

THE INTERNAL ILIAC ARTERY (A. ILIACA INTERNA) OF THE SMALL GREEN MONKEY (CERCOPITHECUS AETHIOPS SABEUS)

ZDENKA BLAGOJEVIĆ, VERICA MRVIĆ, SOFIJA JOVANOVIĆ and ZORA NIKOLIĆ

Department of Anatomy, Faculty of Veterinary Medicine, 11000 Belgrade, Yugoslavia

(Received, 11. March 1998.)

Cell cultures of the small green monkey are used for the cultivation of poliovirus for the manufacture of the vaccine against poliomyelitis. In addition, kidney cultures from the same monkey are used in the diagnostics of virus presence in the material. This was one of the main reasons that prompted us to undertake the study of one part of the monkey - the cardiovascular system, and thus contribute to a better understanding of the structure of its body.

Key words: Cercopithecus aethiops sabeus, pelvic cavity, arteries

INTRODUCTION

The small green monkey (*Cercopithecus aethiops sabeus*) belongs to the family of the old-world monkeys (Radovanović, 1965) widely distributed in African savannahs. The monkeys that we studied had been brought from Eastern Africa, i.e. Kenya, Uganda and Tanzania. They are considered the most beautiful and lovely monkeys. They can often be seen in zoos and they are most frequently grey - green in colour except that the lower part of the neck, chest, abdomen and inner side of the arms are white.

The available literature offers very little information on the arteries in the small green monkey. Blagojević, (1989) described the heart and arteries, while Teofilovski (1982) presented the insulopercular region of the brain of the small green monkey. Stanojević et al. (1982, 1983) and Mrvić (1995) investigated the morphology of the genital organs. This was the reason for these studies on the internal iliac artery in the small green monkey which was compared with the corresponding artery in the dog (Bradley, 1948, Janković et al. 1988, Nickel et al. 1981, Baum et al. 1974).

According to the available data, mostly from zoos, these monkeys live about 15-17 years, exceptionally 20. They are fertile between 4 and 7 years of age.

MATERIALS AND METHODS

The investigation was performed on 45 small green monkeys, of both sexes, aged 3 to 4 years, body weight 2000 - 3000 g. The monkeys originated from the Institute of Immunology and Virusology in Belgrade. After bleeding out, various contrast agents were introduced into the blood vessels. The most often used contrast medium was gelatin stained with painting tempera, micropack - barium or minium. The photographs of the blood vessels were taken after their preparation.

RESULTS AND DISCUSSION

A iliaca interna (Figure 1) is the main artery in the pelvic cavity, which supplies its organs and walls. Its length is 1,3 - 1,5 cm. After it gives off A. glutea caudalis, the internal iliac artery divides into A. pudenda interna and A. obturatoria.

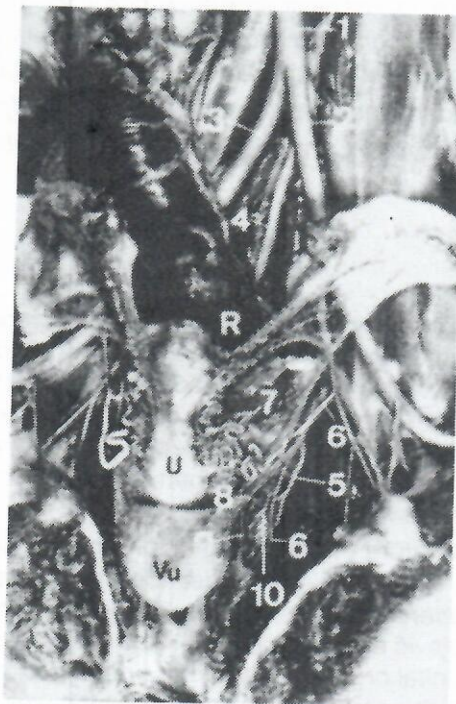


Figure 1. The arteries of the organs in the pelvis of the female small green monkey (*Cercopithecus aethiops sabeus*)

1 - Aorta abdominalis, 2 - A. iliaca communis sinistra, 3 - A. iliaca communis dextra, 4 - A. sacralis mediana, 5 - A. rectalis media, 6 - A. vaginalis, 7 - A. uterina, 8 - A. vesicalis cranialis, 9 - A. vesicalis caudalis, 10 - A. vaginalis, R - Rectum, U - Uterus, Vu - vesica urinaria.

A. glutea caudalis

A. glutea caudalis (Figure 2) runs in the caudal direction ventral to the sacrum and curves cranio - ventrally at incisura ischiadica minor.

