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ANALGESIA OF THE EXTERNAL EAR IN DONKEYS

(With 2 Fig.)

By

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تخدير الأذن الخارجيه في الحمير

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تمت هذه الدراسة على عشر حيوانات بالغه سليمه اكلينيكيًا و ٧ عينات للرأس والرقبه لدراسة توزيع الأعصاب المغذيه للأذن. تم حقن أماكن الأعصاب المغذيه للأذن كل على حدى فى الحيوانات السليمه بالبروكايين ٢%.

ANALGESIA, EXTERNAL EAR & DONKEYS

SUMMARY

The present study carried out on ten clinically healthy adult donkeys of different weights and sexes. The anatomical distribution of the nerves supplying the ear were studied. Local infiltration and nerve block analgesia were performed by using 2-3ml procain Hcl 3% solution injected around the seats of each nerve separately.

INTRODUCTION

The surgical procedures on the external ear are generally consider under elective or nonlective surgery. Elective is done for the benefit of the owner and not the animal itself such as cosmetic surgery to correct specific defect of the ear, ear notching for identification purposes and ear tattoos. Nonelective surgery is the repair of defects for the benefit of the animal primarily. These include treatment of othematomas, wounds, lacerations, cellulitis, broken cartilage, tumours and otitis externa (HARVEY, 1930; DIETZ and WIESNER, 1984; BIRCHARD, 1985 and TITUS, 1938).

Anaesthesia for these procedures varies in large animals from non at all to local blockade of the auricula branches of the facial nerve and from regional infiltration of a local anaesthetics to general anaesthesia (DEHNE and PRIER, 1974). The nerve supply to the ear are mainly comes from the facial nerve which gives the internal auricular, posterior auricular, auriculo-palpebral and cervical branches. Other sensory branches are derived from the superficial temporal and vagus nerve (GETTY, 1975).

The aim of the present work is to determine the seats of local infiltration analgesia and nerve block of the external ear in donkeys.

MATERIALS AND METHODS

The present study was carried out on ten clinically healthy adult donkeys of different weights and sexes. The distribution of the nerves supplying the ear were studied anatomically on seven head and neck specimens.

Local infiltration and nerve block were determined in relation to some superficial anatomical landmarks mainly the styloid process, the base of the ear and the upper margin of the parotid gland. The effect of ear analgesia was detected by needle pricks at the external and internal surfaces of the external ear flap.

RESULTS

Anatomy the nerve supply of the ear (Fig.1):-

(1) The posterior auricular nerve arises from the facial nerve at its emergence from the facial canal. It runs upward and backward under cover of the parotid salivary gland supplies the posterior and dorsal auricular muscles and skin of the convex surface of the external ear.

(2) The internal auricular nerve ascends in the parotid gland just behind the styloid process of the conchal cartilage, passes through an opening in the cartilage and ramifies in the skin of the concave surface of the ear flap.

(3) The auriculo-palpebral nerve arises from the upper edge of the facial nerve near the posterior border of the ramus of the mandible, ascends in the parotid gland and terminates in anterior auricular and temporal branches. The anterior auricular branches form with the frontal and lacrimal branches of the trigeminus the anterior auricular plexus which innervate the anterior auricular and parotido-auricularis muscles.

(4) Cervical auricular branch arises from the ventral border of the facial nerve, passes obliquely through the parotid gland downward and backward and anastomosis with the cutaneous branches of the cervical nerves. It supplies the parotido-auricular and the cervical cutaneous muscles.

(5) The superficial temporal nerve passes between the parotid gland and the neck of the ramus of the mandible, turns around the latter and gives-off twigs to the guttural pouch, parotid gland, external ear and the skin of the external auditory meatus and the tympanic membrane.

(6) The auricular branch of the vagus nerve passes through a small canal in the petrous temporal bone to gain the facial canal and emerges with the facial nerve through the stylomastoid foramen. It ascends behind the external acoustic meatus under the deep auricular muscles and passes through a foramen in the conchal cartilage to ramify in the integument which lines the meatus and the adjacent part of the ear.

Local infiltration and nerve block analgesis:

The seats of nerve block and local infiltration analgesia were illustrated in (Fig. 2). The styloid process was determined at the lateral aspect of the base of the ear. Local infiltration and nerve block analgesia were performed by using 2-3 ml procain Hcl 3% solution injected around the seats of each nerve separately.

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(1) Posterior auricular nerve: The needle was introduced 2 cm posterior to the middle of the caudal border of the styloid process and for 1 cm deeper in tissues.

(2) Internal auricular nerve: The needle was introduced 1 cm posterior to the middle of the caudal border of the styloid process and for 1 cm deeper in tissues.

(3) Auriculo-palpebral and superficial temporal nerves: The needle was introduced 3 cm rostro-ventrally to the tip of the styloid process and for 1-2 cm deeper in tissues.

Fig. 1: Show the nerve supply to the ear in donkey:

- (1) posterior auricular n.,
- (2) internal auricular n.,
- (3) auriculo-palpebral n.,
- (4) cervical branch and
- (5) superficial temporal n.

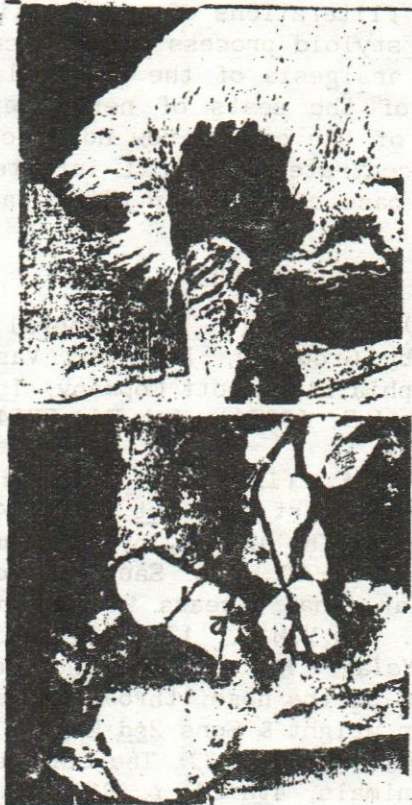


Fig. 2: Show the seats of nerve block and local infiltration analgesia.

DISCUSSION

The nerve supply to the ear are mainly comes from the facial nerve which gives the internal auricular, posterior auricular, auriculo-palpebral and cervical branches. All these branches are present at the lateral aspect of the base of the ear rostral and caudal to the styloid process at different levels subcutaneously. Other sensory branches are derived at the same area. These results are the same as described by *SISSON and GROSSMAN (1953)*. From the anatomical point of view local infiltration anaesthesia and nerve block must be performed mainly at the base of the ear from the outer aspect. Superficial and deep infiltrations with ligncaine HCl 2% solution must be performed rostral and caudal to the styloid process which can be easily palpated subcutaneously.

Accurate detection of the seats of nerve block was difficult and local infiltrations of anaesthetic solution for 2-3 cm rostral to the styloid process and 3-4 cm caudal to it are more effective in analgesia of the external ear flap than trials for detection of the seats of nerve seperately. Ring block around the base of the ear is now not necessary and it is recommended to concentrate the local infiltration to the lateral aspect of the base of ear than other parts around its base.

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