



ISSN: 2456-2912

VET 2024; 9(2): 400-403

© 2024 VET

www.veterinarypaper.com

Received: 06-12-2023

Accepted: 13-02-2024

JK Mahla

Assistant Professor,
Department of Veterinary
Surgery & Radiology, College of
Veterinary Science & A.H.,
Kamdhenu University, Anand,
Gujarat, India

PV Parikh

Professor and Head,
Department of Veterinary
Surgery & Radiology, College of
Veterinary Science & A.H.,
Kamdhenu University, Anand,
Gujarat, India

HM Barot

Teaching Associate,
Department of Veterinary
Surgery & Radiology, College of
Veterinary Science & A.H.,
Kamdhenu University, Anand,
Gujarat, India

KD Patel

PG Scholar, Department of
Veterinary Surgery & Radiology,
College of Veterinary Science &
A.H., Kamdhenu University,
Anand, Gujarat, India

BM Patel

PG Scholar, Department of
Veterinary Surgery & Radiology,
College of Veterinary Science &
A.H., Kamdhenu University,
Anand, Gujarat, India

JY Bodala

PG Scholar, Department of
Veterinary Surgery & Radiology,
College of Veterinary Science &
A.H., Kamdhenu University,
Anand, Gujarat, India

Corresponding Author:

JK Mahla

Assistant Professor,
Department of Veterinary
Surgery & Radiology, College of
Veterinary Science & A.H.,
Kamdhenu University, Anand,
Gujarat, India

Bowed tendon in horses and their management: A review of 18 cases

JK Mahla, PV Parikh, HM Barot, KD Patel, BM Patel and JY Bodala

DOI: <https://doi.org/10.22271/veterinary.2024.v9.i2f.1228>

Abstract

Abnormal shape and size of deep digital flexor tendon appears bowed shape after repeated injuries to the tendon. A total of 18 horses were presented for treatment and management of bowed tendon; where incidence of mid bow was encountered the highest 44.44% (8/18), while classic bow 22.22% whereas low bow and high bow recorded 16.66% respectively. Clinical signs were pain on palpation, limping, inflammation and compromised weight bearing on affected limbs in acute stage; whereas in chronic cases pain was abolished gradually, but exhibited abnormal shape and size of tendon resulted in blemish appearance. All 18 horses treated with physiotherapy for 7 to 14 days along with medicinal management for 3-5 days abolished pain, while inflamed tendon had mild reduction in first five days of physiotherapy treatment and then after no reduction/ no visible reduction in inflammation was observed.

Keywords: tendon, horses, management, encountered, pain

Introduction

Tendinitis can develop secondary to direct trauma from interference from the same or another horse. Ross (1997) [3] reported overload injury during exercise, leads to tendon fiber disruption and swelling (bowed tendon).

Rucker (2010 & 2016) reported that all bones can remodel (break down and re-form to change its shape) in response to stress. This in turn can damage the deep digital flexor tendon running over it, and the combination of remodelling and tendon injury can result in the tendon attaching to the remodelled area as it attempts to heal. This limits its function as it can no longer move smoothly across the bone.

Bowed tendon treated with low-level laser therapy; include wound therapy, treatment of soft tissue injuries, osteoarthritis, and local pain relief. The biological effects of laser include anti-inflammatory effects such as reduced IL-1 levels, reduction of pain sensation through reduced nerve depolarization and release of endorphins, and enhanced ATP production. The dose of energy required for treatment depends on the nature of the injury, depth of the tissue, and desired effect (stimulation of tissues for healing or anti-inflammatory and pain relief effects. (Marcellin-Little *et al.*, 2015) [1].

Case history: Tendon abnormalities presented with clinical signs of limping/lameness or reduced phase of stride; while running with evident unilateral inflamed caudal subcuticular structure of metacarpal was observed in the 18 horses. Incidence of mid bow was encountered the highest 44.44% (8/18), followed by classic bow 22.22% (4/18), whereas low bow and high bow were recorded 16.66% (3/18) respectively.

Diagnosis: Physical palpation and subsequent clinical examination revealed inflamed superficial and deep digital flexor tendon observed in the forefeet, caudal to metacarpal at different anatomical location was observed in all cases (n=18). Based on anatomical location of inflamed tendon conditions were classified as high bow (n=3), mid bow (n=8), low bow (n=3) and classic bowed tendon (n=4); where all the cases were presented after 24 to 60 day's of onset. Clinical signs of pain and limping reported in the five cases (grade 3) and remaining horses showed mild limping during running (grade 2).



Fig 1: Classic bow



Fig 2: Low bow

Lateral view x-ray was carried out in all cases to find out bony involvement and radio-opaque changes of affected tendon; where all affected tendons showed irregularly enlarged and radio-opaque changes along with radiolucent fluid. The USG examination was also carried out for

differential diagnosis of cyst/ haematoma/ tumour with linear array probe scanning was carried out; where hyper echoic inflamed tendon with anechoic fluid filled structure around tendon.

