

Dept. of Surgery,
Faculty of Vet. Med., Assiut University,
Head of Dept. Prof. Dr. M.T. Nassef.

CUNEAN TENECTOMY IN DONKEYS (With 5 Figs.)

By
I.H. AHMED; S.F. ISMAIL* and S.EL-M. ALI
(Received at 9/4/1991)

استئصال الوتر السفيني في الحمير

ابراهيم حسين ، سامي فرغلي ، صفوت المختار

تم في هذا البحث دراسة التشريح الجراحي لمفصل العرقوب وبالأخص الوتر السفيني علي عدد ١٠ أرجل خلفية في الحمير . وكما تم أيضا عمل ازالة جزئية للوتر في عدد ١٠ حيوانات حيث تم تقسيمهم الي مجموعتين حيث تم الفتح في المجموعة الأولى موازي للوتر والمجموعة الثانية عموديا عليها . وأثبتت النتائج أن الفتح بالطريقة الأولى أفضل حيث ينتج ازالة جزء أكبر من الوتر وهذا يعتبر عامل هام لنجاح العملية والعلاج .

SUMMARY

Surgical anatomy of the tarsal region with special reference to the cunean tendon was studied on 10 fresh specimens of pelvic limbs in donkeys. Cunean tenectomy was performed on 10 donkeys divided into 2 groups with two different methods of surgical approaches. The oblique approach was found more better than vertical one. A maximal resection for the tendon was performed through the oblique approach (4 cm) which is considered very essential for successful operation for treatment of bone spavin in donkeys.

INTRODUCTION

Cunean tenectomy is indicated for the treatment of bone spavin (degenerative joint disease "DJD" of the distal intertarsal and tarsometatarsal joints of the horse (ADAMS, 1974; DIETZ and WIESNER, 1984 and JENNINGS, 1984). In spite of numerous types of therapy for treatment of bone spavin, many affected horses remain lame and resistant to all conventional methods of therapy (ADAMS, 1974). At the same time GRANDE (1972) stated that, good results are achieved with tenotomy or tenectomy of the medial tendon

* Dept. of Surgery, Faculty of Vet. Med., Moshtohor, Zagazig University.

of the tibialis cranialis muscle, which is commonly termed the cunean tendon (SISSON, 1975).

Cunean tenectomy removes a source of pain where the tendon crosses the spavin area (ADAM, 1974 and SISSON, 1975). The available literatures lack any informations about the surgical anatomy of the cunean tendon as well as its surgical exposure and tenectomy in donkeys.

The aim of the present work is to study the topographic anatomy, surgical exposure and tenectomy of the cunean tendon in donkeys.

MATERIAL and METHODS

A preliminary work was performed on 10 fresh specimens of pelvic limbs to study the topographical anatomy of the tarsal region as well as the relationship of the cunean tendon with the surrounding structures. The external landmarks were traced to determine the proper sites of surgical approach. Length, width, thickness and course of the tendon were detected and covered with the determined superficial landmarks.

10 mature living donkeys were subjected for surgical exposure of the cunean tendon under effect of deep narcosis in a dose of 10 gm/100 kg.b.w. "i.v. in a 10% solution" (HALL, 1978). Animals were divided into 2 groups each of 5, surgical exposure and tenectomy was performed in group I through an oblique incision and in group II through a vertical incision. Maximal tenectomy was performed and the length of the transected segment was calculated. All operations were performed under aseptic conditions and stitches were removed 10 days postoperatively.

RESULTS

The cunean tendon of the tibialis cranialis muscle of the donkey is located at the medial aspect of the tarsal joint (Fig. 1). It passes obliquely over the distal intertarsal and tarsometatarsal joints and inserted at the first tarsal bone. At the medial aspect of the tarsal joint, there are two oblique grooves running between three bony prominences; the dorsal prominence is the medial malleolus of the tibia; the middle one is the sustentaculum of the tibial tarsal bone; while the ventral prominence is the first tarsal bone with the proximal extremity of the large metatarsal bone. The cunean tendon passes obliquely at the ventral groove (Fig. 1 & 2).

The average length of the cunean tendon is 6 cm, width is 1.1 cm at its origin and 2.0 cm at its insertion and its thickness is around 0.4 cm at its origin and 0.2 cm

CUNEAN TENECTOMY

at its insertion. The vertical distance between the medial malleolus of the tibia and the dorsal border of the cunean tendon is about 3.5 cm.

The saphenous vein runs parallel to the longitudinal axis of the limb at the antero-medial aspect of the tarsal region and crosses the external surface of the cunean tendon about 1 cm from its origin (Fig. 1).

Surgical exposure and tenectomy was performed in lateral recumbency with the operated limb downwards and medial aspect of the tarsal region with the proximal third of the metatarsal region were prepared for aseptic surgery. Two surgical methods for exposure of tendon was performed.

