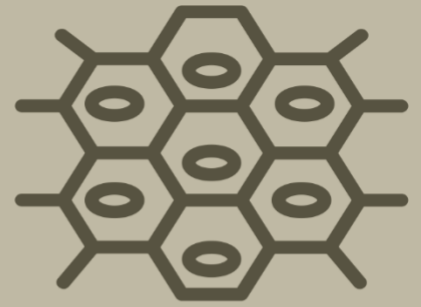
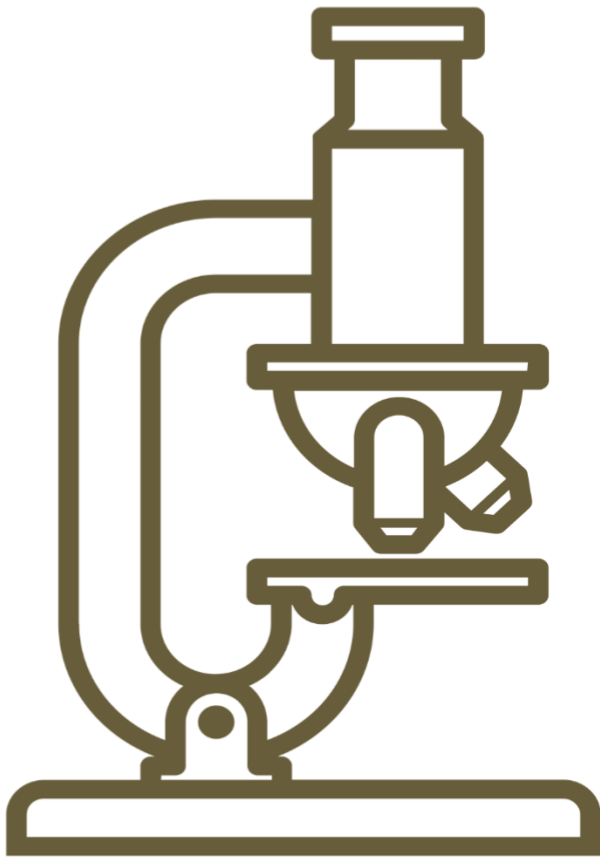




HISTOLOGY



SHEET NO.

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CT Lab

In this Sheet we are going to discuss various cells and fibers CT structures & pics.. and the differences between them.

Fibroblast & Fybrocytes

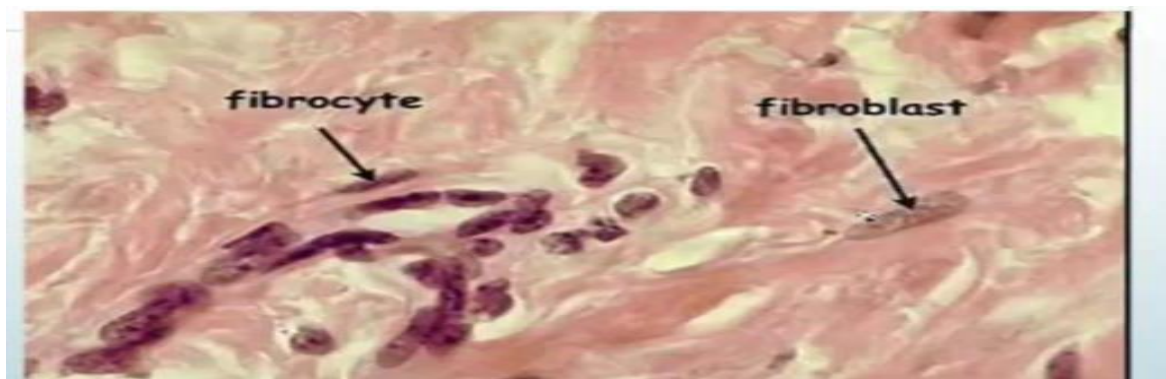


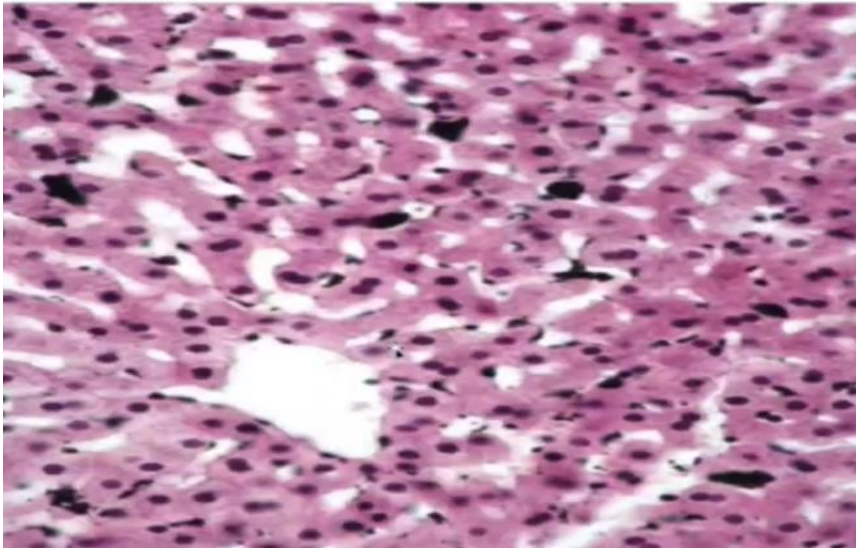
Fibroblast

- Active form
- More loose CT
- Cytoplasm is more
- Large euchromatic nuclei
- Larger cells

Fibrocytes

- Quiescent /dormant inactive form
- More dense CT
- Cytoplasm is less
- Small elongated nucleus
- Small & slender cells



