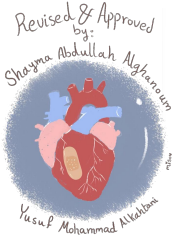
جامعة الملك سعود
King Saud University



MED439
KING SAUD UNIVERSITY

Practical Histology

OSPE

*For Girls Only

Histology Team
MED 439

Cell Structure

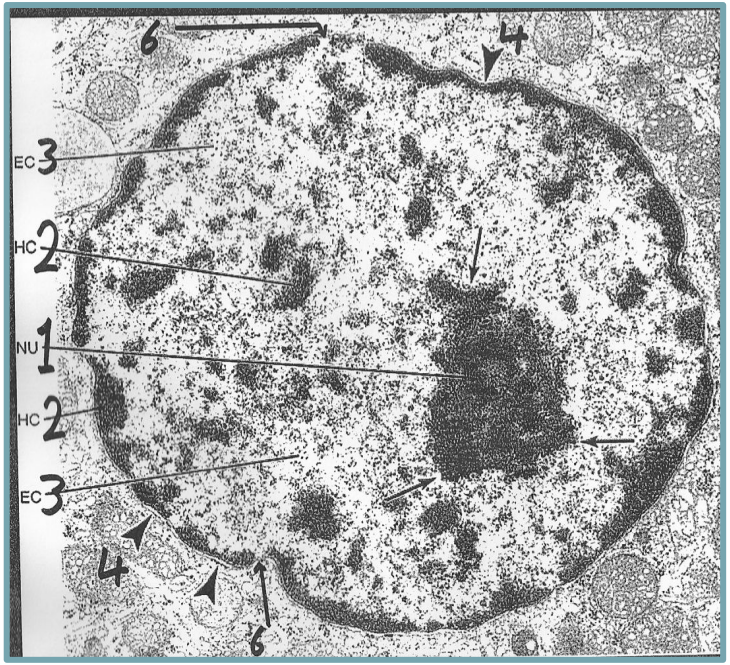
Nucleus

Q1- Identify the structure :
Nucleus

Q2- Identify the features of this structure ?
Heterochromatin (dark and inactive)
Euchromatin (pale and active)
Nuclear pore (openings in the nuclear envelope)
Nuclear envelope (lining the nucleus)
Nucleolus (The biggest dark region in the nucleus)

Q3- What is the function of Nucleolus ?
formation of ribosomal RNA (rRNA), which is responsible for protein synthesis in the cytoplasm

Q4- what is the function of the Nucleus?
•It is the site of formation of the three types of RNA.
•It is essential for the vitality and division of the cell.
•It is the site of storage of genetic information

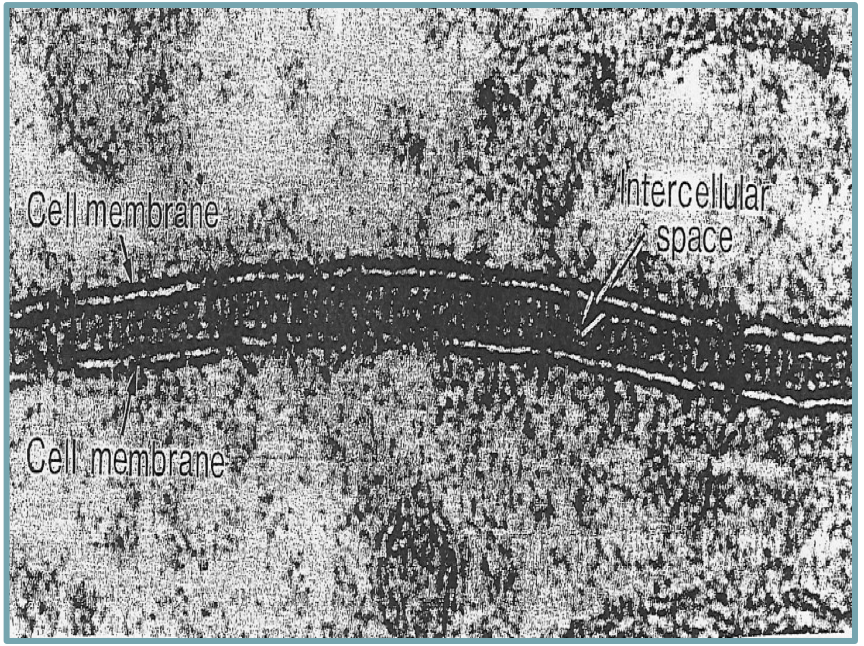


Cell membrane

Q1- Identify the structure?
Cell membrane

Q2- Identify the features of this structure ?
(trilaminar appearance)

Q3 -Function of the cell membrane ?
Selective barrier

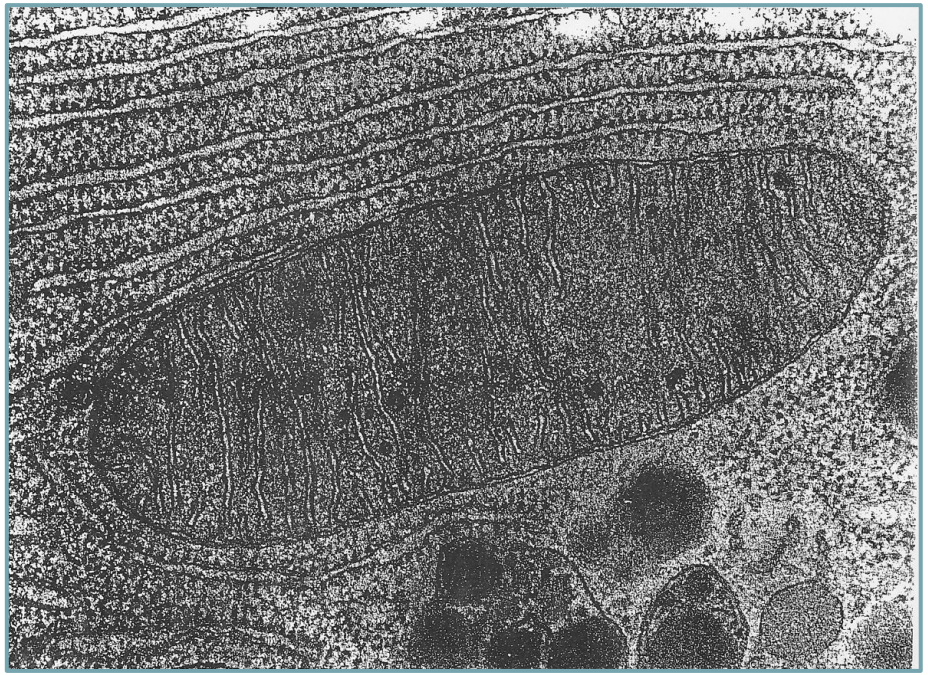


Mitochondria

Q1- Identify the structure?
Mitochondria

Q2- Identify the features of this structure ?
1- Rod-shaped
2- Its wall has 2 membranes
3-The outer is smooth, the inner is folded to form CRISTAE.
4-Membranous organelles

Q3- What is the function ?
1) Generation of ATP “the are called the power house”
2) They can form their own protein and undergo self replication because they have their own DNA



Golgi Apparatus

Q1- Identify the structure?
Golgi apparatus

Q2- Identify the features of this structure ?
Have two faces:
1- Convex (FORMING) face: receives transfer vesicles.
2- Concave (MATURE) face: forms secretory vesicles.
3-Membranous organelles

Q2-What the function ?
1.Sorting, modification & packaging of proteins
2.Secretory vesicles formation