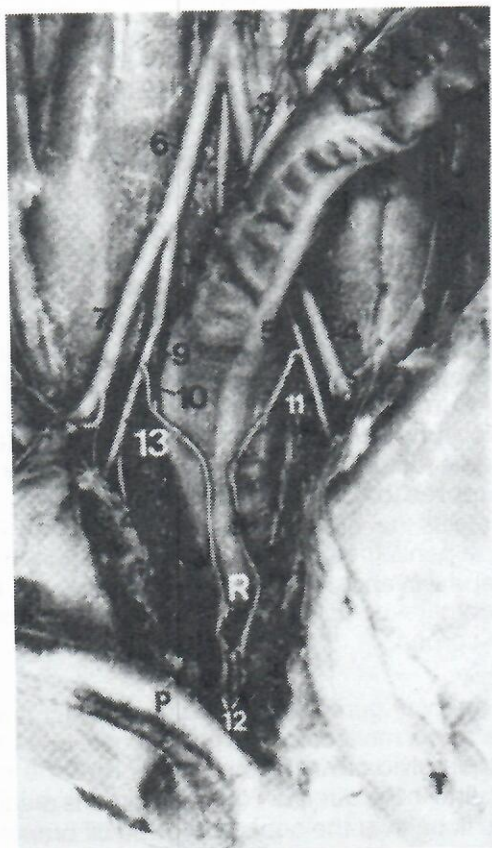


Figure 2. Vascularization of the organs and walls of the pelvic cavity in the male small green monkey (*Cercopithecus aethiops sabeus*).

1 - Aorta abdominalis, 2 - A. sacralis mediana, 3 - A. iliaca communis sinistra, 4 - A. iliaca externa sinistra, 5 - A. iliaca interna sinistra, 6 - A. iliaca communis dextra, 7 - A. iliaca externa dextra, 8 - A. iliaca interna dextra, 9 - A. glutea caudalis, 10 - A. pudenda interna dextra, 11 - A. pudenda interna sinistra, 12 - A. penis, 13 - A. obturatoria, R - Rectum, P - Penis, T - Testis.

It supplies Mm. glutei, the proximal parts of M. biceps femoris, M. semi-membranosus, M. semitendinosus and the muscles of the root of the tail. Its branches are

- a) A. iliolumbalis
- b) Ramus muscularis
- c) Aa. gluteae cranialis

a) A. iliolumbalis

A. iliolumbalis runs between the ilium and the iliopsoas muscle in the direction of the tuber coxae, giving off branches to M. iliopsoas, M. gluteus medius, M. tensor fasciae latae and the ilium.

b) Ramus muscularis

Ramus muscularis runs in the direction of Incisura ischiadica minor and vascularizes the muscles of that region of the body.

c) Aa. gluteae craniales

At the greater ischiatic notch Aa. gluteae craniales (cranial gluteal arteries) curve round the ilium, leave the pelvic cavity and run in the direction of the gluteal musculature vascularizing it.

The internal iliac artery first gives off the caudal gluteal artery and then divides into A. pudenda interna and A. obturatoria.

A. pudenda interna

The internal pudendal artery (Figure 2), after a short course within the pelvic cavity leaves the cavity, passes into the gluteal region, runs round Spina ischiadica and returns to the pelvic cavity. The internal pudendal gives off A. rectalis media (Figure 1) which runs in the direction of the ventro - lateral wall of the rectum and supplies the middle rectum. In females, the internal pudendal artery gives off A. clitoridis which supplies the clitoris, and A. bulbi vestibuli, which vascularizes Bulbus vestibuli. In males, the internal pudendal artery gives off A. penis (Figure 2), which supplies the penis urethral branches (Ramus urethralis), the tip of the rectum (A. rectalis caudalis) and the perineum (A. perinealis). In male animals, A. penis gives off A. dorsalis penis, which runs along the dorsum of the penis towards the tip of the organ...

A. obturatoria

The obturator artery (Figure 2) runs caudo - ventrally and at the level of the cranial border of the pubis ramifies into two branches, one of which runs along the ventral wall of the pelvic cavity in the direction of the muscles that close Foramen obturatum, and in the direction of Regio femoris medialis. The other one runs along the pelvic floor, over the pubis and gives off branches to the muscles that close the obturator foramen. In female animals, the obturator artery gives off A. vaginalis, whereas in male animals, it gives off A. prostatic.

A. vaginalis

A. vaginalis (Figure 1) is analogous to the prostatic artery in males. Its branches are

1. A. uterina
2. A. vesicalis cranialis
3. A. vesicalis caudalis
4. A. urethralis

1. A. uterina

A. uterina (Figure 1) runs in the broad ligament (Lig. latum uteri), cranially, winding up the lateral border of the uterus. It anastomoses with Ramus uterinus from a. ovarica cranially in the broad ligament. It gives off many branches, which

run in the direction of the wall of the vagina (Rami vaginales) and vascularize it. In some cases the uterine artery gives off A. vesicalis caudalis and A. vesicalis cranialis. The uterine artery supplies the uterus and the vagina.

2. A. vesicalis cranialis

The cranial vesical artery (Figure 1) runs in the direction of the cranial region of the urinary bladder through the lateral ligament of the bladder and vascularizes its cranial part. In some cases a. vaginalis gives off two branches which run in the direction of the cranial part of the urinary bladder (Aa vesiculares craniales). The cranial vesical artery gives off a branch to the ureter (Ramus uretericus).

3. A. vesicalis caudalis

The caudal vesical artery (Figure 1) runs in the direction of the caudal region of the urinary bladder and vascularizes it.

4. A. urethralis

The urethral artery supplies the pelvic urethra. In some cases it gives off A. vaginalis, as the second branch, after A. uterina. It ends in the wall of the vagina.

