

قسم التشريح - كلية الطب البيطرى - جامعة أسيوط .

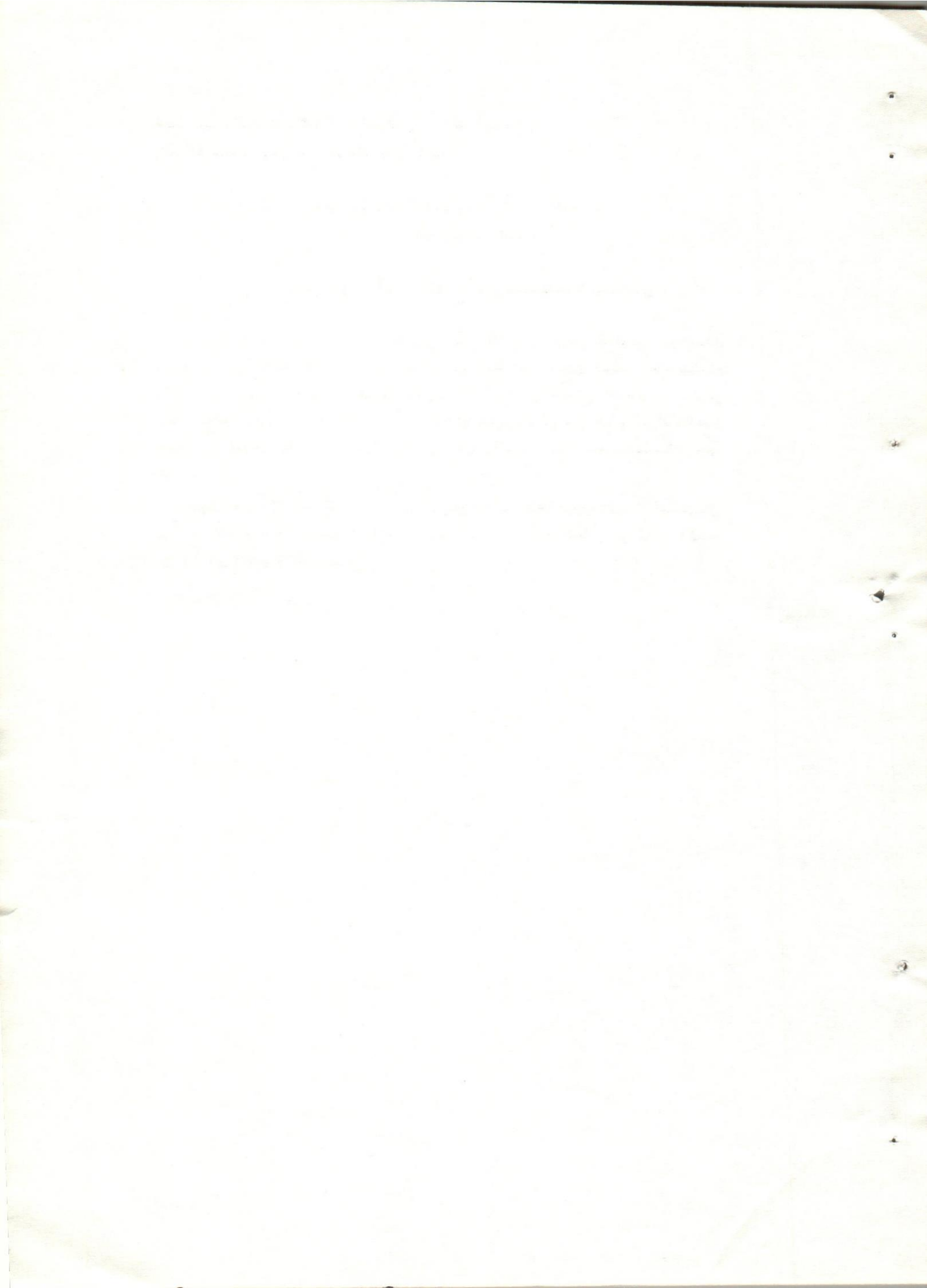
رئيس القسم : د / عبد الله حفى طه

بعض الدراسات التشريحية على الشريان الفخذى فى  
الجمل وحيد السنام

حلمى بدوى ، أحمد قناوى ، أشرف صبحى

يعتبر الشريان الفخذى الامتداد الطبيعى المباشر للشريان الحرقفى الخارجى وهو المسئول عن تغذية باقى القائمة الخلفية للجمل . هذا ويعتبر الجمل هو الحيوان الوحيد الذى ينبع فيه الشريان الفخذى الغائر من الشريان الفخذى . وقد وجد أن الشريان الفخذى الغائر يعطى فقط الشريان الدائر الفخذى الانسى خلافا لما هو موجود فى باقى الحيوانات المستانسة حيث ينقسم الشريان الفخذى الغائر الى كل من الشريان السابق ذكره والجذع الاستحيائسى الشرسوفى .

ينبع كذلك من الشريان الفخذى كل من الشريان الدائر الفخذى الوحشى ، الشريان الغازى الفخذى وجذع عام لكل من الشريان الركبى النازل والشريان الصافن الى جانب ثلاثة من الشرايين الفخذية الخلفية .