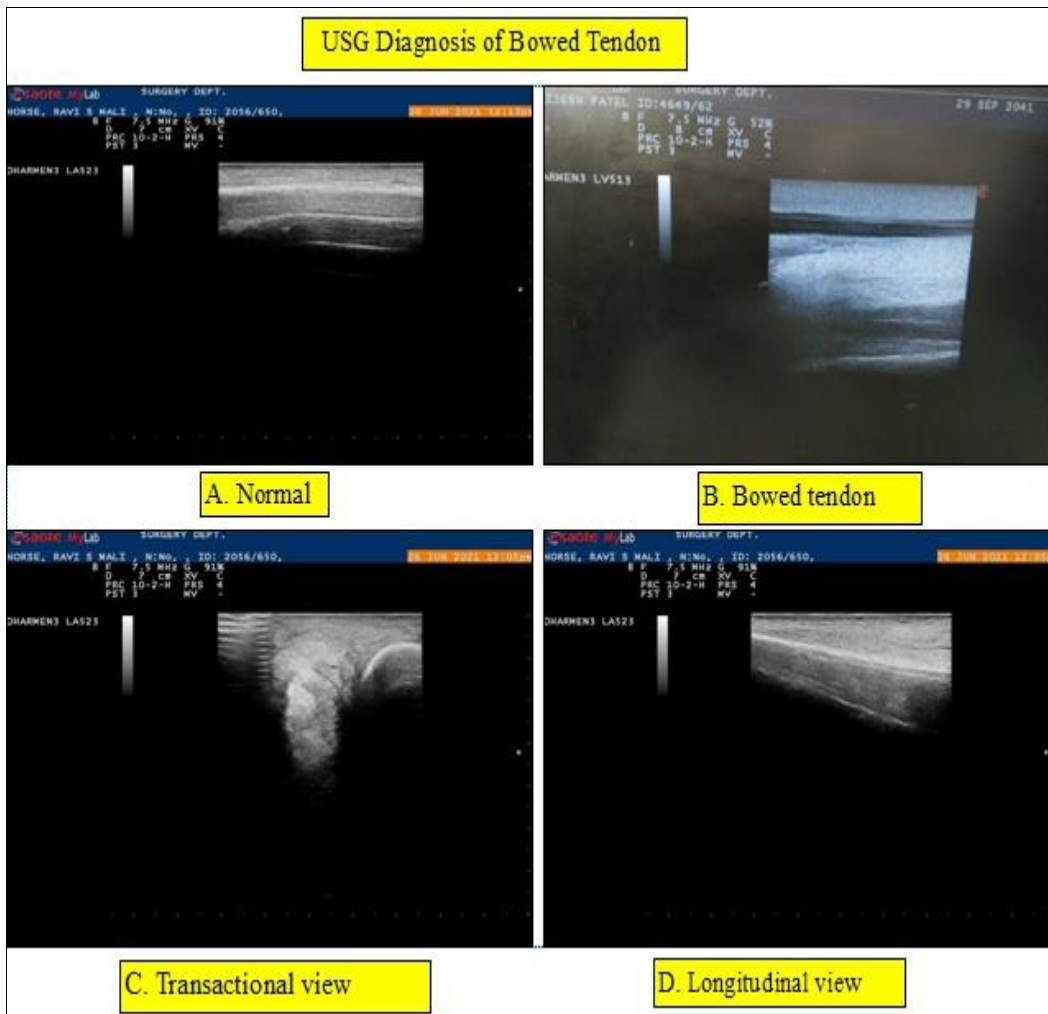


Fig 3: USG Diagnosis

Medicinal management and physiotherapy

Medicinal management of bowed tendon includes Dicrysticin-S 2.5 gm i/m and Flunixin meglumine 1.1 mg/kg i/v for five days. Physiotherapy was applied in all cases with infrared lamp followed by therapeutic ultrasound/ TENS and

low level laser for 7 to 21 days; whereas only PEMF (Pulse Electro-Magnetic Field) was applied in furious horses, which didn't allowed therapeutic ultrasound/ TENS mode of physiotherapy.