A. prostatica

The prostatic artery is homologous with the vaginal artery. It supplies the prostate, urinary bladder, ductus deferens, ureters, and urethra. It gives off

1. A. ductus deferentis

2. A. vesicalis cranialis

3. A. vesicalis caudalis

1. A. ductus deferentis

A. ducus deferentis, via Funiculus spermaticus, reaches Cauda epididymis, where it anastomoses with A. testicularis.

2. A. vesicalis cranialis

The cranial vesical artery runs in the direction of the cranial part of the urinary bladder and vascularizes it. It gives off Ramus uretericus which runs in the direction of the cranial part of the ureter and vascularizes it.

3. A. vesicalis caudalis.

The caudal vesical artery runs in the direction of the caudal part of the urinary bladder and supplies it. It gives off Ramus urethralis which supplies the urethra.

In some cases the cranial vesicle artery and the prostatic artery can become separate vessels at the same places on A. obturatoria.

Our results have shown that the internal iliac artery (A. iliaca interna) in the small green monkey, as in the dog (Baum et al. 1974., Nickel et al 1981. Janković et al. 1988. vascularizes the organs and walls of the pelvic cavity with its branches. In its course, in the small green monkey and in the dog it gives off A. glutea caudalis and A. pudenda interna. In the monkey it gives off also A. obturatoria, and in the dog it gives off A. ubilicalis, A. obturatoria being absent in the dog.

The branch vessels of A. vaginalis and A. prostatica in the monkey are identical to those in the bitch and the dog, the only difference being that in the small green monkey A. obturatoria gives off A. vaginalis and A. prostatica whilst in the dog it gives off A pudenda interna.

REFERENCES

1. Baum, H., Ellenberger, W. 1974. Handbuch der vergleichenden Anatomie der Haustiere 18 Auflage. Springer - Verlag. Berlin.
2. Blagojević Z. 1989. Srce i arterije malog zelenog majmuna (*Cercopithecus aethiops sabeus*). Doktorska disertacija, Beograd.
3. Bradley, O. C., 1948. *Topographical anatomy of the dog*. Edinburgh - London.
4. Janković, Z., Stanojević D., Miladinović Z. 1988. Anatomija domaćih životinja, sisara. Angiologija, Beograd.
5. Mrvić, V. 1995. Morfologija, topografija i vaskularizacija ženskih polnih organa malog zelenog majmuna (*Cercopithecus aethiops sabeus*). Doktorska disertacija, Beograd.
6. Nickel, R., Schummer, A., Seiferle, E. 1981. The Anatomy of the Domestic Animals. The Circulatory System, the Skin and the Cutaneous Organs of the Domestic Mammals. Vol 3, Verlag Paul Parey, Berlin, Hamburg.
7. Radovanović, M. 1965. Zoologija, drugi deo. Sistematika životinja, Naučna knjiga, Beograd.
8. Stanojević, D., Nikolić, Z., Blagojević, Z. 1982. The female genital organs in the *Cercopithecus aethiops sabeus*. Abstracts, XIV Kongres udruženja anatoma Evrope, Berlin.
9. Stanojević, D., Drekić, D. Blagojević, Z., Nikolić Z. 1983. Muški genitalni organi majmuna *Cercopithecus aethiops sabeus*. (Testis, Epididimis, Ductus deferens). *Folia anatomica iugoslavica*, Vol.13, No 1.str. 83 - 91. Sarajevo.
10. Teofilovski, G. 1982. Anatomska istraživanja inzuloopekularnog regiona. Doktorska disertacija, Beograd.

**UNUTRAŠNJA BEDRENA ARTERIJA (A. ILIACA INTERNA)
MALOG ZELENOG MAJMUNA
(CERCOPITHECUS AETHIOPS SABEUS)**

ZDENKA BLAGOJEVIĆ, VERICA MRVIĆ, SOFIJA JOVANOVIĆ I ZORA NIKOLIĆ

SADRŽAJ

Unutrašnja bedrena arterija (A. iliaca interna) kod malog zelenog majmuna (*Cercopithecus aethiops sabeus*) je glavno arterijsko stablo za organe karlice, a samo jedna arterijska grana - A. glutea caudalis, koja se odvija na početku, upravljena je prema zidu karlične duplje.

Unutrašnja bedrena arterija se deli na A. pudenda interna i A. obturatoria.

Grane od A. pudenda interna-e dovode krv u rektum, kod ženskih životinja u Bulbus vestibuli, klitoris i medicu, a kod muških životinja u penis, uretru i medicu. Grana od A. obturatoria, A. vaginalis kod ženskih životinja, daje arterije za matericu (A. uterina), mokraćnu bešiku (A. vesicalis cranialis i A. vesicalis caudalis), mokraćnu izvodnu cev (A. urethralis) i završava u zidu vagine. Grana od A. obturatoria, A. prostatica kod muških životinja daje arterije za semevod (A. ductus deferentis), mokraćnu bešiku (A. vesicalis cranialis i A. vesicalis caudalis), mokraćovod, prostatu i mokraćnu izvodnu cev.