Rough Endoplasmic Reticulum

Q1- Identify the structure

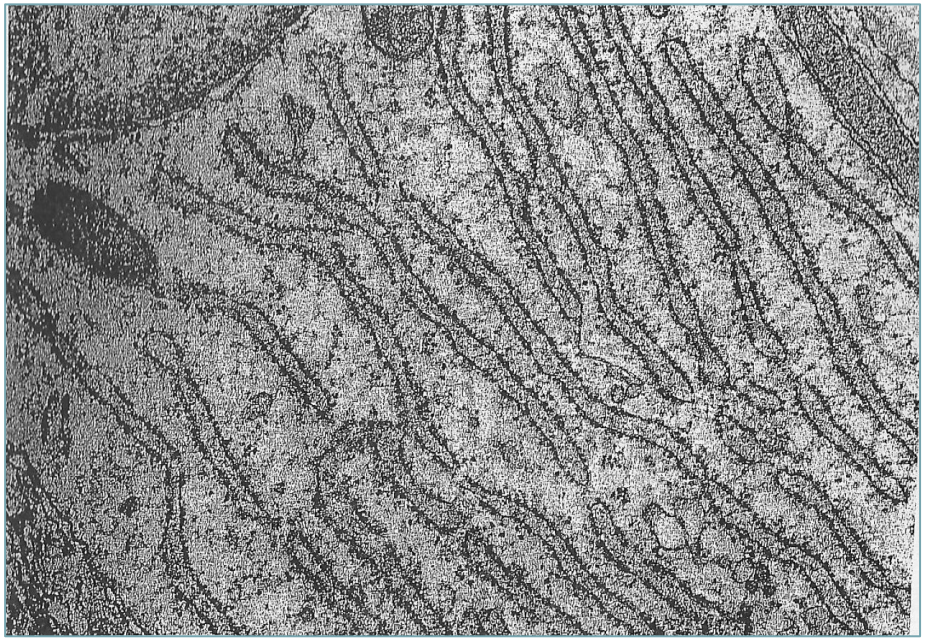
Rough Endoplasmic Reticulum

Q2- Identify the features of this structure ?

1-Membranous sheets of flattened tubules & vesicles 2-with ribosomes on the surface

Q3-What is the function ?

Synthesis of protein by the ribosomes in the outer surface.

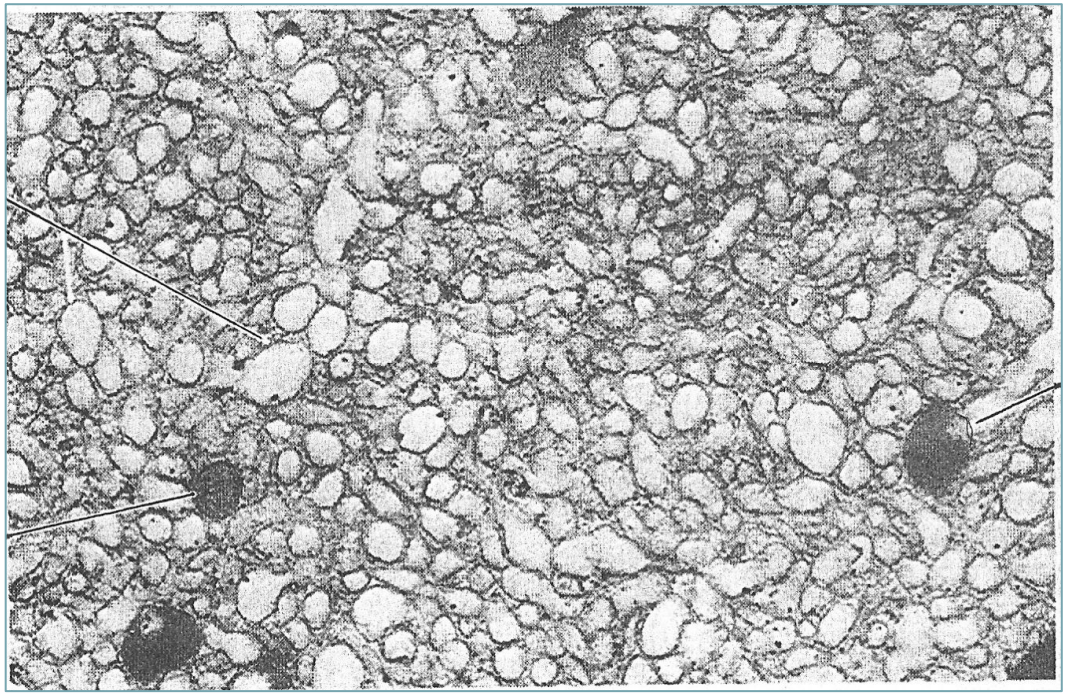


Smooth Endoplasmic Reticulum

Q1- Identify the structure?
Smooth Endoplasmic Reticulum

Q2- Identify the features of this structure ?
1-Membranous tubules and vesicles
2-no ribosomes of the surface

Q3-What is the function ?
Synthesis of lipids
Detoxification of toxins



Centrioles

Q1- Identify the structure?

Centrioles

Q2- Identify the features of this structure ?

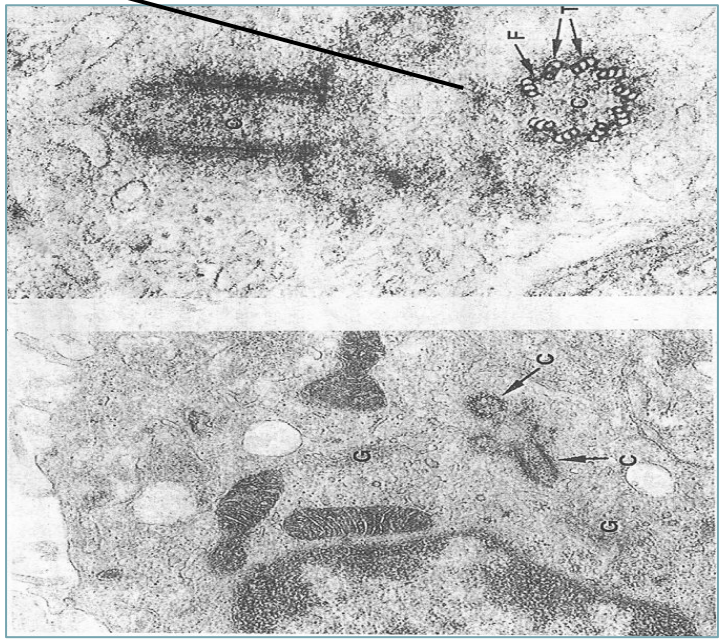
1- 2 cylinders which are perpendicular to each other

2- their wall is made of 9 triplets of microtubules (9x3 = 27)

3- Non membranous organelle

Q3- What is the function of it?