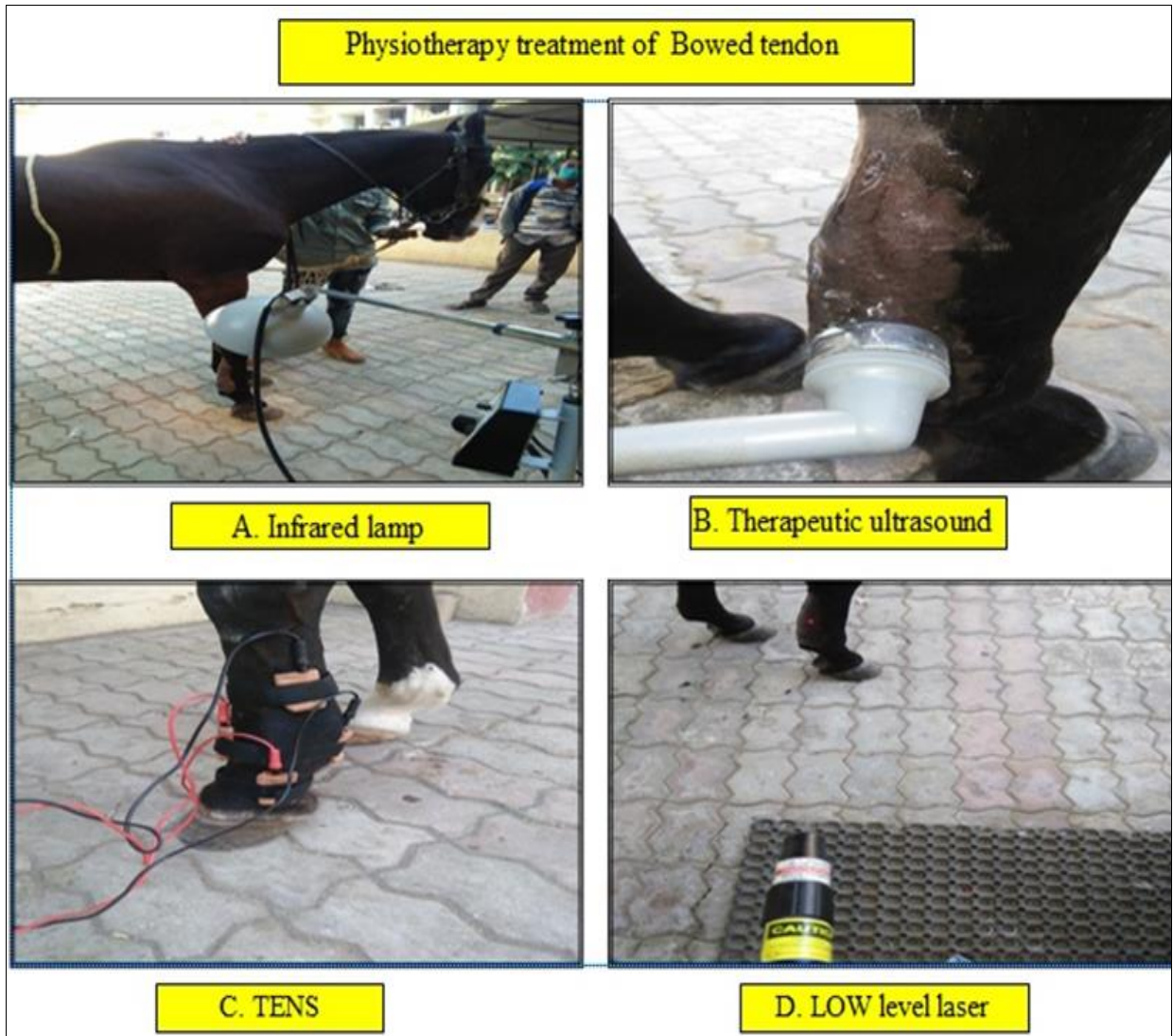


Fig 4: Physiotherapy



Fig 5: PEMF physiotherapy



Fig 6: Before treatment



Fig 7: 5th day of treatment

Results

Physiotherapy along with medicinal management showed average 4 to 6mm reduction in the inflamed bowed tendon in first 3 to 5 days of treatment, while no further reduction was

observed on subsequent 5th day of treatment, but limping was slowly abolished and normal weight bearing was recorded in all cases.

Table 1: Classification, lameness grades before and after treatment & duration of treatment of navicular disease

No. of Affected animals	Classification	Duration of treatment (days)	Lameness grades (AAEP)		Tendon size (mm)	
			Before	After	Before (Mean±SE)	After (Mean±SE)
8	Mid bow	7-12	2-3	1	5±0.59	3.75±0.45
3	Low bow	7-9	2	1	3.66±0.33	2.66±0.33
3	High bow	7-15	2	1	6.33±0.88	4.66±0.66
4	Classic bowed	12-21	3	1	5.25±0.47	3.75±0.47

The present findings were matched with findings reported by Marcellin-Little *et al.* (2015) ^[1]; where they treated bowed tendons with low-level laser therapy and obtained similar results, while Robinson (2008) ^[2], used electrical current to surface electrodes to produce quality of improved healing and shortened rehabilitation time.

Conclusion

Tendon injuries are commonly encountered in horses followed by repeated injuries, stress fractures, interference injuries and various other types of injuries. Acute injuries limping and pain exhibited by affected horses and such issues can be restored normally by medicinal and physiotherapy, whereas chronic inflammatory changes more than 3-6 months of bowed tendon didn't showed pain and limping signs and medicine along with physiotherapy provide mild reduction in inflammation but failed to restored it normally.

Reference:

1. Marcellin-Little DJ, Levine D, Millis DL. Veterinary rehabilitation and physical therapy. *Veterinary Clinics: Small Animal Practice*. 2015;45(1):9-10.
2. Robinson AJ. *Clinical electrophysiology: electrotherapy and electrophysiologic testing*. Lippincott Williams & Wilkins; c2008.
3. Ross MW. Surgical management of superficial digital flexor tendinitis. In *Proc. Am. Assoc. Equine Pract.* 1997;43:291-296.
4. Rucker A. Equine venography and its clinical application in North America. *Veterinary Clinics: Equine Practice*. 2010;26(1):167-177.
5. Rucker A. The digital venogram. *Equine Laminitis*; c2016. p. 240-251.