

THE VASCULARIZATION OF THE LUNGS IN THE SMALL GREEN MONKEY
(*CERCOPITHECUS AETHIOPS SABEUS*)

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Cell cultures of the small green monkey are used for the cultivation of poliovirus for the manufacture of vaccines against poliomyelitis. In addition, kidney cultures of the same monkey serves for the diagnostic detection of the virus in the material. These were the main reasons that prompted us to undertake this study of one part of the monkey's cardiovascular system and thus contribute to a better understanding of the structure of its body.

Key words: Cercopithecus aethiops sabeus, lungs, arteries, veins

INTRODUCTION

The small green monkey (*Cercopithecus aethiops sabeus*) belongs to the family of old - world monkeys (Radovanović, 1965) widely distributed in African savannahs. The monkeys that we studied had been brought from Eastern 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 attractive monkeys. They can often be seen in zoos and 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.

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.

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 small green monkey. Stanojević et al. (1982, 1983) and Mrvić (1995) investigated the morphology of the genital organs. Blagojević et al. (1998), described the inner artery of the pectoral limb (A. iliaca interna), of the small green monkey. Incomplete knowledge of the vascularization of the lungs of the small green monkey was one of the reasons why we decided to undertake this study. The obtained results were compared to those obtained for other mammals including

humans and domestic animals (Radojević, S. 1962, Janković et al. 1988, Nickel et. al. 1981, Baum et al. 1974).

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 the bleeding out, various contrast agents were introduced into the monkeys blood vessels. The most often used contrast medium was gelatin stained with painting tempera, micropack - barium or minium. After the initiation of the contrast medium the arteries were prepared and photographed. As for the veins, after the bleeding out of the animals, they were prepared and photographed without injection of contrast medium.

RESULTS AND DISCUSSION

Truncus pulmonalis (Figure 1) of the small green monkey conveys blood from the right ventricle to the lungs. It is located between the aorta and the left atrium, that partly covers it. It divides into the left and right pulmonary

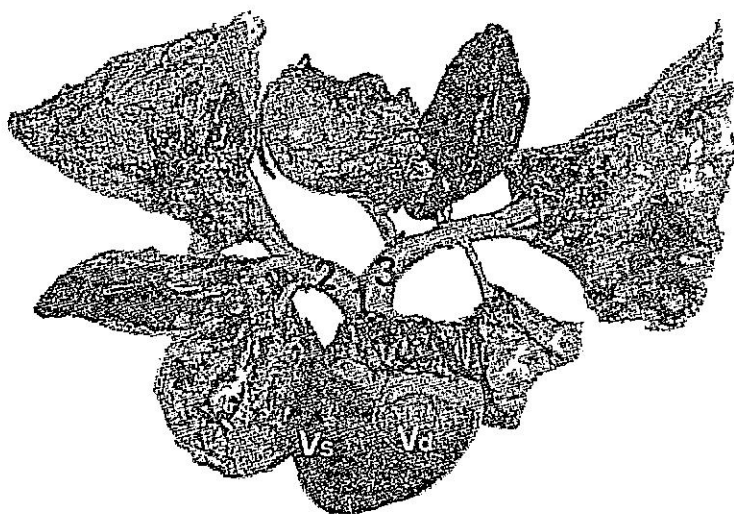


Figure 1. Truncus pulmonalis and its branches in the small green monkey (*Cercopithecus aethiops sabeus*)

1 - Truncus pulmonalis, 2-A. pulmonalis sinistra, 3 - A. pulmonalis dextra, Vs-Ventriculus sinister, Vd - Ventriculus dexter

arteries (A. pulmonalis sinistra et A. pulmonalis dextra), that run towards the hilus.

A. pulmonalis sinistra (figure 12, 23) runs towards the hilus of the left lung, follows the left bronchus and gives off smaller branches, together with the left bronchus and gives off smaller branches, together with the left bronchus.

A. pulmonalis dextra (Figure 13, 24) proceeds to the hilus of the right lung, enters the right lung, follows the right bronchus and gives off branches to the lobes of the right lung, the same time as the right bronchus. Vv. pulmonales (Figure 21) are the blood vessels of the small pulmonary circulation that carry blood saturated with oxygen from the lungs to the heart, entering the left atrium. They arise from the capillaries of the lobules of the lung. Small blood vessels join to form larger ones that accompany the branches of the bronchi and pulmonary arteries.

