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ANAESTHESIA OF THE FOOT IN BUFFALOES

(With Two Figures)

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SUMMARY

Complete anaesthesia of the fore-and hind-foot in buffaloes was achieved after injection of 5 ml of 5% procaine HCl at 4 sites. A technique of inducing anaesthesia of one claw by injection at 2 sites is described.

INTRODUCTION

Regional anaesthesia of the foot in cattle (*Bos taurus*) has often been found **valuable and desirable either in diagnostic purposes or in surgical operations for interdigital fibromata, amputation of the claw and other affections of the foot.**

Many authors have worked on the subject of anaesthesia of the foot in cattle (PINCEMIN, 1933; GIBBONS, 1939; RAKER, 1956; SCHREIBER, 1956, TAYLOR, 1960; VRIGHT and HALL, 1961; COLLIN, 1963; WESTHUES and FRITSCH, 1964) but there has been no published account of its application in buffaloes.

Therefore the purpose of this work is to provide the practitioners with information regarding the application of anaesthesia of the foot in buffaloes.

ANATOMICAL CONSIDERATIONS

The distribution of the nerves supplying the fore- and hind-foot in buffalo was carefully studied in order to determine precisely the position of each nerve and its related surface landmark. Twenty formol fixed feet (10 fore and 10 hind) of adult Egyptian buffaloes were used for demonstration of the nerves of the feet.

Dissection revealed that in buffaloes, the nerves of the fore- and hind-feet **assume a similar course of distribution to those in cattle (*Bos taurus*) (HABEL, 1950; WAY, 1954; CETTY, 1975). However in the fore-foot of buffalo the communicating branch detaching from the lateral branch of the median nerve is missing. In addition the palmar common digital nerve III is the direct continuation of the lateral branch of the median nerve.**

MATERIAL and METHODS

Forty trials were attempted on a total of 4 adult female buffaloes 20 fore and 20 hind-feet **to establish satisfactory anaesthesia of the feet and sterile solution of procaine HCl at 5% concentration were used. Injection of the anaesthetic solution was done after the animal had been casted and restrained. Two alternative levels for desensitising the foot were used (hind and low blocking anaesthesia) (Figs. 1 & 2).** A. Anaesthesia of the fore-foot:

h. high nerve blocking: Ten trials were attempted, an injection of 5 ml of

procaine HCl -5% solution was introduced over each of the concerned nerves at 4 sites, (Fig. 1). 1. The median nerve: subtheal injection 15 inch below the carpus medial to the superficial flexor tendon and adjacent to the interosseous ligament. 2. The superficial branch of the radial nerve: subfascial injection 15 inch below the carpus and medial to the tendon of the medial digital extensor. 4- The palmar branch of the ulnar nerve: subtheal injection 14 inch below the carpus, lateral to the superficial flexor tendon and adjacent to the interosseous ligament.

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5- The dorsal branch of the ulnar nerve: subfascial injection 15 inch below the carpus and lateral to the tendon of the lateral digital extensor.

W. low nerve blocking: Ten trials were attempted. The anaesthetic solution was introduced over the concerned nerves at 3 sites (Fig. 1). 3- The palmar and dorsal (abxial) proper digital nerves III: subfascial injection of 5 ml procaine HCl -5%, inch proximal and medial to the medial dewclaw. 6- The palmar and dorsal (abaxial) proper digital nerves IV: subfascial injection of 5 ml of procaine HCl -5%, inch proximal and lateral to the lateral dewclaw. 7- The palmar and dorsal (axial) proper digital nerves III & IV. deep vertical injection of 10 ml of procaine HCl -5%, & inch under the midpoint of an imaginary line joining the dewclaws at the palmar aspect of the interdigital space.

