

Histological Study. Heart. African White RHinoceros

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Abstract: To study the philosophical structure of the heart of white rhinoceros. We made part in em-bedsections of the heart wall. We kept the sections by he, Observed the sections under bright field microscope, And photographed by photography. The heart structural features were observed and analyzed by image analysis system. The Cardiff wall can be divided into endocardium, Myocardium and epicardium from inside to outside. The average thickness Endocardium was 260 μ M. Myocardium was thick, The left ventricle myocardium was tickest, AV-eraging 33mm. And the average thickness of epicardium was 225 μ M. Purkinje fibers arranged in groups of 2-3 rows under the endocardium, And formed a round nodouble between the atrium and ventricle. The diameter of Purkinje fiber was about 52 μ M and most cells were irregular, Square, Or elongated stripes with the longest major axis up to 286 μ M. Most nucleus were round, Lost at the edge of cells. The diameter of Venetian muscle fiber was 10 μ M. Nether myocardial stripes nor intercalated disks were obvious. Cardiac muscle fibers arranged closely, With full blood vessels along them. Conclusion: This study provide reliable physical evidence to rhinoce-ros physiology and clinical veterinary and other related disciplines.

Keywords: endocardium; Myocardium and epicardium; intercalated disks; clinical veterinary

Rhino is one of the most primitive mammals, more 5. Million years, is to survive in the land after the elephant giant. Rhinos can be divided into two types according to geographical differences (Africa rhinoceros) And Asian rhinos (Asia rhinoceros) 5. One species, namely black rhino in Africa (*Diceros Bicornis*) And white rhino

Ceratotherium simum) Indian rhino in Asia (*Rhinoceros unicornis*), Java rhino (*Rhinoceros sondaicus*) And what is up to wax rhino (*Didermocerus sumatrensis*)^[1]. This paper to adult Africa white rhino for study object on its heart of organization morphology research

Rhinocerotidae) Is World on the rare of lactation animal size big kiss on the of the iceberg hair rare skin thick high about 1.8 m Body Length 4 m About weight about 2500 kg Artificial Feeding of weight up

4000 kg. Africa white rhino Africa and, Asia of subtropical forest belongs to herbivorous animal Africa white rhino for living alone life activities when

Is small of grass. Rhino was is treasure rhino horn is precious of Medicinal Materials. In recent years, due to various reasons of white rhinos in Africa quantity was year by year reduce of trend at present insufficient 1.5 Ten Thousands remove human factors and natural factors Africa white rhino their own reproduction rate low is also a important of Factors. White Rhino was as level endangered animal at present has have 150 More A countries and regions to join the to protection white rhino of team in. But due to population of increase lead to Africa white rhino Habitat more and more small to Africa white rhino Inbreeding of probability in increase lead to genetic drift genetic diversity decreasing the Africa white rhino appear reproduction rate decreased, survival rate low survival ability decreased. In view of this now

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world many countries of related scientific research institutions of rhino the Science Research. At present for animal heart of histological study most concentrated in common of lactation animal such as rats, cattle, monkey, snapshot, cat and animal but the rhino heart of histological study also no reports. So this experimental to Africa white rhino heart for experimental material by the Africa white rhino heart of anatomy and

1. Material and Methods

1.1 Experimental Animal

On the verge of death of adult Africa white rhino, head take its heart by Hainan Sanya rhino Research Center collection of provide.

1.2 Test Methods

Take general anatomy of methods out of white rhinos in Africa heart placed 4% of formalin stationary liquid in, 4 hours. After repair block flush dehydration and transparent production paraffin slice thick about 4 mm. HE staining optical microscope under observe the and micro photographic on Africa white rhino Myocardial of histological characteristics were observed and Analysis.

2. Results

Africa white rhino heart of histological characteristics: Africa white rhino for shape large so its heart wall also thick. Light Mirror under observe the visible heart wall by in to is divided into endocardial myocardial epicardial 3 layer (Figure 1). Endocardial thick average thickness about 260.48 μm; Myocardial thick left ventricular thickest (Figure 1) average thickness up to 32.52 mm; Epicardial of average thickness 225.13 μm.

