فصل التشريح - كلية الطب البيطري - جامعة أسيوط.
رئيس الفصل: د/ عdal El-Hafez.

العدد الدوالي للشرابين للأصابع في الجل والبدو السنام.
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يعتبر الشربان الأحصى العام الخاص بالصبع الثالث هو الرئيسي المفتوح للأصابع في الجل، هذا يعتبر هذا الشربان هو الامتداد العابر للفرع الذي يربطه للشربان المافن، كما أن الشربان الأولي العام بالصبع الثالث يفتح عند النصف العلوي للسلاسة الأولى إلى الشربان الأولي الخاص بالصبع الثالث المتحرر والشربان الخاص بالصبع الرابع المتحرر وكل من الآخرين يعطي بدورة الشربان الأولي الخاص بالصبع الثالث الغير متحرر والشربان الأولي الخاص بالصبع الرابع الغير متحرر.
THE ARTERIAL SUPPLY OF THE DIGITS IN THE ONE-HUMPED CAMEL
(CAMELUS DROMEDARIUS)
(With 2 Figs)

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(Received at 14/11/1982)

SUMMARY

The terminal branches of R.caudalis of A.saphena, as the main arterial supply of the hind foot in Camel, have been examined. The origin, course and distribution of the digital branches also have been studied. The main differences between the digital arteries in Camel and other ruminant animals were described.

INTRODUCTION

The arterial blood supply of the fore-foot and digits in the one-humped camel was studied by ALY (1974). The digital arteries were also examined by HABEL (1950); McCLEOD (1958), WILKENS and BADAWI (1962), GHOSHAL and GETTY (1968) and GHOSHAL (1975) in cattle. Moreover, the blood supply of the digits was also studied by SALAMANCA and SCHULZ (1960) in goat, and FREITAG (1962) in sheep.

MATERIAL and METHODS

The present study was carried out on 20 hind feet of the single-humped (Camelus dromedarius) of both sexes and of different ages. The feet were injected with coloured Latex through the caudal branch of the sapheneus artery. Moreover 10 other feet were injected with plastoid and treated according to the method of SCHLUMBERGER (1951). The Nomenclature adopted by NOMINA ANATOMIC VETERINARIA (1973) have been used in the present study.

RESULTS

The caudal branch of A.saphena continues its distalward course caudal to the flexor tendons of the digit as A. digitalis plantaris communis III.

The third plantar common digital artery (1/2/1) terminates by dividing into Aa.digiteales plantares propriae III et IV axiales (1/2/2). Both descend along the axial border of each corresponding digit to reach the level of the distal inter-phalangeal articulation where they terminate as Rr.dorsales III et IV axiales. Nearly opposite to the proximal third of the proximal phalanx, the axial third and fourth plantar proper digital arteries detach the abaxial third and fourth plantar proper digital arteries.

The abaxial third and fourth plantar proper digital arteries (1/2/3) cross the plantar surface of the proximal phalanx to gain its abaxial border then continue distally along the abaxial border of each corresponding digit. As they reach the apex of the distal phalanx, they terminate as Rr.dorsales III et IV abaxiales.

Each of the axial and abaxial plantar proper digital arteries of the third and fourth digits detaches the following branches.

R. articularis:

An articular branch (1/7; 2/10) is detached from the initial part of the parent vessels to vascularize the metatarsophalangeal articulation and sesamoid bones.

R. plantaris phalanges proximalis:

The plantar branch of the proximal phalanx (2/4) is given off either separately or by a stem vessel with R. dorsalis phalanges proximalis at a level of either the middle or the distal third of the proximal phalanx. It traverses the plantar surface of the latter phalanx to anastomose with its corresponding branch.

R. dorsalis phalangis proximalis:

The dorsal branch of the proximal phalanx arises either separately or in common with the plantar branch. It ascends for about 0.5 cm then divides into a proximal and a distal branch. Only in one dissected case, the two branches arose separately from A. digitalis plantaris propria III abaxialis. The proximal branch ascends along the abaxial border of the proximal phalanx to reach its proximal extremity where it is distributed to the flexor tendons. The insertion of M. interosseus medius, the dorsal aspect of the metatarsophalangeal articulation and anastomoses with that of the other side.

The distal branch gains the dorsal aspect of the proximal phalanx and divides into two branches which anastomose with those of the other side and supply the periosteum and the bony substance of the proximal phalanx. In addition, the distal branch detaches the nutrient artery of the proximal phalanx.

