

SURGICAL SERIES

Medial patellar desmotomy for upward fixation of the patella

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INTRODUCTION

Medial patellar desmotomy is a procedure designed for the relief of the condition of upward fixation of the patella. It is not a benign procedure. **Great care, therefore, should be taken to diagnose the condition accurately and choose the correct treatment.** Upward fixation of the patella occurs when the stifle subtends an angle of 143°-145° and the medial patellar ligament hooks over the medial trochlea of the femur (Rooney 1973).

The condition is more common in horses with a straight hind limb conformation whose stifle angle is nearer 140° (in the normal horse it is about 135°), so that only a small degree of extension is required for upward fixation to occur (Rooney 1973). It is not a luxation of the patella. It is generally considered that the predisposing conformation or the condition itself is probably hereditary (Stashak 1987) and often bilateral.

CLINICAL SIGNS

A horse with upward fixation of the patella stands with the hind limb locked in extension with the fetlock flexed (Fig 1). This posture is caused by the reciprocal apparatus (Smythe and Goody 1972). The leg releases with a snap, usually unaided, but occasionally the horse requires assistance. **Some horses show only an intermittent**



Fig 1: A 4-year-old pony with upward fixation of the right patella

catching of the stifle, especially when turned towards the affected limb. This can be mistaken for stringhalt. The more serious cases have a crouching gait walking uphill and a jerky gait walking downhill in an attempt to avoid overextension of the hind limbs. Femoropatellar joint distension may be present.

The condition is more commonly seen in young horses and ponies, especially if they are in poor condition, but it can occur in older animals following trauma to the stifle region. It is most frequently manifest when the affected horse is stabled and sometimes appears in fit horses that are suddenly box rested. Lameness may develop in more severe or long-standing cases.

DIAGNOSIS

This may rest largely on the history and the owner's description, if the horse does not lock the patella during the examination. It may be possible to lock the patella manually by pushing it proximally and laterally (Stashak 1987) though this can be difficult and is resented by many horses. **A careful search should be made for concurrent stifle disease such as osteochondrosis dissecans, ligament or meniscal injury and the site of any lameness should be confirmed by diagnostic anaesthesia.** It is prudent to take radiographs of both stifles because any pathology affects decisions as to treatment and prognosis.

TREATMENT

For the horse that presents with the patella locked, pushing the patella medially and distally, backing the animal is recommended (Stashak 1987), but usually pulling the limb forward with a side-line is necessary in a severe case.

If the upward fixation of the patella is intermittent and not causing lameness or gonitis, a conditioning programme should be undertaken. This should include an exercise regime, the administration of anthelmintics and an increased plane of nutrition as appropriate for each case. **Complete stable rest is usually contraindicated. Immature horses should be allowed time to outgrow the problem.** Injection of counter-irritants containing iodine into the medial and middle patellar ligaments can be

used at this stage (Norrie 1982). The author has no experience of this treatment.

Surgery is indicated only when there is certainty of diagnosis and then only in the following cases: (1) **Those in which the patella is continually locking**, (2) **Those which have associated lameness or evidence of gonitis**, (3) **The horse with intermittent upward fixation of the patella that has not responded to a conditioning programme**, (4) **The young animal for whom the problem has not resolved with increasing maturity**.

SURGICAL TECHNIQUES

Medial patellar desmotomy is well described in the literature (Norrie 1982; Stashak 1987; Turner and McIlwraith 1989). Unless the cause of the disease is obviously traumatic, both limbs should always be subjected to surgery. The most popular technique performed under local anaesthetic on the standing horse requires a small incision over the distal part of the medial patellar ligament. A curved Kelly forceps is advanced caudally under the ligament developing a path for a blunt ended bistoury. The end of the bistoury can be palpated caudal to the ligament before it is severed close to its tibial insertion. Stringent asepsis should be observed and care should be taken to avoid excessive tissue damage. Both of these can contribute to postoperative problems. Once the ligament is severed the edge of the *sartorius* muscle is palpable caudally.