- Essential for cell division
- Formation of cilia and flagella

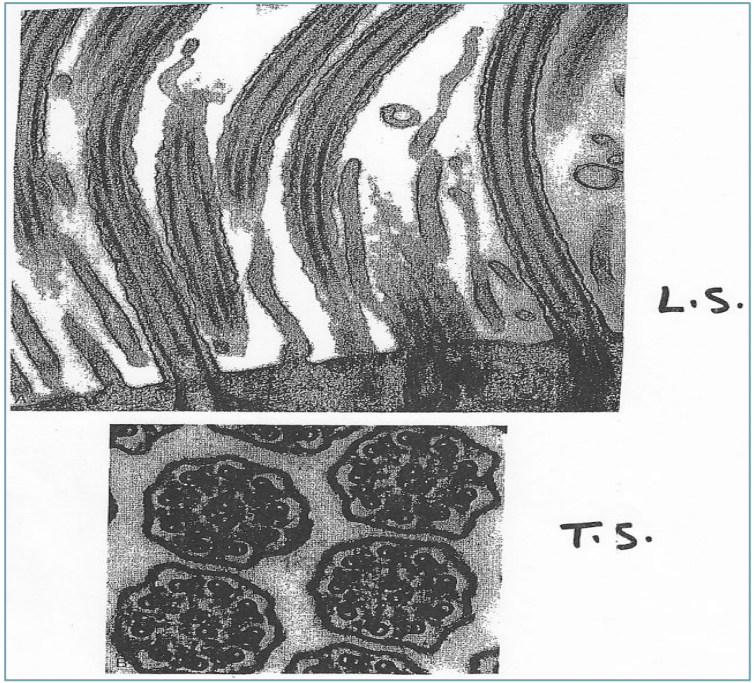


Cilia

Q1- Identify the structure?
Cilia

Q2- What are Characteristics of it?
1-Hair like striations on the free surface of some cells
2-Shaft form of 9 doublets and 2 central singlets of microtubules (9x2 + 2 = 20)

Q3- What is the function of it?
Movement of particles or fluids in one direction



Microvilli

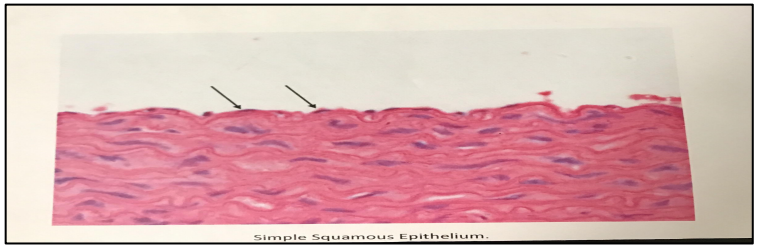
Q1- Identify the structure?
Microvilli

Q2- What are Characteristics of it?
1-Cylindrical cytoplasmic projections of apical surface to increase surface area
2-they contain actin filament (microfilaments)
3- like finger shape

Q3- What is the function of it ?
Increase surface area for more absorption

EPITHELIAL TISSUE

Simple Squamous Epithelium



Q1- Identify the type of epithelium?

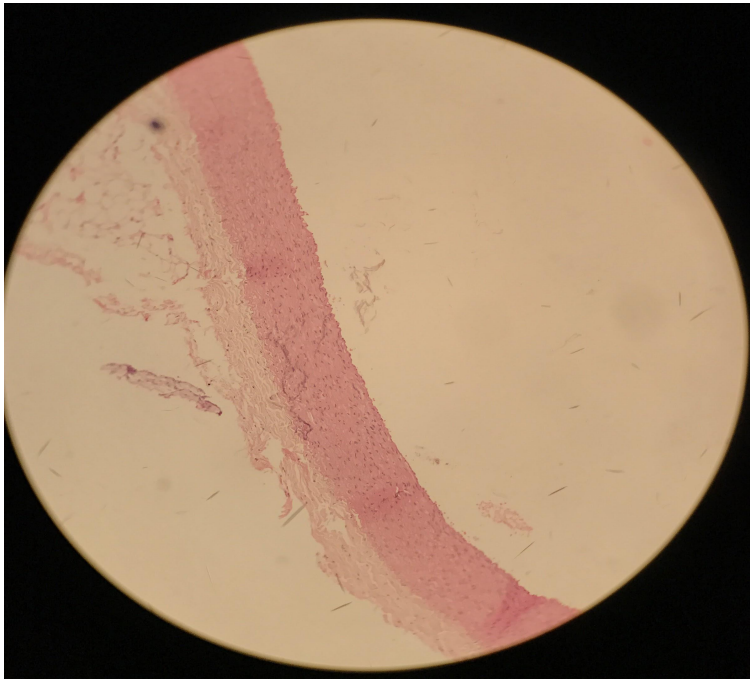
Simple squamous epithelium

Q2- mention the organs (distribution, site & example)?

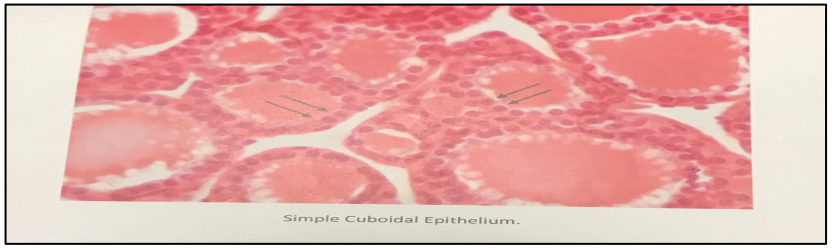
- Endothelium of Aorta
- Alveoli of lungs

Q3- Identify the features of this structure ?

- One layer
- Flat cells
- Flat nuclei



Simple cuboidal epithelium



Q1- Identify the type of epithelium / the structure?

Simple cuboidal epithelium

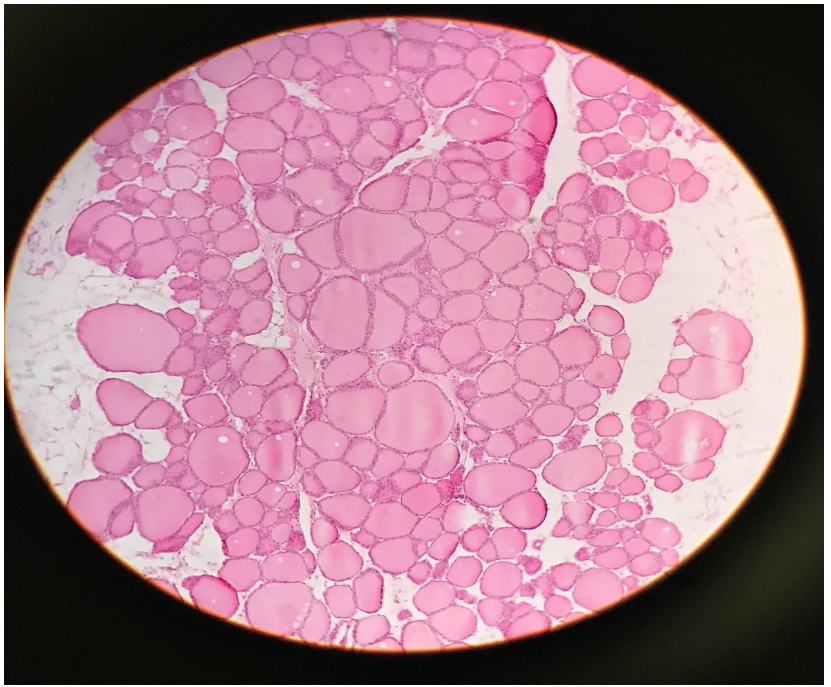
Q2- mention the organs (distribution, site & example)?

1-Thyroid gland (follicles)

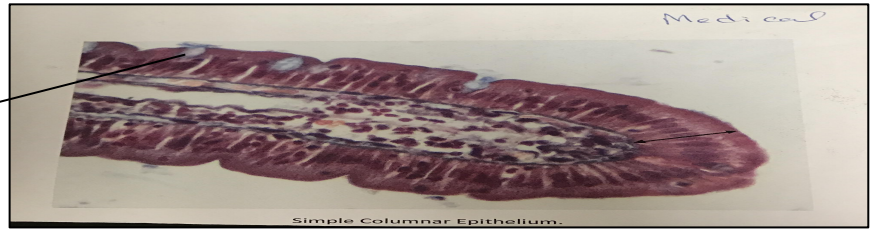
2-salivary glands

Q3- Identify the features of this structure ?