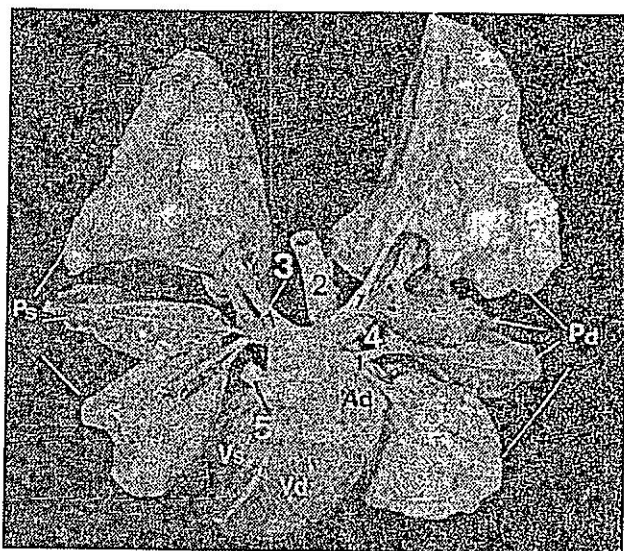


Figure 2 The pulmonary veins and arteries in the small green monkey (*Cercopithecus aethiops sabeus*), viewed caudally

1 - Vv. Pulmonales, 2- Aorta thoracica, 3- A. pulmonalis sinistra, 4- A. pulmonalis dextra, 5- V. cava caudalis, Vd- Ventriculus dexter, Vs - Ventriculus sinister, Ad - Atrium dextrum, Pd - Pulmo dexter, Ps- Pulmo sinister

Several pulmonary veins convey blood from the left lung; one small branch (V. pulmonalis lobi cranialis sinistri) carries venous blood from Lobus cranialis; whereas another larger branch (V. pulmonalis lobi caudalis sinistri) transports venous blood from Lobus caudalis.

Other pulmonary veins carry blood from the right lung; one (V. pulmonalis lobi cranialis dextri) conveys venous blood from lobus cranialis; whereas

another vein (V. pulmonalis lobi medii) carries venous blood from lobus medius, and then they join together to form a common trunk. From lobus accessorius blood is conveyed by one vein (Ramus lobi accessorii) and from lobus caudalis it is carried by another vein (V. pulmonalis lobi caudalis dextri), that later on join into a common trunk.

A. pulmonalis sinistra acts identically in the small green monkey, man domestic animals and other mammals.

A. pulmonalis dextra differs in the small green monkey in comparison to the pig and ruminants. In ruminants and pigs, before entering the right lung, it gives of one branch for the right cranial lobe (Ramus lobi cranialis) that is extrapulmonary and runs along bronchus trachealis until it enters the lungs. In comparison to humans the right pulmonary artery acts identically.

In the small green monkey Vv. pulmonales are represented by four veins, that differ in size and carry blood from the left and right lungs to the left atrium. In humans there are usually four pulmonary veins, two for each lung. Sometimes three veins occur on the right side, whereas one or two may be on the left side. Up to eight veins can occur in domestic animal mammals.

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VASKULARIZACIJA PLUĆA U MALOG ZELENOG MAJMUNA
(*Cercopithecus aethiops sabeus*)

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SADRŽAJ

Truncus pulmonalis malog zelenog majmuna odvodi krv iz desne komore u pluća. A. pulmonalis sinistra pruža se prema hilusu levog plućnog krila, prati levi bronhus i grana se na manje ogranke kao i levi bronhus.

A. pulmonalis dextra pruža se prema hilusu desnog plućnog krila, prati desni bronhus i grana se u režnjevima desnog plućnog krila kao i desni bronhus.

Vv. pulmonales su krvni sudovi koji donose u srce oksidovanu krv iz pluća i ulaze u levu pretkomoru. Iz levog plućnog krila krv odvođe V. pulmonalis lobi cranialis sinistri i V. pulmonalis lobi caudalis sinistri. Iz desnog plućnog krila, V. pulmonalis lobi cranialis dextri i V. pulmonalis lobi medii se udružuju u jedno zajedničko stablo. Takođe, Ramus lobi accessorii i V. pulmonalis lobi caudalis dextri se udružuju u jedno zajedničko stablo.