B. Anaesthesia of the hind-foot:

h. high nerve blocking: Ten trials were attempted. An injection of 5 ml of procaine HCl -5% solution was introduced over each nerve of the concerned nerves at 4 sites (Fig. 2): 1- The medial planter nerve: subtheal injection 14 inch below the tarsus, medial to the superficial flexor tendon and adjacent to the interosseous ligament. 2- The deep fibular nerve: subtendinous injection 14 inch below the tarsus and beneath the extensor tendon from

the medial aspect. 4- The lateral planter nerve: subtheal injection 14 inch **below the tarsus, lateral to the superficial flexor tendon** and adjacent to the interosseous ligament. 5- The superficial fibular nerve: subfascial injection 14 inch **below the tarsus and over the extensor tendons** from the lateral aspect.

. Low nerve blocking: Ten trials were attempted. Similar **infection technique to that of the fore-limb was used** to block both of the planter and dorsal sets of digital nerves i.e. sites 3, 6 and 7 (Fig. 2) .

RESULTS

The aforementioned techniques on the foot in buffaloes revealed an **efficient and satisfactory anaesthesia** either by high nerve blocking at 4 sites (level - h / 1, 2, 4 & 5) or by low nerve blocking at 3 sites (level - /3, 6 & 7)(Figs. 1 & 2). Anaesthesia of one claw required blocking at 2 sites only (site 7 **together with either site 3 or 6**) according to the concerned claw.

The maximum effect of anaesthesia was obtained 10 to 15 minutes following the injection of 5 ml of **5% pro caine HCl** at each site except site 7 in which 10 ml were used. The **duration of anaesthesia was about one hour.**

DISCUSSION

Anaesthesia of the foot in buffaloes could be achieved by **using two alternative levels (high and low bloc king anaesthesia)**. The high nerve blocking was produced after injection of **the anaesthetic solution at 4 sites** of the same level while the low nerve blocking was produced after injection at 3 sites. **Similar technique of high nerve blocking of the foot in cattle by injection at 4 sites, but at different levels was used by RAKER (1956)**. Other workers (PINGEMIN, 1933 and TAYLOR, 1960) used variable techniques of **foot anaesthesia In cattle by injection at 5 or 6 sites**. However such techniques were considered **impractical to be applied in buffaloes since many unnecessary injections should be used**. COLLIN (1963) used a completely **different technique for producing anaes thesia of the hind foot in cattle by blocking the tibial and fibular nerves above the hock joint and in standing position**. Because of the temperamental behaviour of buffaloes, the later **technique is considered difficult for application in buffaloes.**

Similar dose rate and concentration were used in cattle by RAKER (1956) . However SCHREIBER (1956) used a **comperatively higher dose rate** .

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It is worth to mention that anaesthesia of one claw in buffaloes could be achieved by injection of the anaesthetic agent at 2 sites only. Moreover operations in the interdigital space could be performed by injection at one site only.

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Fig. (1): Two alternative levels for anaesia of the fore - foot.

Level - h, high nerve blocking

(1,2,4,5) sites of inserting the needle to block: 1, The median n. 2, Superficial branch of the radial n. 4, The palmar branch of the ulnar n. 5, The dorsal branch of the ulnar n.

Level - w. low nerve blocking

(3,6,7,) sites of inserting the needle to block:

3, The palmar and dorsal (abaxial)

digital nerves III. 6, The palmar and dorsal (abaxial)

digital nerves IV. 7, The palmar and dorsal (axial)

proper digital nerves III & IV.

Fig. (2) :

Two alternative levels for anaesthesia of the hond-foot.

level-h. high nerve blocking (1,2,4,5) sites of inserting the needle to block: 1,

The medial planter n. 2, The deep fibular n. 4, The lateral planter n. 5,

Superfical fibular n.

Level - w. low nerve blocking (3, 6, 7) sites of inserting the needle to block:

3, The planter and dorsal (abaxial) proper digital nerves III. 6, The

planter and dorsal (abaxial)

proper digital nerves IV. 7, The planter and dorsal (axial)

proper digital nerves III & IV.