- One layer
- cuboidal cells
- Round central nuclei



Simple columnar epithelium with goblet cells



Q1- Identify the type of epithelium / the structure?

Simple columnar epithelium with goblet cells

Q2- mention the organs (distribution, site & example)?

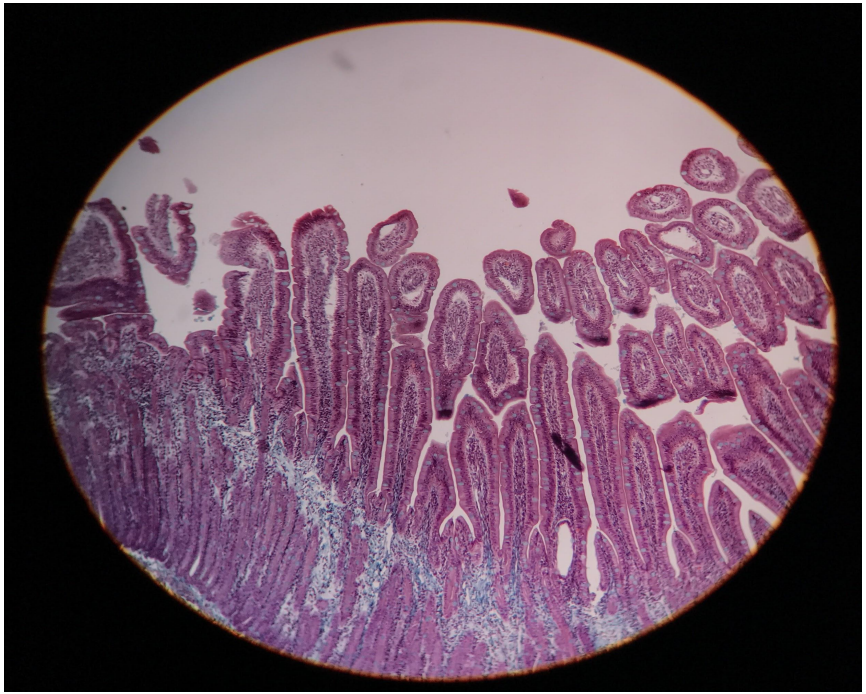
- GIT –small intestine (with goblet cell)
- GIT -stomach and gall bladder (without goblet cell)

Q3- What is the function of the pointed area?

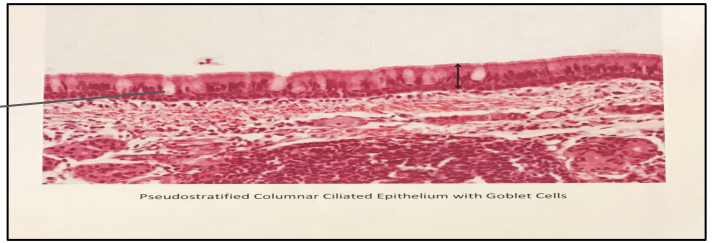
Secreting mucus

Q4- Identify the features of this structure ?

- One layer
- columnar cells
- basal oval nuclei



Pseudostratified Columnar ciliated epithelium with goblet cells



Q1- Identify the type of epithelium / the structure?

Pseudostratified Columnar epithelium
"ciliated" with goblet cells"

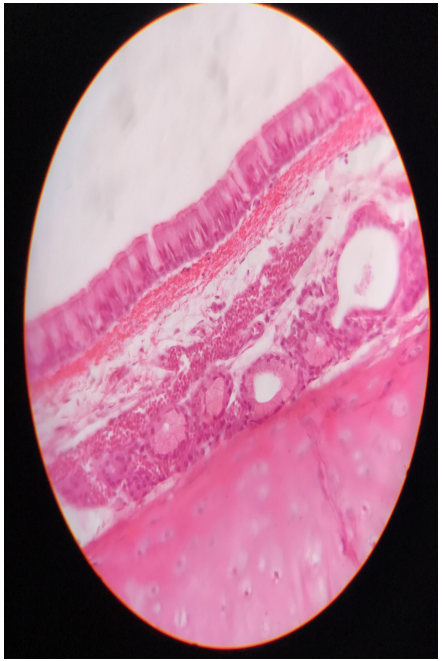
Q2- mention the organs (distribution, site & example)?

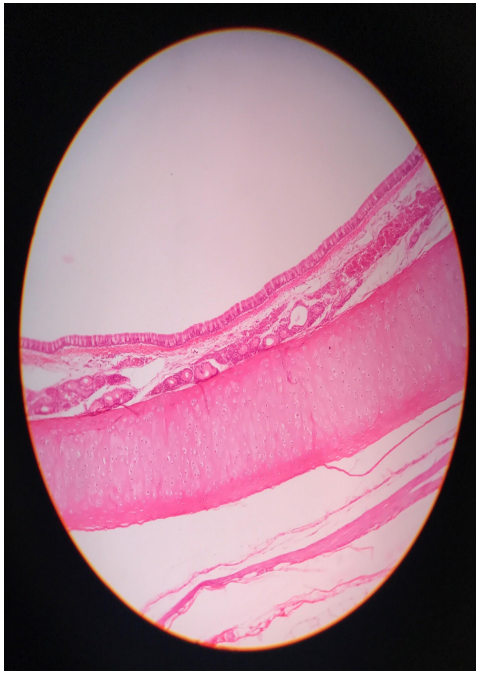
- Trachea
- bronchi

Q3- Identify the features of this structure ?

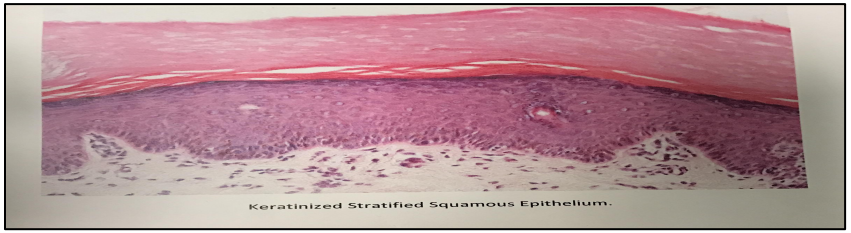
- One layer
- columnar cells
- Nuclei appear at different levels
- All cells rest on basement membrane

Some are tall, others are short





Keratinized Stratified Squamous Epithelium



Q1- Identify the type of epithelium / the structure?

Keratinized Stratified Squamous Epithelium

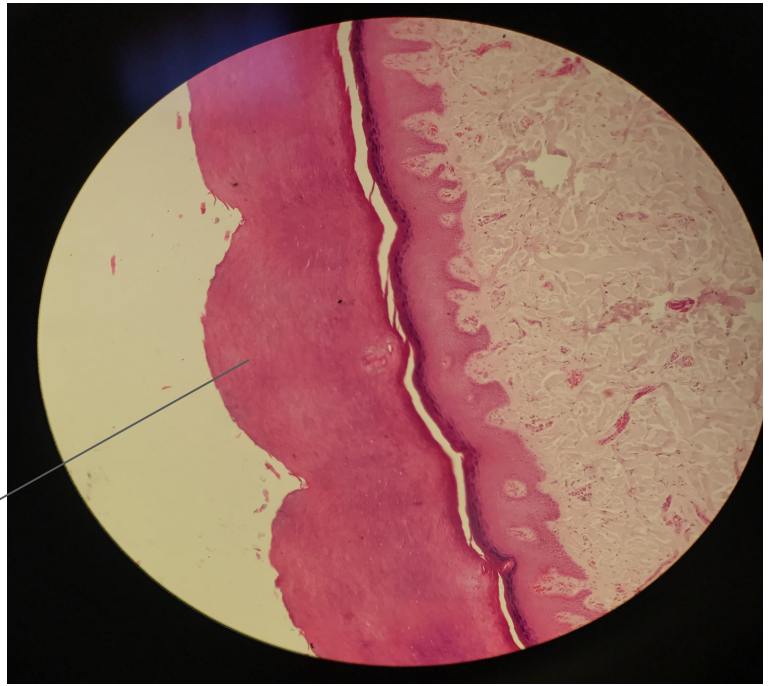
Q2- mention the organs (distribution, site & example)?