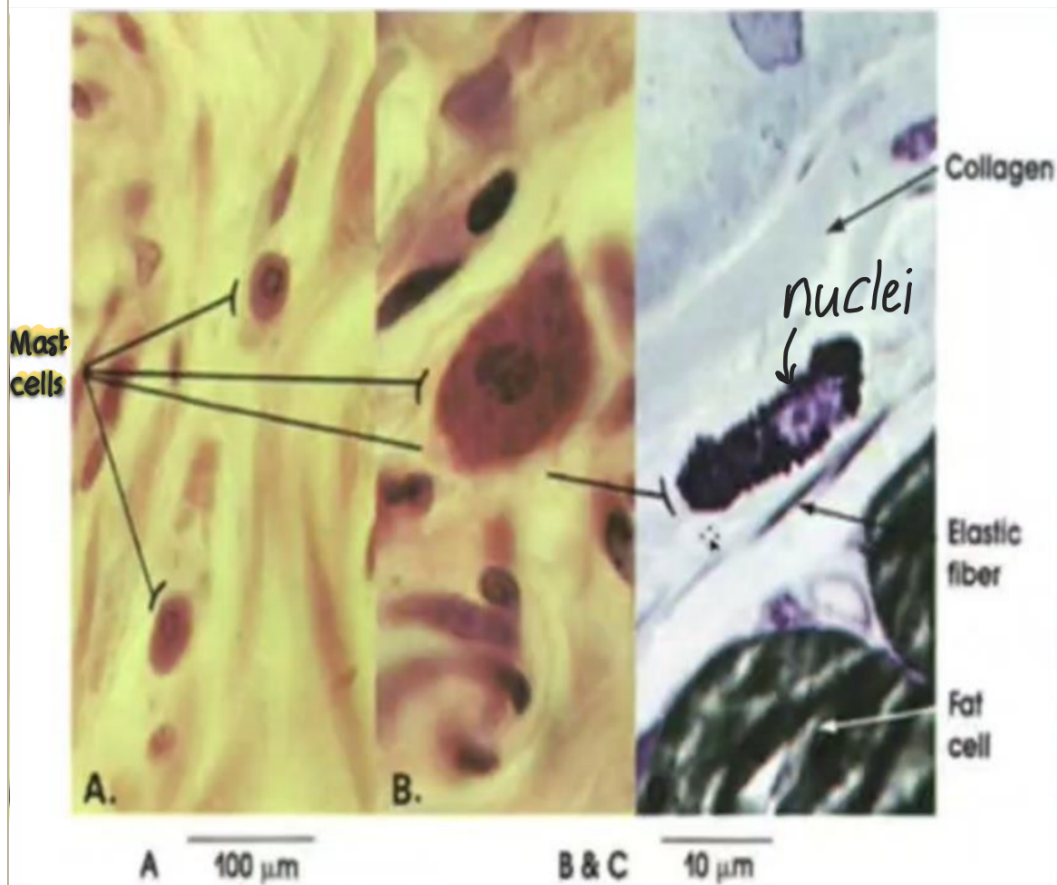


This picture resemble a section of liver

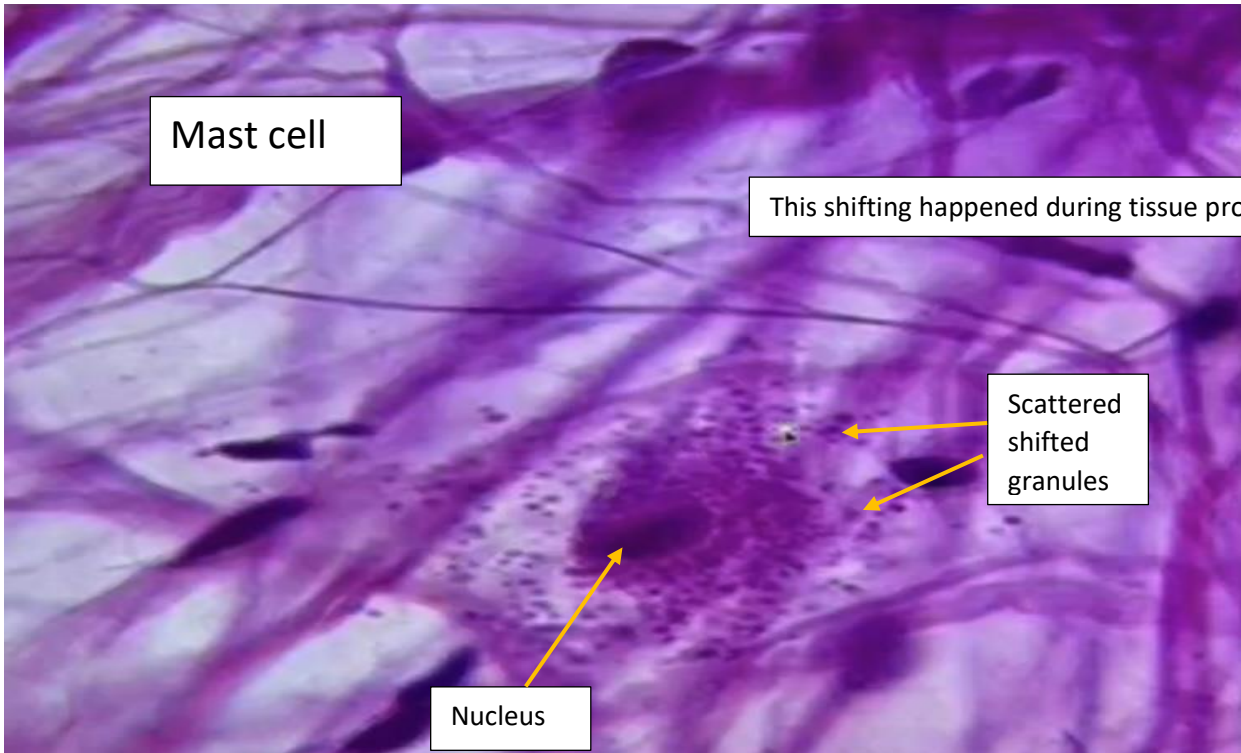
This a darkly stained copper cell (macrophage)

These white spaces between hepatocytes are sinusoids which lined with endothelial cells and filled with blood .