Some surgeons prefer to perform this surgery with the horse under general anaesthesia. This allows better asepsis; the ligament can be exteriorised before severing and the fascia overlying the ligament can be sutured prior to skin closure. These factors help to reduce the incidence of postoperative swelling and wound dehiscence.

POST-OPERATIVE MANAGEMENT

Post-operative administration of a non-steroidal anti-inflammatory drug is advisable for the control of pain, which can be considerable, and for its anti-inflammatory properties. Because more side-effects with this surgery are being recognised, a more conservative approach to post-operative exercise is now recommended (Gibson *et al.* 1989). Stable rest with graded handwalking exercise for the first 3 months and no serious work for a further 2 months is appropriate for most cases in order to allow the patella to regain stability.

COMPLICATIONS

Short term complications include pain, swelling and wound dehiscence. Fracture of the patellar apex within 7 days of medial patellar desmotomy was reported by Riley and Yovich (1991). Radiographs also showed that the patellar base was displaced cranially from the femur.

Long term complications appear to be associated with instability of the patella (Gibson *et al.* 1989). McIlwraith (1990) reported a series of 15 cases of



Fig 2: Lateromedial radiographic view of the left patella of a 6-year-old riding horse showing osteochondral fragmentation of the patellar apex.

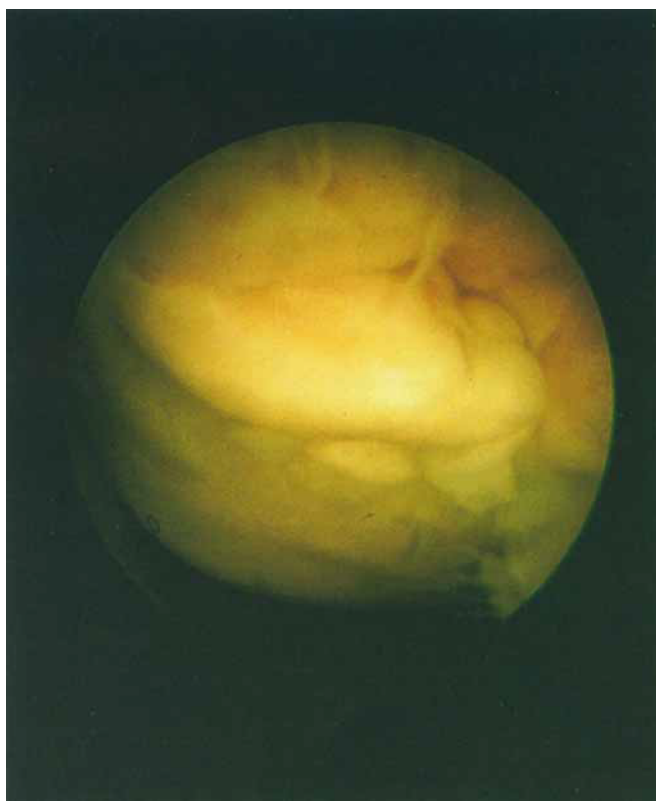


Fig 3: Arthroscopic view of the osteochondral fragment from the patellar apex shown in Fig 2.

osteochondral fragmentation of the patellar apex (**Fig 2**), 12 of which had previously had a medial patellar

desmotomy. The other 3 cases were not typical of the changes seen following desmotomy. Over a 2-year period this author (Walmsley, unpublished data) has treated 14 similar cases arthroscopically. Typically, small osteochondral fragments lie in the synovial capsule adjacent to the apex of the patella (**Fig 3**) and there are degenerative changes into the subchondral bone of the patella, often on the lateral apex. McIlwraith noted fibrous periarticular thickening of the medial aspect of the stifle in all cases that had previously undergone medial patellar desmotomy and many had synovial effusion in the femoropatellar joint. The results of treatment by arthroscopic surgery are good.