Epidermis of skin

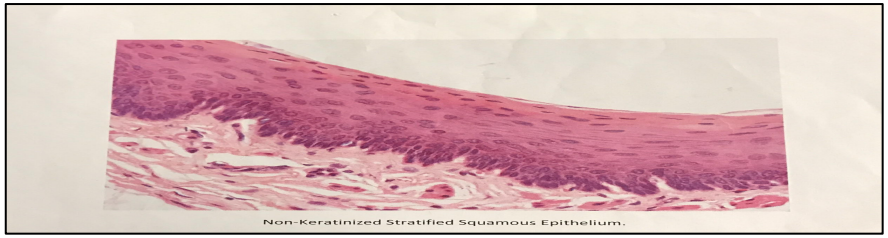
Q3- Identify the features of this structure ?

- multiple layers
- basal cells: columnar, basal oval nuclei
- Intermediate cells: polygonal , central rounded nuclei
- Surface cells: flat, flattened nuclei
- With layer of keratin on the surface

keratin هذا هو



Non-keratinized Stratified Squamous Epithelium



Q1- Identify the type of epithelium / the structure?

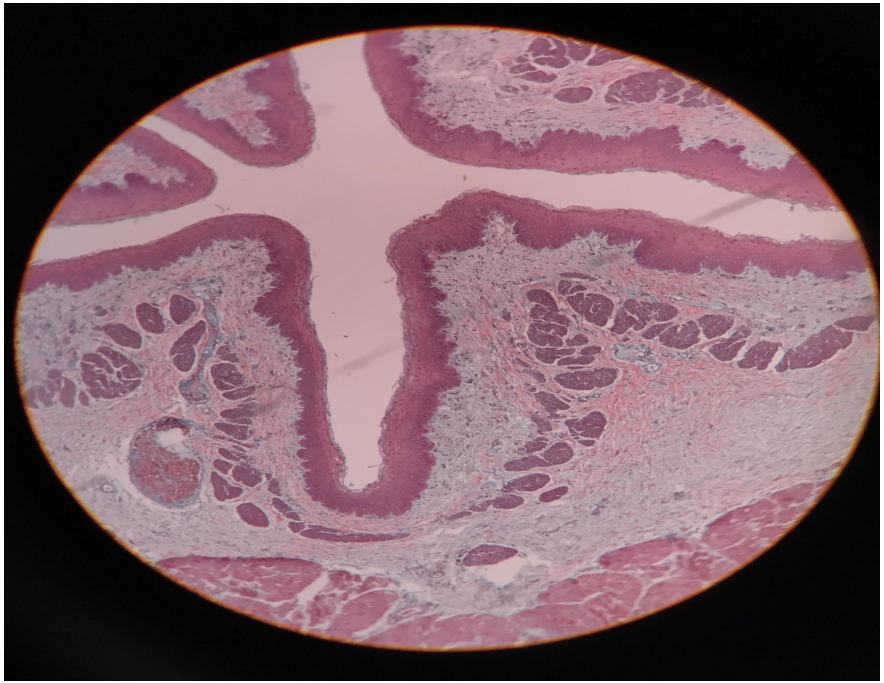
Non-keratinized Stratified Squamous Epithelium

Q2- mention the organs (distribution, site & example)?

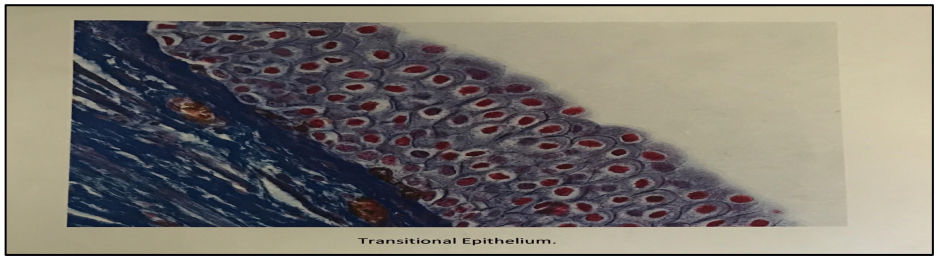
Esophagus

Q3- Identify the features of this structure ?

- multiple layers
- basal cells: columnar, basal oval nuclei
- Intermediate cells: polygonal , central rounded nuclei
- Surface cells: flat, flattened nuclei
- Without a layer of keratin on the surface



Transitional epithelium



Q1- Identify the type of epithelium / the structure?

Transitional epithelium

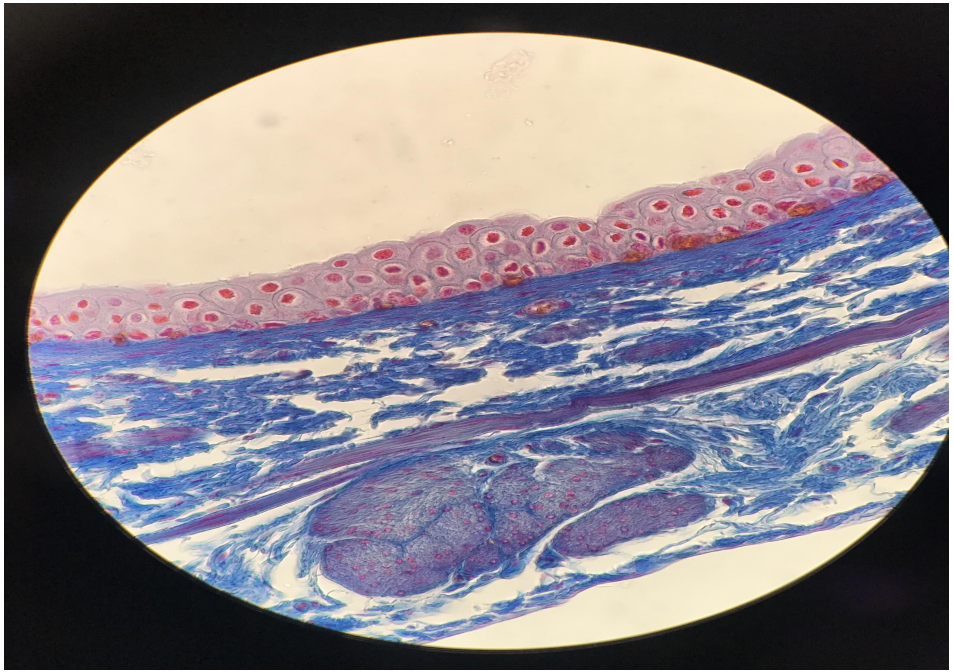
Q2- mention the organs (distribution, site & example)?

1-Urinary bladder

2- Ureters

Q3- Identify the features of this structure ?