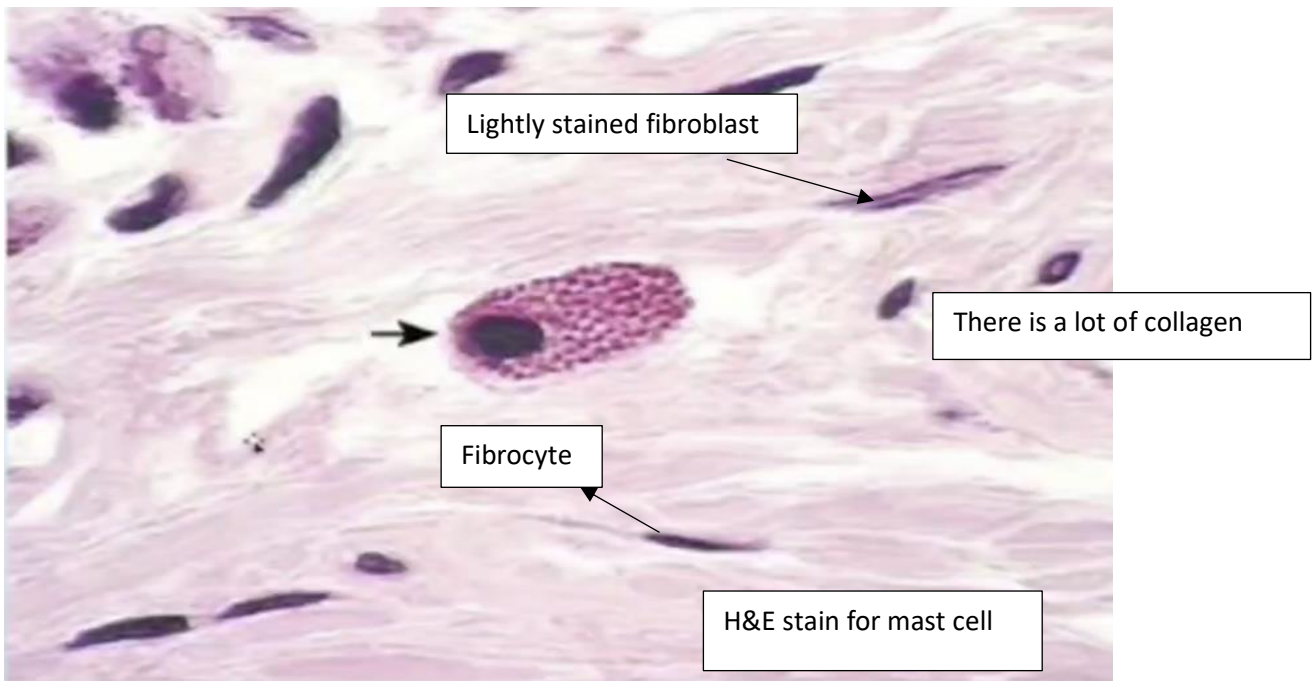
Mast cells :



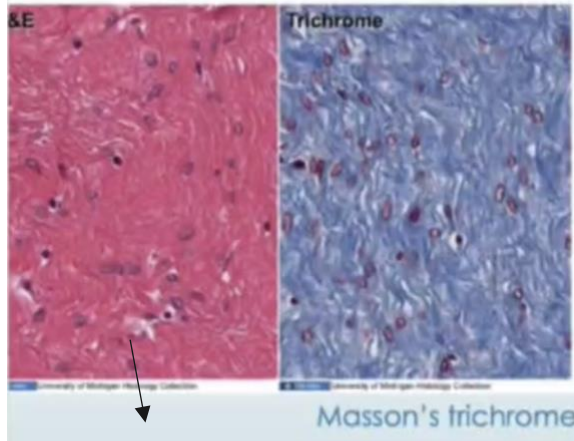
A mast cell is a resident cell of connective tissue that contain many granules which have an immunomodulatory molecules (histamine and heparin)



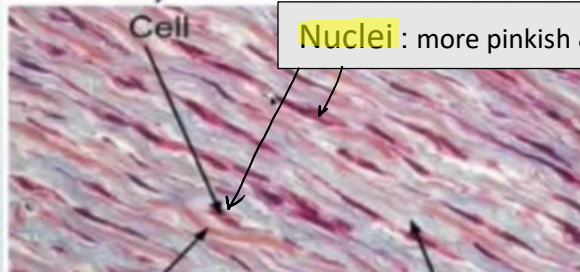
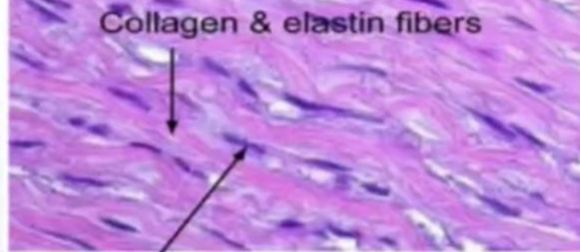
In this picture ,granules fuse with the plasma membrane to release their content



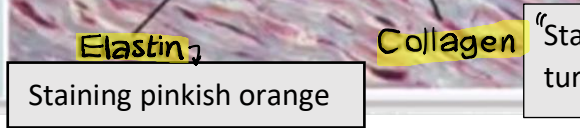
H&E Stain :



Here is a magnified pic (clearer)