2.1 Endocardial

Africa white rhino endocardial including endothelial, endothelial lower, endometrial lower. Endothelial for single-layer flat epithelial cells more was irregular of flat-nucleus for oval. Endothelial lower visible a thin layer connective tissue organization rich in collagen fibers and elastic fiber. In ventricular septal the this layer in containing a small amount smooth muscle fiber nuclear more was long clostridium. Endocardial lower by rich of connective tissue and contains many capillary lymphatic neural and a few scattered in distribution of fat cells. In close to ventricular the of endocardial lower in distribution have a large number of PU Ken wild fiber the beam cells the cells very big was irregular of quadrilateral and oval average transverse diameter 51.98 μm. The maximum transverse diameter of the up to 62 μm. Maximum diameter up

μm. Cells big and clear nuclear more was round more is located in cells of edge. PU Ken wild fiber arrangement rules can parallel arrangement 2~3 okay.

In atrioventricular junction of endocardial lower in PU Ken wild fiber to form a special of nodules (Figure 2~4).

Room sarcolemma layer thin ventricular muscle layer thick to left ventricular thickest. Myocardial fiber arrangement compare the rules can be broadly divided into in longitudinal, central, the oblique

layer which ring tongue muscle beam thick. Muscle beam between the connective tissue is less muscle beam of diameter for myocardial fiber content different and have difference. Big of muscle beam between have a lot of fat cells accumulation. Ventricular muscle fiber and muscle bundle relative close. The myocardial fiber diameter average about 10.19 μm. Myocardium of connective tissue in vascular and neural distribution. Ventricular the of myocardium and endocardial lower in visible a large number of PU Ken wild fiber. Of white rhinos in Africa myocardial fiber branch compare the obvious arrangement closely intercalated disk don't obvious,

Myocardial cells of nucleus more was eggs round 1A nuclear minority there 2A nucleus.

2.2 Epicardial

Of white rhinos in Africa epicardial the heart coated of visceral for film. Its surface covered by a layer of

mesothelial cells between subcutaneous have is rich of connective tissue organization containing with line of arteriovenous vascular and ganglion and have a lot of fat Organization (Figure5~6).In connective tissue in a large number of collagen fibers,Elastic Fiber and powder in the smooth muscle fiber.

Of white rhinos in Africa myocardial main by myocardial fiber (Figure1Figure5)Ventricular Muscle Fiber coarse and long atrial muscle fiber fine and short.Heart

3. Discussion

From microscope under observe the results display Africa white rhino heart wall of histological structure and most breastfeeding animal of similar also divided into endocardial,Myocardial,Epicardial3Layer.The subintimal layer of African white rhino is very thick, which is composed of endothelium and a large number of connective tissue. It is rich in capillaries, lymphatic vessels, nerves, and scattered fat cells and smooth muscle fibers, these structural characteristics are similar to those of Bactrian camel and cattle, but are similar to those of other domestic animals.

Different membrane Layers.A large number of purken in the lower endocardial layer of African white rhino

Wild fibers arranged in paralle2.~3.Okay..In the subendocardial layer of the atrioventricular junction, purkeno fibers are arranged to form a special nodular shape, which is different from other animals, whether it is related to the size of different species and shapes, it is worth further study..

A spindle-shaped cytoplasm containing abundant mitochondria and glycogen..Purkeno fiber and sinoatrial node are important components of the heart signal transduction system.

The Purkinje fibers of the white rhino are clustered into bundles and nodules. Similar to rabbits and dogs.Purkeno fiber is specialized by myocardial fibers The cell morphology and diameter are very large with the myocardial fiber. The diameter of myocardial fiber is more uniform, and the speed of transmission of information is more stable.However, the size of Purkinje fiber varies. Therefore, the transmission speed may vary in the process of transferring information..In addition, the distribution form of purkeno Fiber,What is the difference between the position of Myocardial Cells and Their metabolic activities?.

The muscular membrane of the ventricle of African white rhinos is thick, and there is a large amount of adipose tissue in the connective tissue under the epicardial. This is because of the large size of African white rhinos, in order to adapt to the need of the circulation of the cardiovascular system and to meet the needs of their metabolic life activities, the heart must be developed

Muscles must be thick.In addition, the African white rhino is a herbivore. In order to meet the energy needs in the process of its huge body's life, the African white rhino has a great feed intake, and most of the time outside the rest time.

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