- multiple layers
- basal cells: columnar
- Intermediate cells: polygonal
- Surface cells: large cuboidal with convex free surface maybe binucleated



CONNECTIVE TISSUE

Dense collagenous regular connective tissue

Q1- Identify the structure?
Dense collagenous regular connective tissue

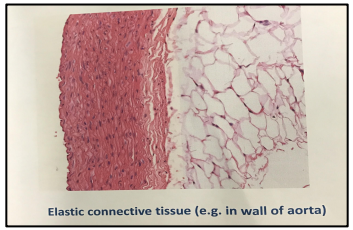
Q2- What is the type of fibers?
Collagen fiber (Collagen type I)

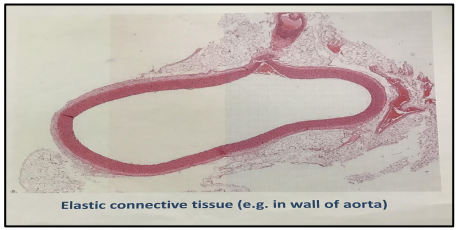
Q3- What is the type of cells?
Fibroblast cells

Q4- mention the organs (distribution, site & example)?
- Tendons
- ligaments

Q3- Identify the features of this structure ?
1-collagen fibers + fibroblasts.
2-Consists of collagen type one

Elastic connective tissue



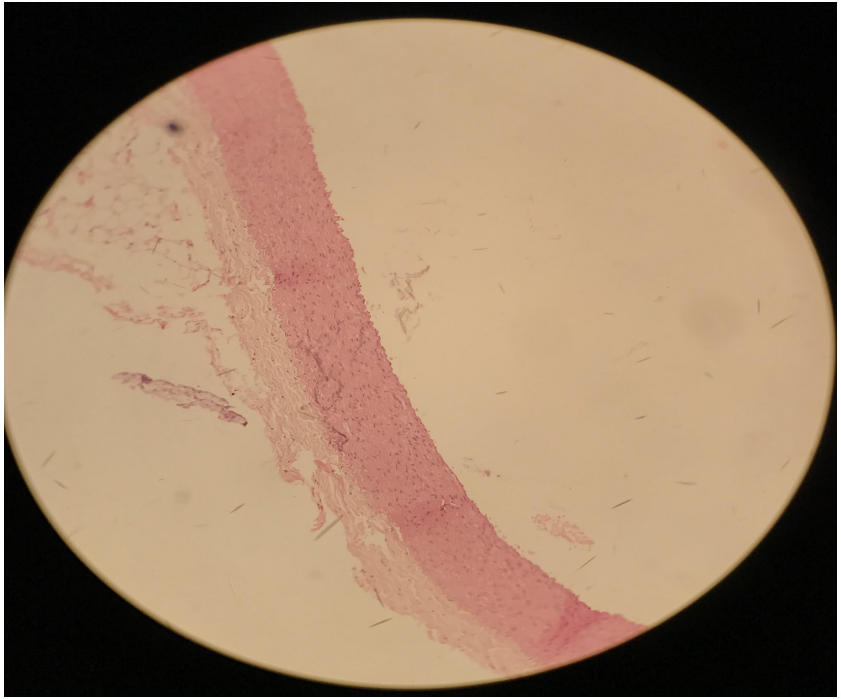


Q1- Identify the structure?
Elastic connective tissue

Q2- What is the type of cells?
Fibroblast cells

Q3- mention the organs (distribution, site & example)?
Aorta

Q3- Identify the features of this structure ?
1-elastic fiber + fibroblasts



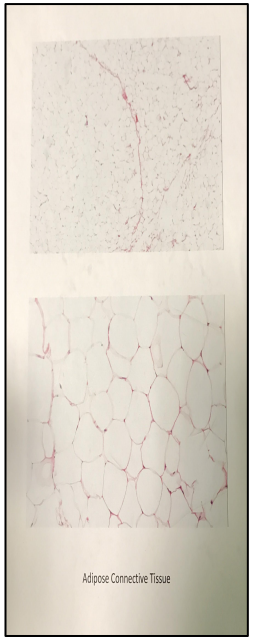
Adipose connective tissue

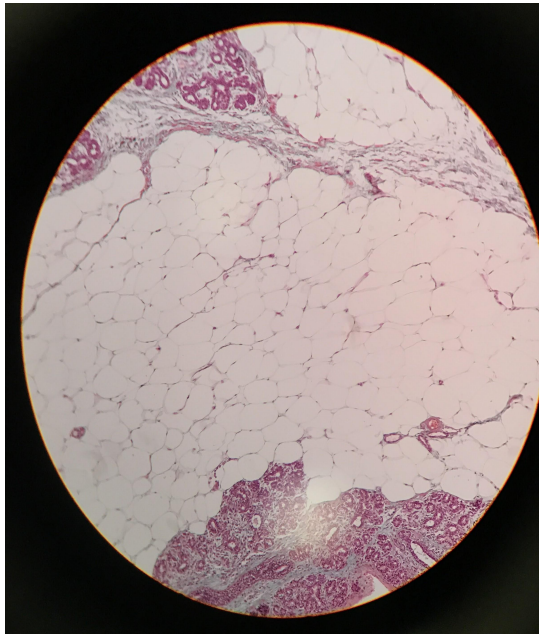
Q1- Identify the type of connective tissue?
Adipose connective tissue

Q2- What is the type of cells ?
Adipocyte

Q3- mention the organs (distribution, site & example)?
- Around the kidney
- Female breast
- Abdominal wall
- buttocks

Q3- Identify the features of this structure ?
1-Consists of adipocyte
2-The nucleus of adipocyte is flattened and located on the periphery





Reticular connective tissue

Q1- Identify the type of connective tissue?

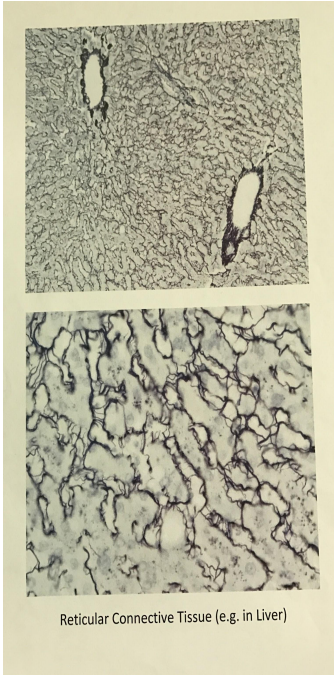
Reticular connective tissue (Collagen type III)

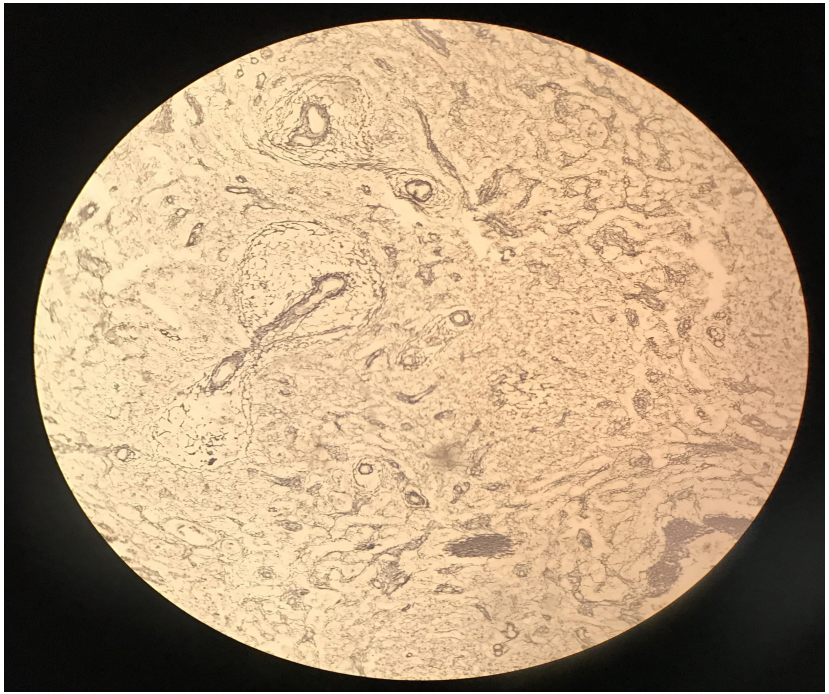
Q2- mention the organ = site ?