Nuclei: more pinkish & red in color



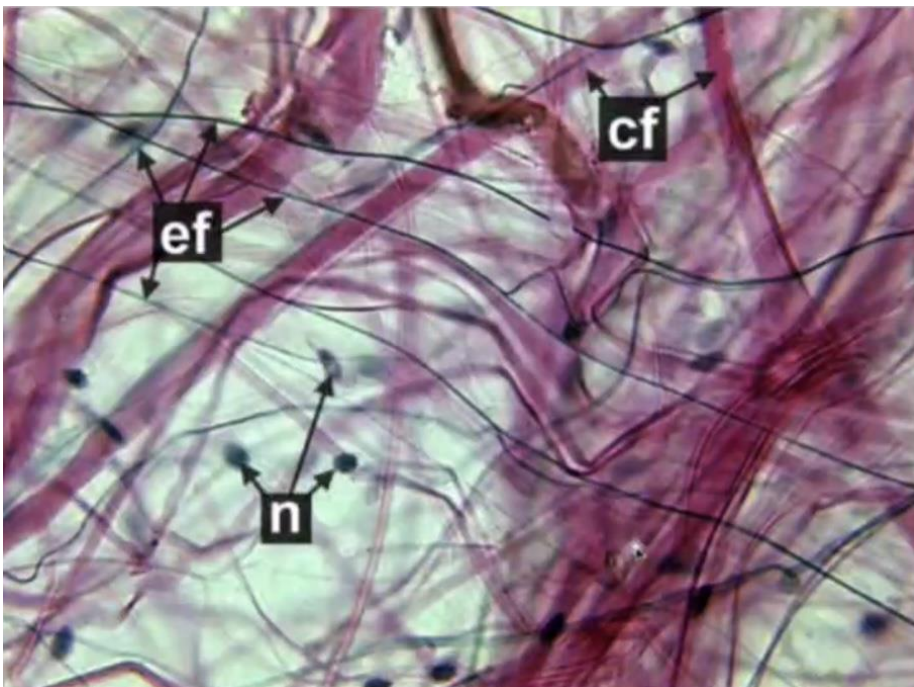
Staining pinkish orange

“Staining blue turquoise”

H&E stain colors the nuclei of cells blue or dark-purple

Cytoplasm appear pink

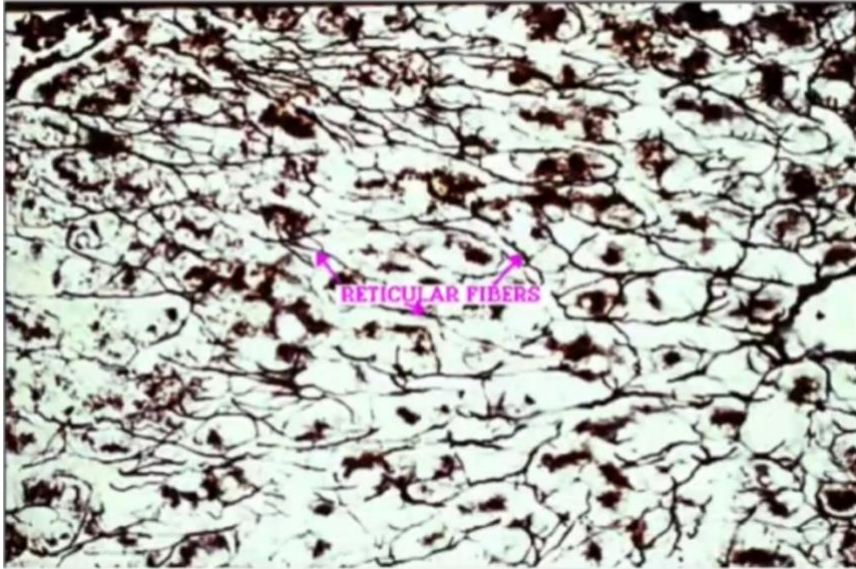
Used to visualize connective tissue and its elements particularly collagen (appear blue)
Pinkish red – cells and nuclei
Pinkish orange – elastin



This is a **Loose connective tissue**

=> How do we know ?

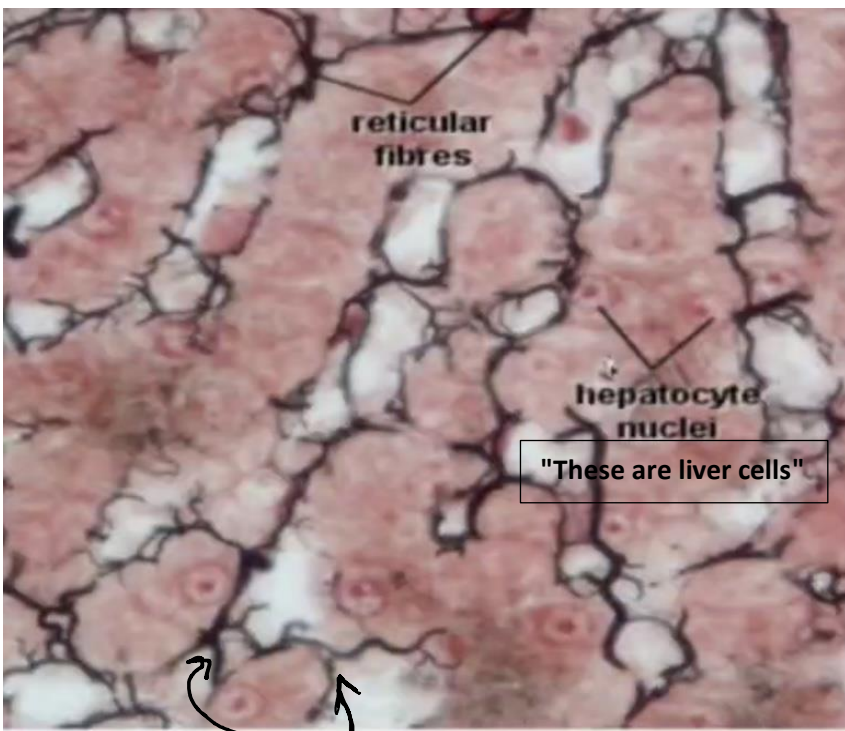
-Notice the abundance of ground substance plus thin and relatively few fibers and cells



Reticular fibers its fine fibrous connective tissue occurring in network to make up supporting tissue of many organs .

Mostly its found in lymphoid organs(immune) , around liver and blood vessels.

