

Epidural anaesthesia in donkeys

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Epidural anaesthesia was tested on 40 donkeys. The second intercocygeal space was found suitable for satisfactory induction and a dose of 8 to 10 ml of 1 per cent procaine hydrochloride was recommended for inducing posterior epidural anaesthesia and 30 ml of 2 per cent for anterior epidural anaesthesia.

DESPITE the mechanical devices which have been introduced to help the Egyptian farmer in his daily life, donkeys still play a valuable part in the work, carrying loads and as a means of transport.

In our veterinary practice, donkeys are most frequently presented with surgical and obstetrical affections. In dealing with such cases epidural anaesthesia is usually tried as a method of anaesthesia for surgical procedures on the hind parts of the animal such as rectal prolapse, vaginal prolapse, melanomas and fistulae.

Many authors have worked on the subject of epidural anaesthesia in horses (McLeod and Frank 1928; Brook 1935; Frey 1952; Heath and Myers 1972). Others have dealt with it in cattle (Benesch and Wright 1951), buffaloes (Fouad 1964) and camels (Fouad and Morcos 1965), but until now there has been no published account of its application in donkeys.

In practice, epidural anaesthesia in the donkey is similar to that in the horse but most trials in donkeys have failed to establish a satisfactory anaesthesia. We decided to look at this problem thoroughly.

Anatomy

It was found necessary to examine the anatomical features of the caudal region of the donkey.

The sacrum of the donkey consists of five segments. The first coccygeal vertebra is often fused with the sacrum with occlusion of the sacro-coccygeal space. The sacral spines point backwards and rapidly decrease in length caudally. The spinal canal slopes backwards more steeply to end at the third coccygeal vertebra and its diameter diminishes towards the ear (Table 1).

TABLE 1: Average diameter (cm) of the vertebral canal in the sacral and coccygeal regions

| Vertebra | S ₁ | S ₂ | C ₁ | C ₂ |
|------------|----------------|----------------|----------------|----------------|
| Transverse | 2.8 | 1.6 | 1.4 | 0.9 |
| Vertical | 1.6 | 1.0 | 0.8 | 0.5 |

The spinal cord in donkeys ends at the second sacral vertebra while the dural sheath extends back to the first or sometimes to the second coccygeal vertebra. The coccygeal vertebrae are much better developed in donkeys than horses and the vertebral arches of the first three coccygeal vertebrae are complete with easily recognised interarcuate ligaments. The first intercocygeal space is narrower than the second.

Materials and methods

Experimental animals.—Forty donkeys, aged between five and 13 years, were used. They were divided into three groups (A, B and C) chosen at random without reference to the animals' weight.

Equipment.—Sterile hypodermic 16 gauge needles, 8 cm long, and sterile syringes of 10 ml or 20 ml capacity were used.

Anaesthesia.—Sterile solutions of procaine, HCl at 4, 2 and 1 per cent concentrations were used for groups A, B and C respectively.

Site of injection.—The second intercocygeal space was found more suitable than the first because of the wide interval between the spines of the second and third coccygeal vertebrae and the free movement of the vertebrae at this site making the location of the second intercocygeal space easy. The needle can easily be introduced into the vertebral canal here and there are no large tail muscles. The site of injection is located by passing the finger down the contour of the croup and counting the spines from the first sacral segment until the first and second coccygeal spines (which are well developed in donkeys) are reached. Passing the finger a little backwards reveals an ill-defined third coccygeal spine which enables one to recognise the second intercocygeal space.

Technique.—The animal is controlled by a twitch and secured in a stanchion. The site of injection is clipped, shaved and disinfected. The tail of the animal is manipulated with the left hand and the needle inserted, using the right hand, at the centre of the second intercocygeal space. The needle is then pushed steadily downwards and forwards under the second coccygeal spine at an angle of 30 degrees with the horizontal. When the point enters the vertebral canal, it should be inserted to its full length. Then the syringe is attached and injection attempted. There is no resistance provided that the needle has been inserted in the epidural