- Lymph node
- spleen
- liver

Q3- Identify the features of this structure ?

1-reticular fibers + reticular cells
2-form a network
3-Consists of collagen type |||
4-stained by silver





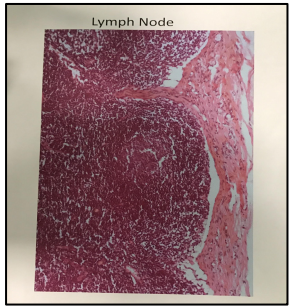
LYMPHOID TISSUE

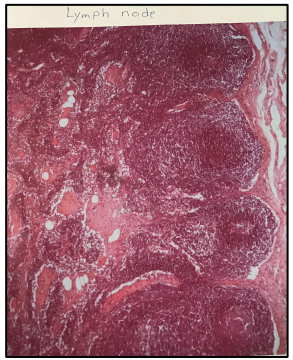
Lymph node

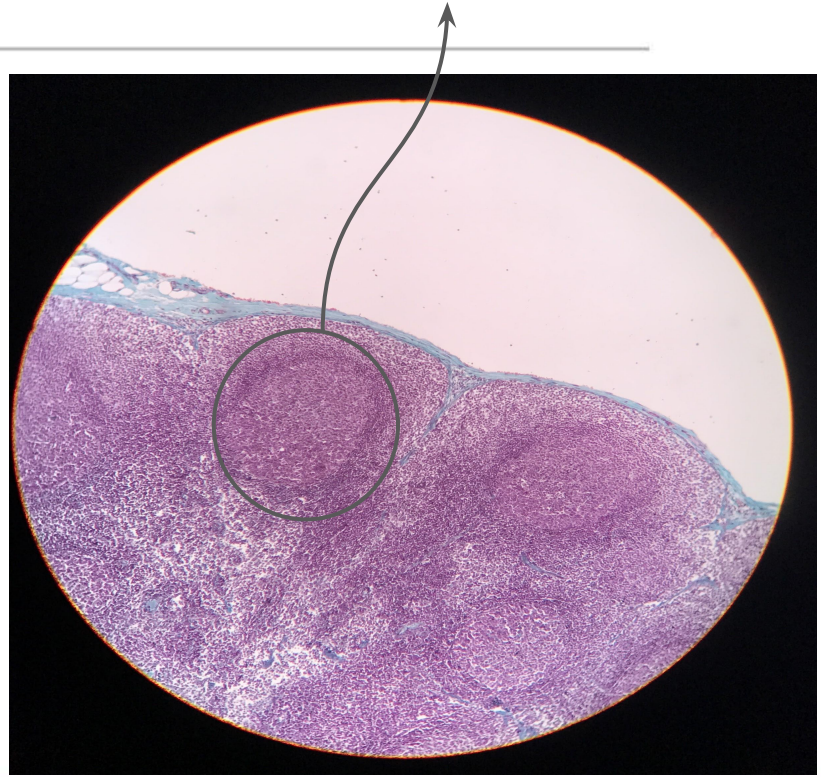
Q1- Identify the structure?
Lymph node

Q2- What is the function of it?
1-Proliferation of B and T lymphocytes.
2-Filtration of lymph from bacteria and other foreign substances.

Q3- What is the main part of the structure = feature ? Primarily / Secondary
1- Cortex (lymph nodules follicles)
2- Paracortex
3- Medulla
4- Capsule
5- Sinuses







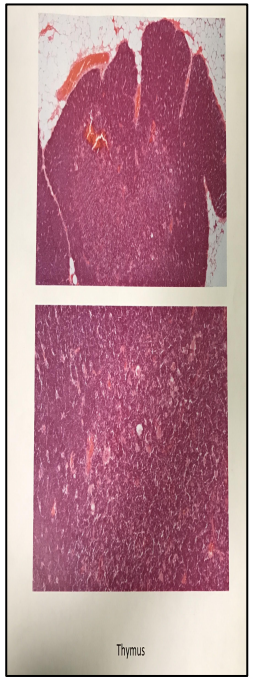
Thymus

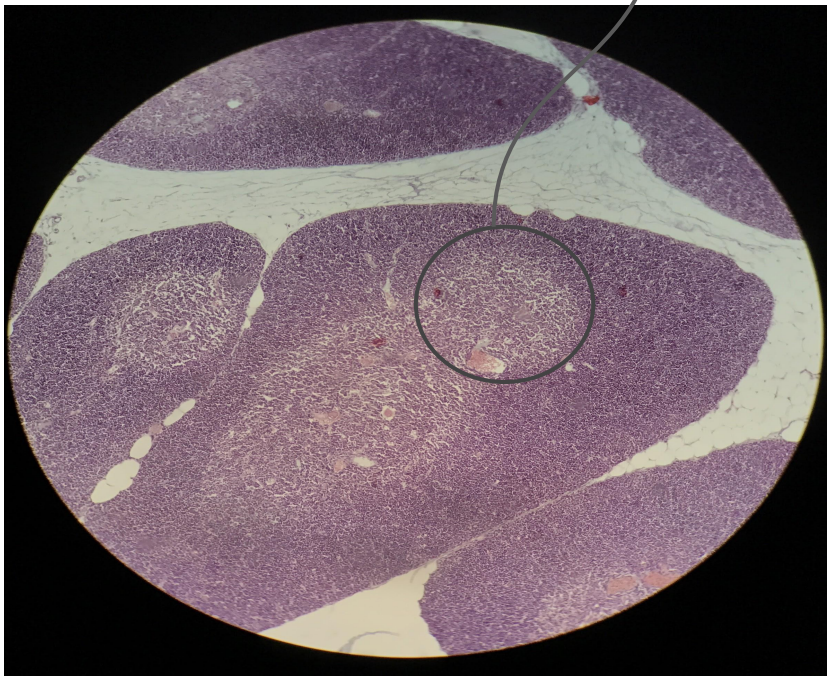
Q1- Identify the structure?
Thymus (incomplete septum)

Q3- What is the main part of the structure = feature?
- Cortex : immature t-lymphocytes
- Medulla : mature t-lymphocytes + (Hassall's corpuscles)

Q3- What is the main type of the cell ?
T-lymphocytes

Q4 - What is the function of it?
1- Maturation of T lymphocytes
2- It involutes after puberty and becomes infiltrated by adipose tissue.
3- Remnants of thymus remain in adult to form T lymphocytes.





Spleen

Q1- Identify the structure?

Spleen

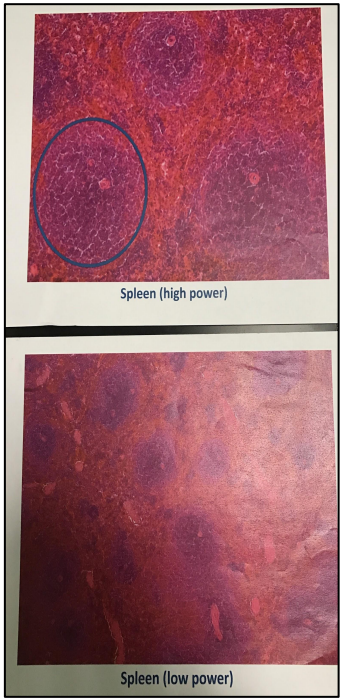
Q2- What is the function of it?