Big concentrations of elastic fibers

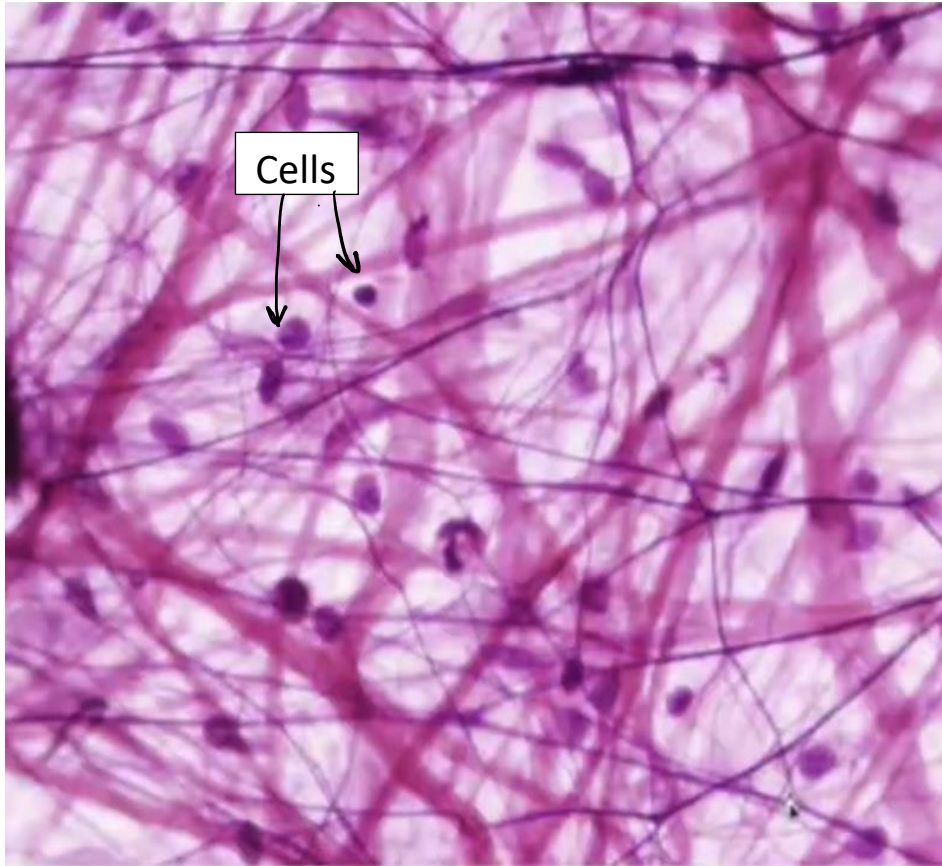


Here , the reticular fibers support the hepatocytes and the sinusoids .

Reticular fibers most commonly stained with silver salts.

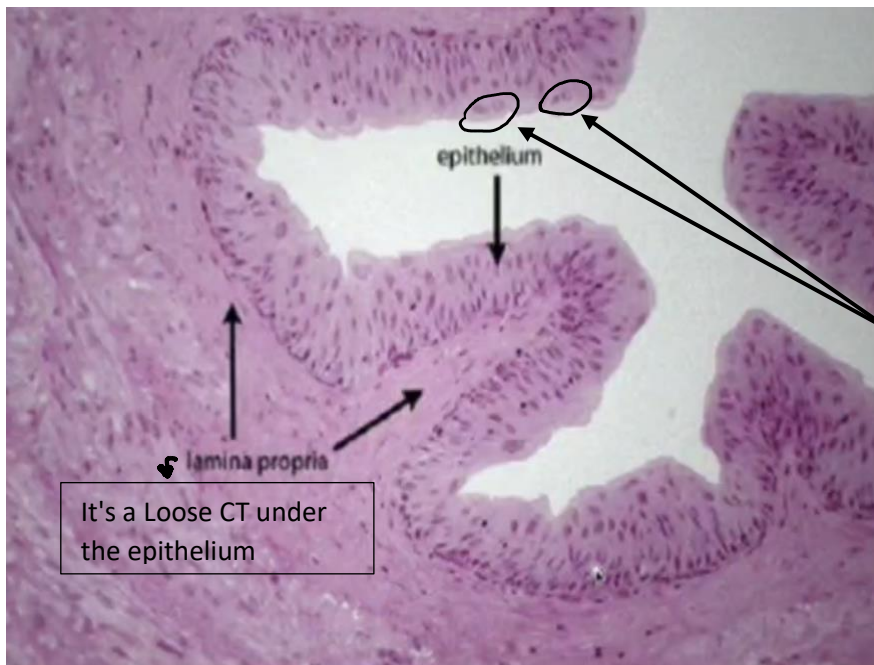
It can be stained with PAS (as we have so many sugar residues attached on collagen III which accounts the most component of reticular fibers)

Look how reticular fibers are surrounding cells from all directions



This is loose connective tissue as there are a good amount of ground substances and few amount of cells and fibers .

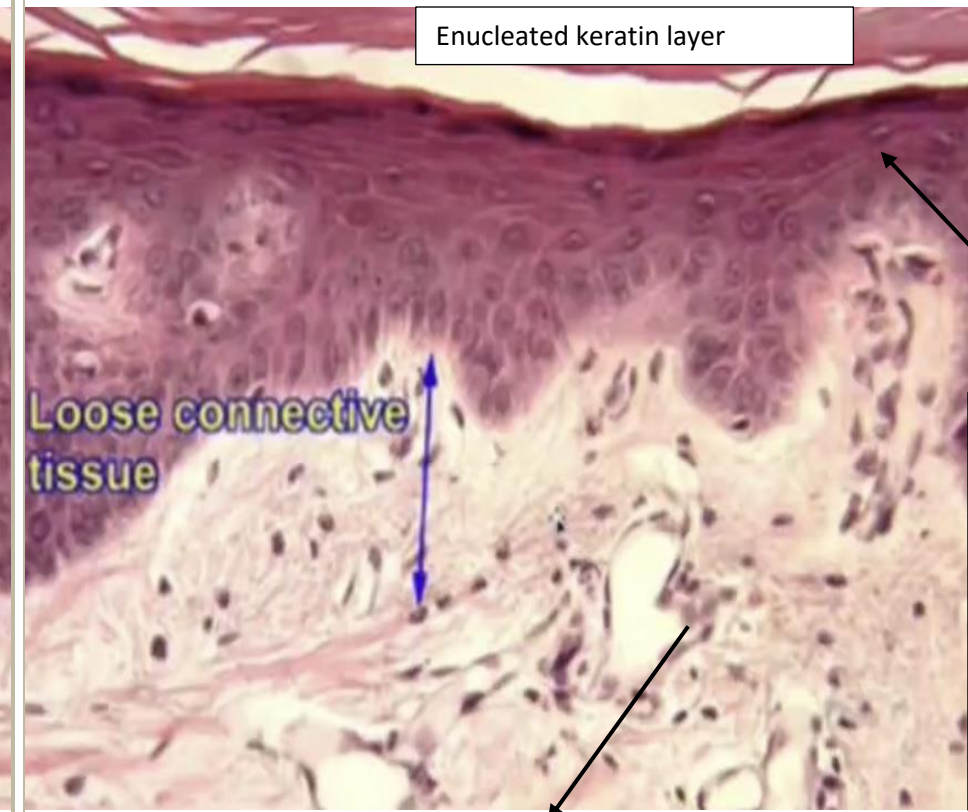
Loose CT located directly under the epithelium of epidermis , its provides cushioning and supporting of the skin and other membranes .



