-optimal
11	CBJ	F	4	Lactating	1	Unilateral	-	Sub-optimal
12	CBJ	F	5	Non-lactating	3	Unilateral	Postponed	Optimal
13	CBJ	F	5	Last trimester of pregnancy	6	Unilateral	No response	Sub-optimal
14	CBJ	F	6	Lactating	12	Unilateral	No response	Sub-optimal
15	CBHF	F	5	Lactating	8	Bilateral	No response	Sub-optimal

Table.2 Surgical Parameters

S. No	Breed	Severance of ligament (%) clinically	Swelling	Bleeding	Other complications if any	Outcome after surgery
1	CBJ	100	No	-	No	Good
2	CBJ	100	No	-	No	Good
3	CBHF	100	No	-	No	Good
4	CBJ	100	No	-	No	Good
5	CBHF	100	No	-	No	Good
6	CBJ	100	Mild	Mild	No	Good
7	CBJ	100	No	-	No	Good
8	CBHF	100	No	-	No	Good
9	CBHF	100	No	-	No	Good
10	CBJ	100	No	-	No	Good
11	CBJ	100	No	-	No	Good
12	CBJ	100	No	-	No	Good
13	CBJ	100	No	-	No	Good
14	CBJ	100	Mild	Mild	No	Good
15	CBHF	100	No	Mild	No	Good

CBJ-Cross Bred Jersey, CBHF- Cross Bred Holstein Friesian, F-Female

For prevention mineral supplementation and avoidance of other intrinsic factors by selection and management will be considered as future research goals for researchers.

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Conflict of Interest: The authors declare that they have no conflict of interest

Ethical approval: As it's a clinical study no ethical permission could be invited

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