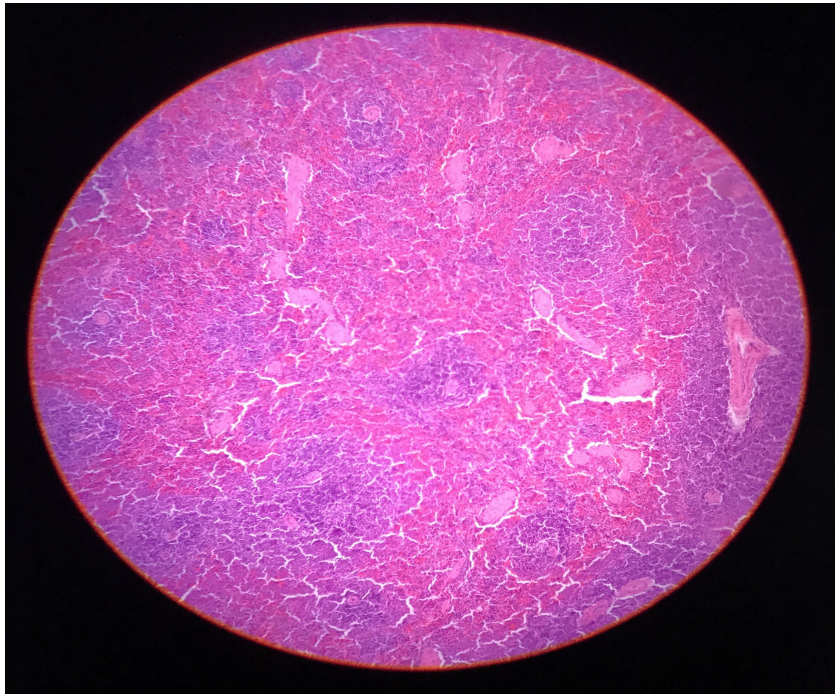
1-Filtration of blood.
2-Phagocytosis of old RBCs & old blood platelets , invading microorganisms. 3-Production , proliferation of immunocompetent B & T lymphocytes. 4-Production of antibodies.

Q3- What is the main part of the structure ?

1-White pulp :
1) Periarterial lymphatic sheaths (PALS)
2) Lymphoid follicles

2-Red pulp :
1) Splenic cords
2) Splenic blood sinusoids





Palatine tonsil

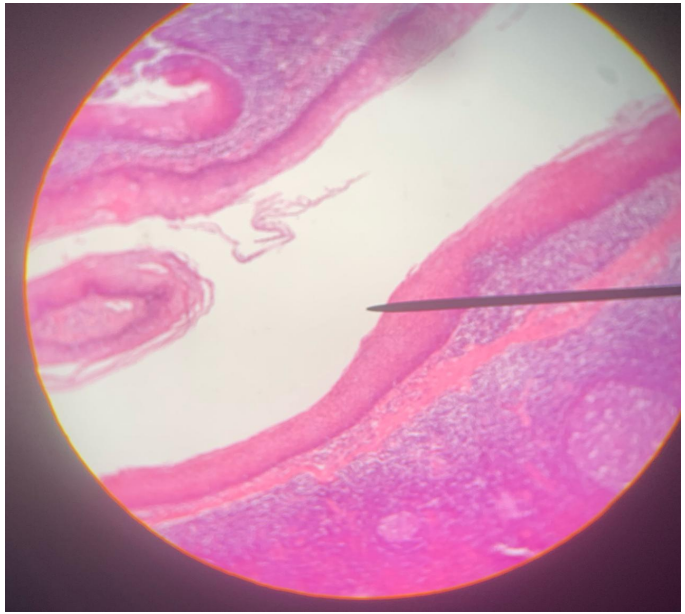
Q1- Identify the structure?
Palatine tonsil (incomplete capsule)

Q2- What is the type of epithelium?
Non-keratinized Stratified Squamous Epithelium

Q3- What is the function of it ?
Production of antibodies

Q4- Where is located ?
At the entrance of oral pharynx

Q3- What is the main part of the structure ?
1. incomplete capsule
2. Stratified squamous epithelium
3. Cleft (crypt)
4. follicles

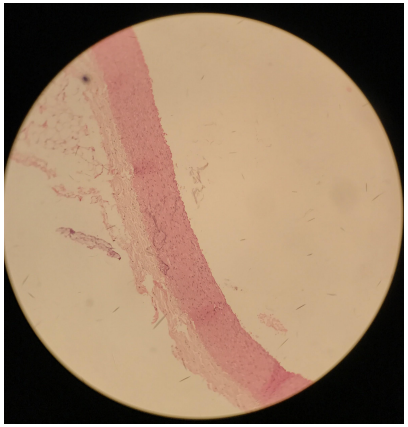


ملاحظة :

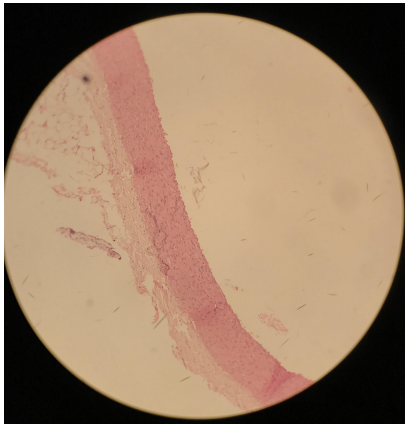
الصورة تحت المجهر ل

simple Squamous Epithelium و

Elastic connective tissue



Q1- Identify the type of epithelium?Simple Squamous Epithelium



Q1- Identify the structure?

Elastic connective tissue

الحمدالله تم آخر عمل لتيم الهستو لأول بلوك ،
رسالة احب اقرأها ،
حبيت اشاركها معكم لعلها تكون جرعة إيجابية لأحد
يمر بوقت ضيق
و بالتوفيق لكم جميعا ♡

أعلم أنك تعبت جداً ، أعلم أن ظهرك بات يؤلمك من الجلوس على هذا الكرسي ساعات وساعات لكي تحفظ وتقرأ ، وأعلم أن يداك تؤلمك من ثقل الكتب ، وأعلم أنك اعتذرت عن حفلة صديقك المقرب أو اجتماع عائلتك لكي تدرس ، أعلم انهم لاموك وعاتبوك وظنوا أنك لم تعد تحبهم ، وأعلم إنك الآن لربما تود الإستسلام والتوقف ، لكن مهلاً ! فهناك الكثير من اللحظات السعيدة التي تنتظرك لتعيشها ، هناك الكثير من المرضى ينتظرونك . . هناك مريض لا يستطيع المشي ولكن بمساعدتك سيمشي . . هناك مريض بالسرطان وقد يأس من الحياة ، ولكن بروحك الطيبة وبمهارتك الطبية ستعيد أمله ! - هناك امرأة تريد أن تسمع ولو لمرة واحدة أجمل كلمة تسمعها أنثى " ماما " - لكنك أنت لإنك تعبت واجتهدت بفضل الله ثم بفضلك أنت ستسمعها طول العمر ! هناك من يأس من مشاكله وفكر في الانتحار ولكن بسببك أنت . . بمساعدتك أنت ، سيحيا حياةً كريمة ! هناك من يحتضر ويلفظ أنفاسه الأخيرة ويصارع الموت ، ولكن بفضل مهاراتك وتدخلك سينجو ! وهناك الكثير من المرضى والكثير من الأمراض . . فمهلاً فهناك الكثير من الابتسامات سترسمها ، والكثير من الدمعات ستمسحها ، وهناك أرواح ستحييها بعد اذن الله ، فبالله عليك قل لي . . ألا يستحق تعبك كل هذا ؟!

Good luck ♡

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