## SOME ANATOMICAL STUDIES ON THE FEMORAL ARTERY OF THE ONE HUMPED CAMEL (CAMELUS DROMEDARUS)

By

H. BADAWI, A.K. AHMED and A.S. SABER

(Received at 14/11/1981)

### SUMMARY

The level of origin, course and branches of the femoral artery were completely described. The similarity and differences in its anatomical features were discussed with that of other domesticated animals. However, the continuation of the femoral artery and the caudal branch of the saphenous artery were not included.

### INTRODUCTION

Only little information was given by LESBRE (1903) about the vasculature of the pelvic limb in the one-humped camel. In order to throw light on this subject, the course and branches of the femoral artery were described in detail. Its comparative features were discussed with that of other domestic animals.

### MATERIAL and METHODS

This study was carried out on 10 pelvic limb of the one-humped camel (*Camelus dromedarius*) of both sexes and different ages. For studying the course and distribution of the arteries, the specimens were injected at first with 10% formalin solution and after 2 days with red coloured gum-milk (Latex). The Nomenclature used is that adopted by the NOMINA ANATOMICA VETERINARIA (1973).

### RESULTS

The femoral artery (1/4) is the distalward continuation of the external iliac artery as the latter gains the Lacuna vasorum. It passes in the femoral canal to reach the distal extremity of the femur where it continues between the two heads of *M.gastrocnemius* as *A.poplitea*.

Along its course, the femoral artery detaches several muscular branches to the cranio-medial muscles of the thigh, in addition to the following branches:

#### A. Profunda femoris:

The deep femoral artery (1/5) is detached about 3 cm proximal to the trochanter minor of the femur and descends along the caudal surface of the femur to terminate in *M.vastus lateralis*. It vascularizes *Mm.pectineus*, *semimembranosus*, *vastus intermedius* and *biceps femoris*. The deep femoral artery gives origin to the obturator branch and the medial circumflex femoral artery.

The obturator branch is detached from the deep femoral artery just before the latter curves around the trochanter minor ossis femoris. It ascends between *Mm.adductor* and *obturator externus* to end by anastomosing with a branch from the obturator artery. It detaches an acetabular branch at the level of the neck of the femur to supply the articular capsule of the hip joint and penetrates its caudomedial wall to supply the proximal extremity of the femur.

The medial circumflex femoral artery (1/6) seems to be the caudalward continuation of the deep femoral artery. It pierces the adductor muscle where it divides into ascending and descending branches. The ascending branch terminates in the *semimembranosus* and vascularizes the *quadratus femoris*, *external obturator* and *adductor* muscles, in addition to a small twig to the periosteum of the ischial tuber. The descending branch supplies *Mm.adductor*, *semitendinosus* and *semimembranosus*.



**A. circumflexa femoris lateralis:**

The lateral circumflex femoral artery (1/7) is detached at the same level of origin of the deep femoral artery, but in some cases it arose about 2 cm distal to the before mentioned level. It detaches a descending branch then divides into an ascending and transverse vessels.

The descending branch is a large vessel which passes between Mm. rectus femoris cranially and vastus medialis and intermedius caudally. It terminates either in rectus femoris or vastus lateralis.

The ascending branch passes between rectus femoris and vastus lateralis to terminate between Mm. gluteobiceps and tensor fasciae latae.

The transverse branch courses distally between Mm. vastus lateralis and intermedius, and vascularizes the before mentioned muscles in addition to M. rectus femoris and the periosteum around the trochanter major of the femur.

**A. nutritia femoris:**

The nutrient artery of the femur is detached from A. femoralis within the femoral canal. It descends between the medial border of the femur and M. adductor to enter the nutrient foramen of the femur.

At the level of the distal third of the femur, the femoral artery detaches a stem vessel (1/8) for the descending genicular and saphenous arteries.

**A. genus descendens:**

The descending genicular artery (1/9) descends along the medial surface of M. adductor till it reaches the medial condyle of the femur where it divides into two branches. One of these branches anastomoses with twigs from A. femoralis and A. caudalis femoris distalis. The second branch pierces the capsule of the femoro-tibial articulation to supply the cruciate ligaments and the tibial spine.

**A. Saphena:**

The saphenous artery (1/10) descends between M. sartorius cranially and M. gracilis caudally to reach the middle of the tibia where it continues distally as R. caudalis. The latter artery (1/11) detaches a R. calcaneus, R. malleolaris medialis, A. plantaris lateralis (1/12,13) and A. plantaris medialis (1/14) then continues distally in the foot.

**Aa. caudales femoris:**

The femoral artery detaches three caudal femoral arteries, namely the proximal, middle and distal. The proximal caudal femoral artery is given off the femoral artery just as it leaves the femoral canal. It courses between Mm. adductor and gracilis to terminate in M. semimembranosus. The middle caudal femoral artery is detached 1.5-2 cm distal to the proximal one and vascularizes Mm. adductor and gracilis, and terminate in M. semimembranosus.