What is type of this epithelium?

=It's Transitional epithelium (urothelium)

this roundation of apical surface has 2 nuclei (bi-nuclaeted) which is a feature transitional epithelial



Enucleated keratin layer

This section is taken from skin, how did we know?
=There is a keratin layer, where cells appear flattened.

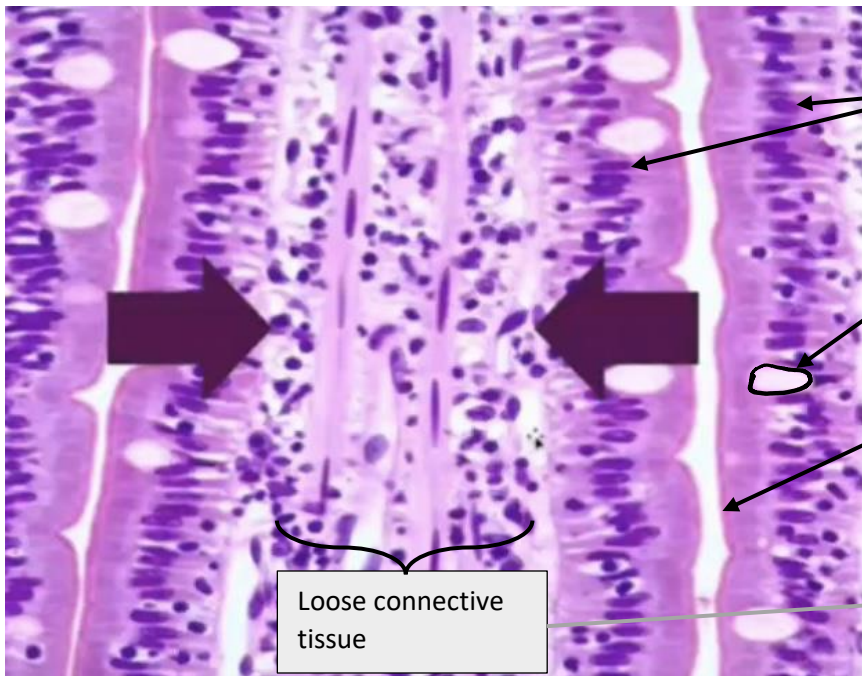
Keratinised stratified squamous epithelium

Loose connective tissue is the upper layer of epidermis of the skin. Dense irregular connective tissue forms most of the dermis below the loose connective tissue.

Loose connective tissue

This is a blood vessel ; note the flat cells lining the lumen which the endothelial cells of BV (simple squamous cells)

Loose connective tissue is found around every blood vessel, helping to keep the vessel in place



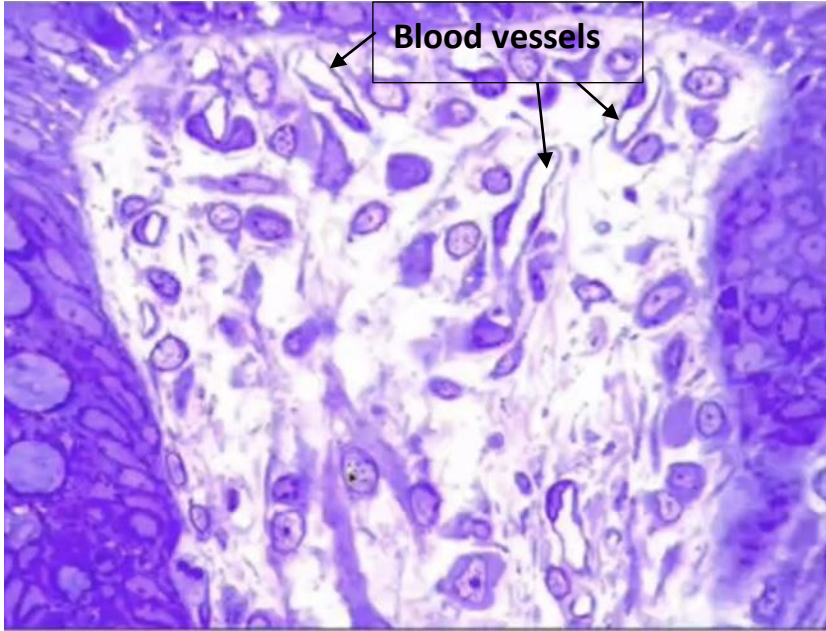
Simple columnar epithelium

Mucus cells >> whitish washed out appearance

This well-lined apical pink band represent the brush border or microvilli

Loose connective tissue

By looking about how much cells we have in this field you know that this is a loose CT



In this picture, notice that the cells don't resemble each other so it's not an epithelium , it's a connective tissue .