R. plantaris phalangis media:

The plantar branch of the middle phalanx (2/5) is given off either separately or by a stem vessel with the dorsal branch of the middle phalanx, at the level of the middle of the bone. It crosses the plantar surface of the bone to anastomose with the corresponding branch of the other side. It vascularizes the plantar surface of the corresponding phalanx and the proximal interphalangeal joint.

R. dorsalis phalangis media:

The dorsal branch of the middle phalanx divides into a proximal and a distal branch. The proximal branch detaches the nutrient artery of the middle phalanx and several twigs for the proximal interphalangeal articulation. It also anastomoses with that of the other side. The distal branch joins the corresponding one of the other side and detaches 3-4 twigs for the periosteum and the distal extremity of the middle phalanx.

Rr. tarsiæ digitales:

These are 13-20 branches (1/4) which are detached at 0.3-2.5 cm intervals. They insinuate between the fibrous (external) and the elastic (internal) layers of the common covering of the foot-pad. They divide in a dichotomic manner to form a network of vessels to supply the foot-pad and its common covering and the yellow pad at the heel.

Aa. coronæ:

The coronary arteries cross the distal interphalangeal articulation from the abaxial to the axial border to join the axial third or fourth plantar proper digital arteries. They supply the ungual fold of the nail.

Rr. dorsales III et IV axiales and abaxiales:

The axial and abaxial dorsal branches form the terminal branches of the axial and abaxial third and fourth plantar proper digital arteries. They anastomose with each other forming an arterial plexus terminalis (1/5; 2/6) which embraces the distal phalanx. The dorsal branches vascularize the distal interphalangeal articulation and one of them gives off the nutrient artery of the distal phalanx.

**DISCUSSION**

The main arterial supply of the digits in camel is similar to that stated by WILKENS and MUNSTER (1976) in Cattle. SALAMANCA and SCHWARZ (1960); FREYTAG (1962) and WILKENS and BADAWI (1962) stated that the main arterial supply to the digits of goat, sheep and cattle were derived from A. metatarsis dorsalis III which continues as A. digitalis pedis communis III dorsalis.

The digits of the camel have A. coronaria which originates from Aa. digitales plantares propriae III and IV abaxialis.

In goat and sheep the coronary arteries arise from A. digitii pedis III lateralis and A. digitii pedis IV medialis as mentioned by SALAMANCA and SCHWARZ (1960) and FREYTAG (1962).

According to WILKENS and BADAWI (1962) the Aa. Coronales in cattle were detached from A. digitii pedis III plantaris lateralis and A. digitii pedis IV plantaris medialis, while WILKENS and MUNSTER (1976) stated that the coronary arteries in cattle arise from A. digitalis plantaris propria III et IV axiales.

ARTERIAL SUPPLY OF THE DIGITS IN CAMEL

ALY (1974) mentioned that Aa.coronales in the digits of thoracic limbs of camel were not formed, while the present investigation showed that Aa.coronales are well developed in case of pelvic limb.

The Arcus terminalis described in cattle by WILKENS and BADAWEI (1962) as well as WILKENS and MUNSTER (1976) and that described by ALY (1974) in the digits of the thoracic limb in camel could not be demonstrated in the pelvic limb of camel.

REFERENCES

NOMINA ANATOMICA VETERINARIA (1973): Published by the International Committee on Veterinary Anatomical Nomenclature, Vienna.

LEGENDS

Fig. (1): Plastoid cast of the digital arteries of the left foot.
1- A. digitalis plantaris communis III,
2- Aa. digitales plantares propriae III, IV axialis,
3- Aa. digitales plantares propriae III, IV abaxialis,
4- Rr. toracae digitales,
5- plexus terminalis,
6- A. metatarsae plantaris III,
7- Rr. articulares.

Fig. (2): Diagram showing the digital arteries.
A- Os metatarsale III et IV
B- Ossa sesamoidae proximalia
C- Phalanx proximalis
D- phalanx media
E- phalanx distalis.
1- A. digitalis plantaris communis III
2- Aa. digitales plantares propriae III, IV axialis,
3- Aa. digitales plantares propriae III, IV abaxialis,
4- Rr. plantares phalangis proximalis,
5- Rr. plantares phalangis media,
6- Plexus terminalis,
7- A. metatarsae plantaris III,
8- A. metatarsae plantaris II,
9- A. interdigitalis,
10- Rr. articulares.