The distal caudal femoral artery (1/19) is given off at the distal fourth of the femur. It descends between the lateral head of M. gastrocnemius laterally and Mm. adductor and semimembranosus medially. It detaches a double proximal branch then divides into a caudal and a distal branch. One of the proximal branches supplies Mm. vastus lateralis and intermedius while the second one supplies Mm. adductor, semimembranosus and the deep face of gluteobiceps. The caudal branch distributes in the distal part of M. gluteobiceps and terminates in M. semitendinosus. It detaches also a small twig to the popliteal lymph node. The distal branch descends between the two heads of M. gastrocnemius then along its tendon till the distal third of the tibia where it anastomoses with a branch from the caudal branch of A. saphena. It detaches A. comitans n. tibialis which terminates at about the middle of the tibia by joining R. caudalis of A. saphena.

**DISCUSSION**

According to WILKENS and MUNSTER (1976), the deep femoral artery arises from the external iliac artery in



## FEMORAL ARTERY IN CAMEL

all domestic animals, a case which is not found in Camel. However, the same authors added that the artery in dog and pig continues distally along the caudal surface of the femur similar to that found in Camel. GHOSHAL and GETTY (1970); WILKENS and MUNSTER (1976) as well as DALLMANN and McCLURE (1971) stated that the deep femoral artery gives off the pundendoepigastric trunk and the medial circumflex femoral artery in all domestic animals, while in camel, only the latter vessel is detached from the deep femoral artery.

The acetabular branch which is detached in camel from the obturator branch of A. profunda femoris, is detached in all domestic animals from the medial circumflex femoral artery as stated by WILKENS and MUNSTER (1976).

The ascending branch of A. circumflexa femoris lateralis is found in camel as in other domestic animals except horse as stated by WILKENS and MUNSTER (1976).

MORCOS (1955) described A. genus descendens in camel under the name A. genus medialis distalis. WILKENS and MUNSTER (1976) stated that the A. genus descendens in dog originates separately and can also arise by a stem vessel together with A. saphena as the case present in camel.

DALLMAN and McCLURE (1971) as well as WILKENS and MUNSTER (1976) stated that the cat and dog have a proximal, middle and distal caudal femoral arteries similar to that of camel, while the rest of domestic animals, according to the latter authors, have only the A. caudalis femoris distalis which divides into a caudal, proximal and distal branches. However, the same artery divides into an ascending and descending branch in pig (BICKHARDT, 1961 and KOCH, 1965); in ox and other animals (GHOSHAL and GETTY 1970); in sheep (FREYTAG, 1962); in goat (SALAMANCA and SCHWARZ, 1960) and in horse (ZIETZSCHMANN, 1943 and SCHWARZE and SCHRODER, 1964). Only DOBBERSTEIN and HOFFMANN (1964) stated that the A. caudalis femoris is absent in cattle.

## REFERENCES

- Bickhardt, K. (1961): Arterien und venen der Hintergliedmasse des Schweines. Tierarztl. Hochsch., Diss. Med. Vet. Hannover.
- Dallman, M.J. & R.C. McClure (1971): The arterial supply to the pelvic limb of the domestic cat. Zbl. Vet. Med. 18, 1, 15-26.
- Dobberstein, J. und G. Hoffmann (1964): Lehrbuch der vergleichenden Anatomie der Haustiere, Ed. III; 2th Aufl., Verlag S. Hirzel, Leipzig.
- Freytag, K. (1962): Arterien und venen an der Beckengliedmasse des Schafes. Tierarztl. Hochsch., Diss. Med. Vet., Hannover.
- Ghoshal, N.G. and R. Getty (1970): Comparative morphological study of the major arterial supply to the pelvic limb of the domestic animals. Zbl. Vet. Med., A, 17 : 453-470.
- Koch, T. (1965): Lehrbuch der Veterinaranatomie, Bd. III, VEB Verlag Gustav Fischer, Jena.
- Lesbre, M.F.X. (1903): Recherches Anatomiques sur les Camelides (Com VIII). Arch. Mus. d'Hist. Nat. Lyon, Lib. de Fac. Med. et de Fac. Droit.
- Morcos, B.M. (1955): The anatomical study of the joints of the limbs of the camel. Thesis, Fac. of Vet. Med. Cairo University.
- NOMINA ANATOMICA VETERINARIA (1973): Published by the International committee on Vet. Anatomical Nomenclature, Vienna.
- Salamanca, M.E. und R. Schwarz (1960): Die Arterien an der Beckengliedmasse der Ziege. Wiener Tierarztl. Monatssch., 102 - 114.
- Schwarze, E. und Schroder (1964): Kompendium der veterinär-Anatomie, Bd. III, VEB Gustav Fischer Verlag, Jena.
- Wilkens, H. und W. Munster (1976): Arterien und Venen in R. Nickel, A. Schummer und E. Seifried, Lehrbuch der Anatomie der Haustiere, Bd. III, Verlag P. Parey, Berlin - Hamburg.
- Zietzschmann, O. (1943): Die Arterien in W. Ellenberger und H. Baum, Handbuch der vergleichenden Anatomie der Haustiere, 18 Aufl., Verlag Springer, Berlin.