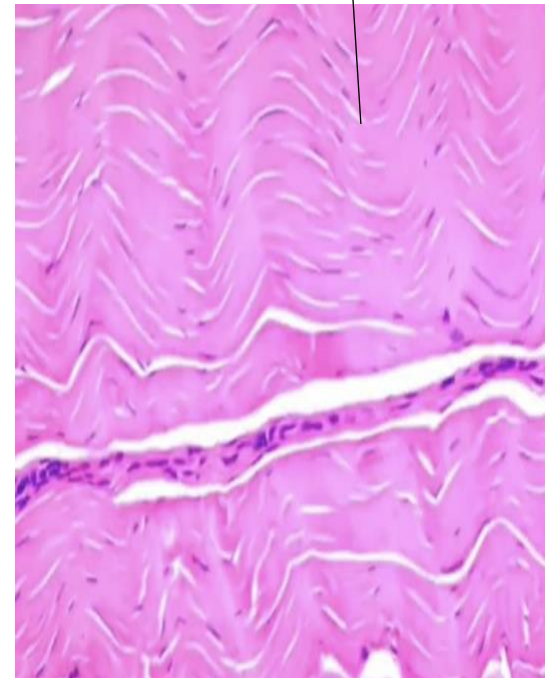
Notice the variation of the cells and the abundance of ground substance , many blood vessels and few collagen... so it's a loose CT

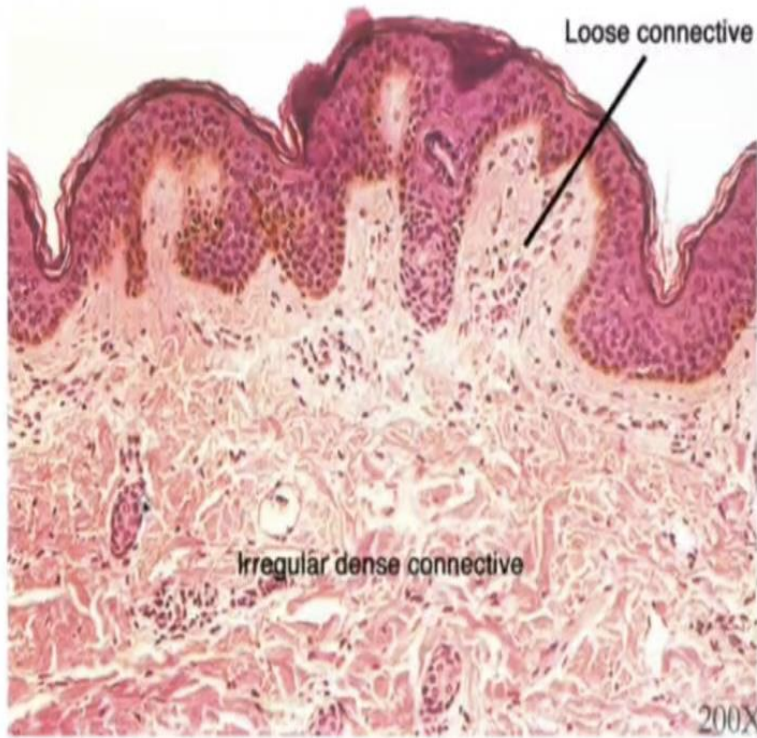


These are Dense connective tissue.

Notice that they are closely packed bundles of well-lined fibers are located in one direction, so they are regular.

The nuclei of fibroblast between fibers and appear as they running in arrow and they are flattened.

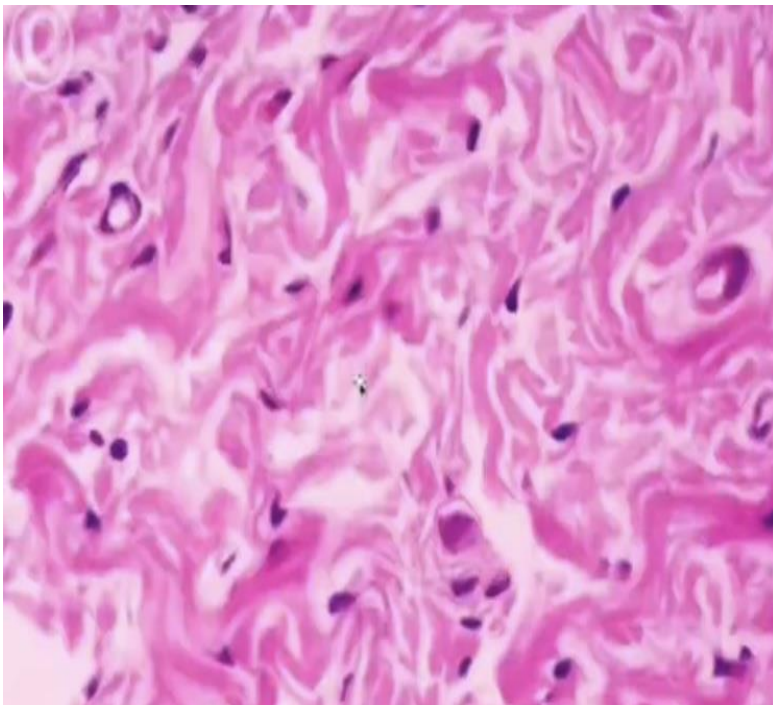




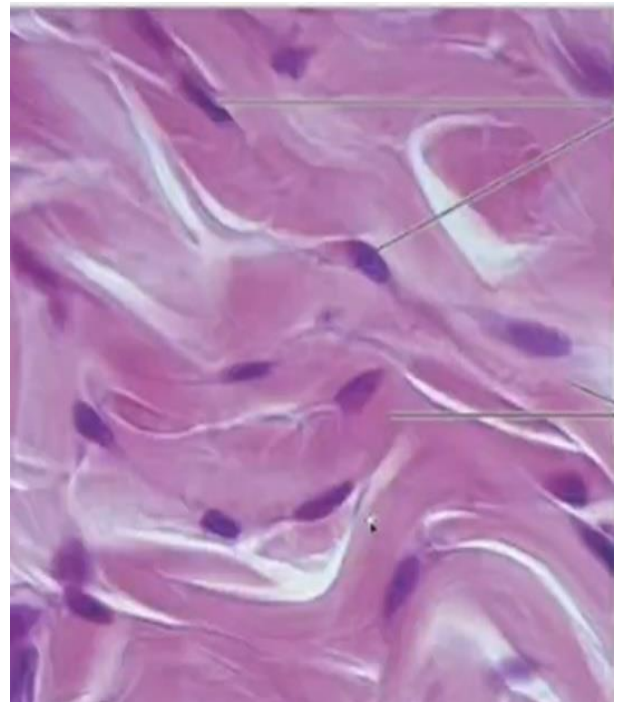
This section taken from skin

Dense irregular connective tissue forms most of the dermis (deeper part) below the loose connective tissue.