In group I (5 donkeys), an oblique cutaneous incision directed caudoventrally, about 5 cm in length is made through the skin and subcutaneous tissues at the ventral groove of the tarsal region (Fig. 2). At this point, the cunean tendon will be visible after its blunt dissection from the surrounding tissue. A pair of Mosquito artery forceps are directed under the cunean tendon and into cunean bursa to emerge from the proximal edge of the tendon (Fig. 3). The tendon is then severed at its proximal end and the distal portion of the tendon is grasped with the forceps (Fig. 4). About 4 cm maximal length from the tendon can be removed.

In group II (5 donkeys), a vertical incision about 3 cm in length is made on the ventral groove of the tarsal region, connecting between the sustentaculum of the tibial tarsal bone "middle prominence" and the first tarsal bone with the proximal extremity of the large metatarsal bone "distal prominence" (Fig. 2 & 5). The cunean tendon was found crossing the vertical skin incision nearly at its middle. A cutaneous self retaining wound dilator was applied and a maximal length of the tendon was exposed. Resection was performed as mentioned in first group. A maximal length of 2 cm only can be removed through this method of exposure.

The skin wound is closed using silk No. 2 in a simple interrupted pattern and healing was accomplished by first intention within 10 days in all animals.

DISCUSSION

TURNER and MCILWRAITH (1982), mentioned that the distal limit of the chestnut is a good landmark for approach of the cunean tendon in the horses. This statment could not be applied on the donkey because it hasn't a chestnut at the hind limb. Superficial landmarks were traced and three prominences and two grooves were detected and used as a suitable external landmarks for determination of the course of the cunean tendon. The ventral groove at the medial aspect of the tarsal joint bounded between the sustentaculum of the tibial tarsal bone dorsally and the first tarsal bone with the

proximal extremity of the large metatarsal bone ventrally is considered a good landmark for determination of the seat for surgical approach of the cunean tendon in the donkey.

Our results indicated that oblique skin incision for surgical exposure of the cunean tendon at the ventral groove is more favourable than the vertical one. The only disadvantage is the presence of the saphenous vein crossing the tendon near its origin. Care must be taken to avoid its severing during dissection and simple and gentle traction can be applied to take it away from the field of operation. This approach gives an ample space for the operator for maximal resection of the tendon which is considered an important factor for the success of cunean tenectomy in relieving pain due to its pressure. This concept is supported by TURNER, et al. (1982).

In spite of this statement JENNINGS (1984), suggest the vertical incision for cunean tendon exposure specially for the beginners to avoid the errors in doing the oblique incision dorsal or ventral to the seat of position of the cunean tendon. He added that unlike the vertical incision, the parallel incision cannot be modified if it is too proximal or too distal.

From our point of view the superficial landmarks suggested in our present work are considered to be a good aid for determination of the seat of exposure of the cunean tendon and errors can be nollified if these landmarks are accurately followed. In addition oblique exposure facilitate maximal resection of the tendon which is essential for successful operation and treatment.

REFERENCES

- Adams, O.R. (1974): Lameness in horse, 3rd ed. Lea and Febiger, Philadelphia, 327-338.
- Dietz, O. and Wiesner, E. (1984): Diseases of the horse. A handbook for science and practice. Part 2/II S. Karger. Basel. Translated from the original German edition by Terry C. Telger, Marina, Calif., 82-89.
- Grande, E.M. (1972): The surgical treatment of bone spavin. Wamberg's spavin operation and tenectomy of the medial branch of the anterior tibial muscle. A comparative of the result of surgical treatment in trotting horses. Nord. Vet. Med., 74: 388.
- Jennings, Paul B. (1984): The practice of large animal surgery. Vol. II. 1st ed. W.B. Saunders Company. Philadelphia. London. 938-939.
- Hall, L.W. (1978): Wright's Veterinary Anaesthesia and Analgesia. 8th ed. London. Bailliere Tindall and Cassell, pp. 172.
- Sisson, S. (1975): Equine Myology, in Sisson and Grossman, S.: The anatomy of the domestic animals. 5th ed. Rev. by R. Getty, W.B., Saunders Company, Philadelphia, London. Toronto.
- Turner, A.S. and McIlwraith, C.W. (1982): Techniques in large animal surgery. 1st ed. Lea and Febiger, Philadelphia, 118-120.

CUNEAN TENECTOMY

LEGENDS

- Fig. 1:** Antromedial view of the left tarsal region after reflection of the skin.
 TC. Tibialis cranialis muscle.
 AB. Anterior branch of the tibialis cranialis muscle.
 CT. Cunean tendon.
 SV. Saphenous vein.
 1. Medial malleolus of the tibia
 2. Sustentaculum of the tibial tarsal bone.
 3. First tarsal bone with the proximal extremity of the large metatarsal bone.
- Fig. 2:** The medial aspect of the right tarsal joint of a donkey. The white tape indicates the course of the cunean tendon. This is the site of incision for exposure of the cunean tendon.
- Fig. 3:** The cunean tendon under two mosquito artery forceps.
- Fig. 4:** The cunean tendon is grasped with forceps after incising its proximal end.
- Fig. 5:** The vertical incision approach of the cunean tendon in a donkey.