Gibson *et al.* (1989) performed a medial desmotomy on one limb in 12 normal horses. In each horse the contralateral limb was sham operated. All the horses were lame on the treated limb at one, 2 and 3 months postoperatively. Eleven horses showed radiographic changes in the treated limbs including osteochondral fragmentation on the distal lateral patella (8 horses) and new bone formation at the attachment of the middle patellar ligament on the patella (10 horses).

These findings show that medial patellar desmotomy causes damage to the patellar apex and adjacent soft tissues. Consequently the operation should be performed only on cases which are confirmed diagnostically and which do not respond to conservative management.

REFERENCES

- Gibson, K.E., McIlwraith, C.W., Park, R.D. and Nordin, R.W. (1989) Production of patellar lesions by medial patellar desmotomy in horses. *Vet. Surg.* **18**, 466-471.
- McIlwraith, C.W. (1990) Osteochondral fragmentation of the distal aspect of the patella in horses. *Equine vet. J.* **22**, 157-163.
- Norie, R.D. (1982) Disease of the rear legs. In: *Equine Medicine and Surgery*, 3rd edn. Eds: R. A. Mansmann and E. S. McAllister. American Veterinary Publications, Santa Barbara, pp 1137-1138.
- Riley, C. B. and Yovich, J. V., (1991) Fracture of the apex of the patella after medial patellar desmotomy in a horse. *Aust. vet. J.* **68**, 37-39.
- Rooney, J.R. (1973) The abnormal rear leg. In: *The Lame Horse*, 1st edn. Ed: J. R. Rooney. A. S. Barnes and Co., Inc., Cranbury, New Jersey. p 175.
- Smythe, R.H. and Goody, P. C. (1972) The horse at rest and in motion. In: *The Horse, Structure and Movement*, 2nd edn. J. A. Allen & Co Ltd. London. pp 120-123.
- Stashak, T.K. (1987) Upward fixation of the patella. In: *Adam's Lameness in Horses*, 4th edn. Ed: T. S. Stashak. Lea & Febiger, Philadelphia. pp 737-741.
- Turner, A.S. and McIlwraith, C.W. (1989) Medial patellar desmotomy. In: *Techniques in Large Animal Surgery*, 2nd edn. Eds: A. S. Turner and C. W. McIlwraith. Lea and Febiger, Philadelphia. pp 133-135.

CLINICAL QUIZ

Answer

i) This was a case of multisystemic eosinophilic epitheliotropic disease.

ii) corticosteroids; oral prednisolone, 1 mg/kg bwt daily or intravenous dexamethasone, 0.1 mg/kg bwt daily. Therapy should be given in the morning (at about 09.00 h) for about 3 weeks, after which gradual reduction of the dose rate should be made e.g. 2 further weeks at same dose given every other day, then 2 further weeks at half the dose and so on. Cases should be monitored for clinical signs associated with laminitis which is a possible complication of corticosteroid therapy.

This particular case initially responded well to corticosteroid (prednisolone) therapy with almost total resolution of the lesions over a 2-week period. However, despite maintenance of the therapeutic regimen the horse's clinical condition deteriorated quickly during the succeeding month. Widespread, pruritic skin lesions and alopecia occurred affecting the limbs (**Figs 2** and

3, opposite), trunk, neck (**Fig 4**) and external nares (**Fig 5**). In addition the horse lost body weight and developed mild diarrhoea. The horse was subjected to euthanasia on humane grounds. At *post mortem* examination multiple organ involvement was confirmed with eosinophilic reactions identified in the intestine, liver and pancreas as well as the skin.

COMMENT

The aetiology of this rare equine disease is not known. the clinical presentation is most commonly of weight loss but the distribution of skin lesions at the time of presentation of this case are virtually pathognomonic. The prognosis for affected cases is poor. Recently the use of the antineoplastic agent hydroxyurea has been advocated for treatment of multisystemic eosinophilic epitheliotropic disease in the horse.