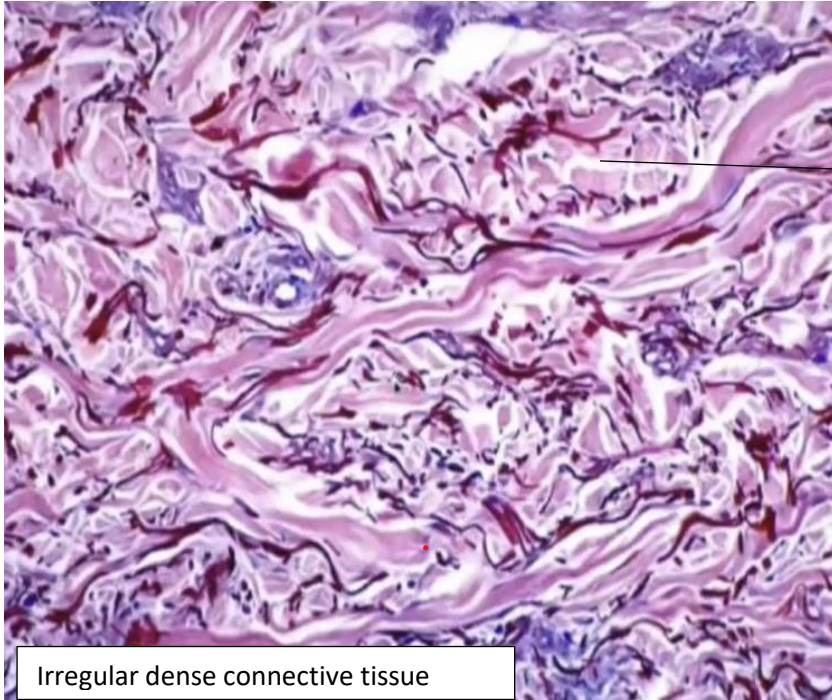
In dense irregular connective tissue, fibers are not arranged parallel, and the bundles are not arranged in a specific orientation (they are running in all direction)



Dense irregular connective tissue



Dense irregular connective tissue



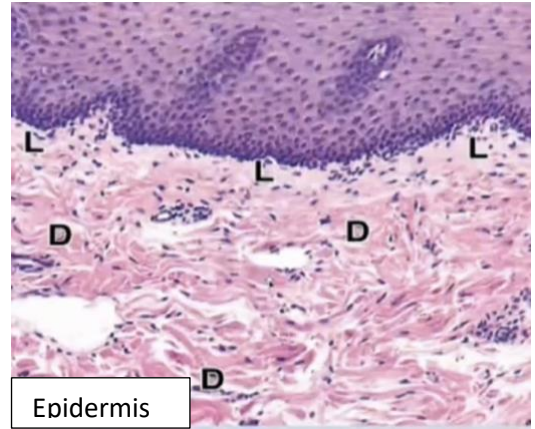
Irregular dense connective tissue

Aldehyde- fuchsin stain for elastic and collagen fibers

Affinity of elastic fibers to this special stain is much higher so:

Red— elastic fibers

Pink—collagen bundles (type1)



Epidermis



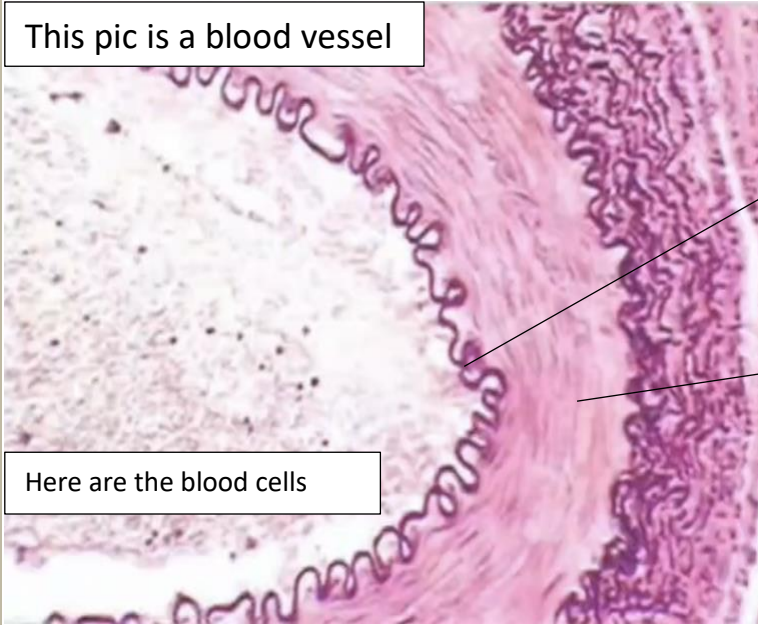
Elastic fibers

Tunica media of aorta is composed mainly of concentrically arranged laminae of elastic tissue. The spaces between the elastic tissues are filled with smooth muscle fibers and fibroelastic tissue.

Elastic fibers have a spring coil-like structure, dramatically extending under pressure and providing extensibility and resilience to the vascular wall.

Photomicrograph: Elastic connective tissue in the wall of the aorta (85x).

This pic is a blood vessel



Here are the blood cells

Tunica intima (the inner layer of BV) -> endothelial cells

Tunica media (contain Concentred layer of elastic fibers called elastic lamellae), It has smooth muscles, some fibroblast & collagen inside.

ملاحظة * نعتذر عن جودة الصور المنخفضة ، لأن الدكتورة لم ترسل سلايدات هذه المحاضرة.

The end of lab sheet