



HISTOLOGY FOR DENTISTRY OF URINARY SYSTEM

ENDOCRINE GLANDS, CONNECTIVE TISSUE, AND SKIN

Winnie Yohana

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FOREWORD

All praise and thanks be to Allah SWT, because this book can be completed with His blessings. This book is intended for students of the Faculty of Dentistry who will study Histology. This book has been adjusted to the 2020 curriculum, where Histology is part of Basic Medical Science, which is then related to Anatomy and Physiology. Therefore, the material is adjusted to the tutorial material. Students who have taken histology courses previously have sufficient knowledge about the materials that will be studied in the topic. Learning materials can be taken from textbooks or lecture materials. Learn from now on, don't delay work/study, so that you can pass the exam successfully

WRITER

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INTRODUCTION

Histology is one of the courses in the Basic Medical Science block. This material is helpful for students' knowledge in studying the histological picture of skin tissue, the urinary system, the endocrine system, and a review of connective tissue. Skin tissue covers the surface of the body; its surface area accounts for about 16% of our body weight. The skin protects against the influence of microorganisms, regulates body temperature by sweating and removing catabolic waste, and becomes a wide sensory organ for the body, such as receiving touch, temperature, and pain stimuli. The kidneys regulate the disposal of other metabolic waste in the urinary system. In addition, the kidneys regulate the balance of water and electrolytes by excreting excess water and electrolytes, maintaining acid-base balance. The kidneys also clarify or clean blood plasma from the end products of metabolism when these substances pass through the renal capillaries. In addition, the kidneys function to produce the hormone erythropoietin, which stimulates the formation of erythrocytes in the bone marrow, and secrete the renin hormone, which regulates blood pressure. To control and coordinate the function of the body's organs, one of which is by the endocrine system. The endocrine system consists of glandular cells that secrete hormones, giving signals to molecules transported in the blood to distant target cells that have specific surface receptors for the cells. Binding to the receptors triggers intracellular biochemical reactions that increase or decrease the activity of the target cells. Coordination with the nervous and

endocrine systems can be achieved through communication pathways between the brain's hypothalamus and the pituitary gland that control the function of several other endocrine glands. To bind fibers, cells have connective tissue, there is an intercellular substance consisting of ground substance and fibrillary. Connective tissue functions to bind or connect, fill between various other basic tissues, as a support and has a special function.

CHAPTER 1

URINARY SYSTEM

The urinary system, which includes the kidneys, ureters, urinary bladder, and urethra, helps remove and dispose of metabolic waste. In addition, it functions as an endocrine hormone that releases the hormone erythropoietin, which stimulates the production of erythrocytes in the bone marrow, and the hormone renin, which regulates blood pressure.

1. KIDNEY

Human kidneys are a pair of organs on the right and left, which are located retroperitoneally, next to the vertebral column in the lumbar region. The right kidney is lower than the left, because the liver is on the right. Macroscopically, the kidneys look like red beans, with a curve like the hilus, located near the vertebral column. Adult kidneys are about 10-12 cm long, 5-6 cm wide, and 3-4 cm thick. And kidney weight is 130-150 grams. The kidneys are wrapped in a dense fibrous connective tissue capsule containing elastic fibers. From the renal hilus, there is an outlet, the ureter, next to the renal artery and vein, blood vessels, lymph vessels, and nerve fibers. From the hilus comes the ureter. The upper part of the ureter widens to fill the renal hilus. This part (pelvis) is divided into major and minor calyces. There are two major calyces and 8 to 12 minor calyces. Each minor calcium includes a cone-shaped protrusion of renal tissue

CHAPTER 2

ENDOCRINE GLANDS

The cells that secrete secretions can be divided into exocrine and endocrine glands. Glands whose secretions are transported through ducts are called exocrine glands, while glands without ducts are called endocrine glands.

Both endocrine and exocrine glands originate from epithelial layers. The endocrine glands eventually lose contact with the surface and become isolated islands of epithelium embedded in a connective tissue matrix. The parenchymal cells of these glands secrete hormones, which metabolize specialized tissues found elsewhere in the body.

1. Cerebral Pituitary Gland

This gland is located under the brain in a shallow depression in the sphenoid bone called the Sella turcica. It is 1 cm long, 0.5 cm wide, and weighs 0.5 g. A capsule of dense connective tissue covers it. The pituitary produces several hormones that broadly affect metabolism, growth, and reproduction.

The Cerebral Pituitary Gland consists of

- 1) Pars anterior
- 2) Pars posterior
- 3) Pars intermedia

CHAPTER 3

CONNECTIVE TISSUE

Connective tissue originates from the mesoderm layer, providing structure and supporting other tissues and organs throughout the body. It usually consists of blood vessels, fillers functional for nutrients, metabolism, removing metabolic waste through the tissue, and the circulatory system. Connective tissue consists of cells and the extracellular matrix (the dominant components that determine morphology). The extracellular matrix consists of organic material (the basic substance where fibers are located).

There are various types of connective tissue, namely

- 1) Embryonic connective tissue: mesenchymal tissue and mucosal tissue.
- 2) Adult connective tissue consisting of:
 - a) Loose connective tissue
 - b) Dense connective tissue
 - c) Reticular connective tissue
 - d) Pigmented connective tissue
 - e) Fatty connective tissue

1. Embryonic connective tissue (mesenchymal tissue)

This tissue is found in organs that are undergoing formation.

Mesenchymal tissue is the parent of connective tissue in general. Appearing as a collection of loosely arranged cells, mesenchymal cells appear star-shaped with many branched and interconnected

CHAPTER 4

SKIN

The skin functions to protect the body from external influences. The skin is a tissue covering the body's surface, consisting of 2 layers: epidermis and, below it, the dermis (connective tissue). In addition, the skin tissue is supported by subcutaneous connective tissue. Subcutaneous tissue or hypodermis, or subdermal, is also fibrous with a loose connective tissue arrangement from the corium and fat cells or fat tissue. This hypodermis is also called superficial fascia in anatomy. This superficial fascia allows the skin to move freely above it, generally on the surface of the skin, except for the palms of the hands and feet. The epidermis comes from the ectoderm, and the dermis comes from the mesoderm. The epidermis is a stratified squamous epithelium with keratin. Several areas are the border with the tunica mucosa, called the mucocutaneous junction. The border is found on the lips, nostrils, eyelids, vulva, prepuce, and anus. The skin is a large part of the body and weighs approximately 16% of body weight, with a surface area of approximately 2 m². The function of the skin, apart from protecting the body, is also to act as a protective barrier against external fluids and invasion by microorganisms. as an impermeable substance to certain fluids, as a sensory organ to detect pain, pressure, heat, cold, sweat secretion and also regulate body temperature. Body thickness ranges from 0.5-4.00 mm. Related to the skin are hair follicles, sudoriferous glands that produce sweat fluid, and sebaceous glands that oil the

REFERENCE

- Don W Fawcett & Ronald P Jensh. Bloom & Fawccetts Concise histology, 2nd ed. Arnold publisher 2002
- Di Fiore M.S.H. Atlas Histology 4th ed. Lea Febiger.1980
- Eroschenko VP. Atlas histologi, Lippincott William & Wilkin. 2005
- Gartner LP. And Hiatt Color textbook of Histology. 2nd Saunders 2001
- Junqueira LC and Carneiro Basic Histology. 10th ed. Lange. 2004
- Staff Pengajar Histologi FK Unpad 1981
- Young B. Functional histology Churchill Livingstone 2000

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