Vancouver Community College
Biology 1120
Instructor Maria Morlin

Hybrid course

Lab: Histology

Outline

- Student stations (in lab)
- Objectives
- VCC histology images submitted by students
- Notes on tissues and observations
- Online lab – all slides from the lab
- Resources

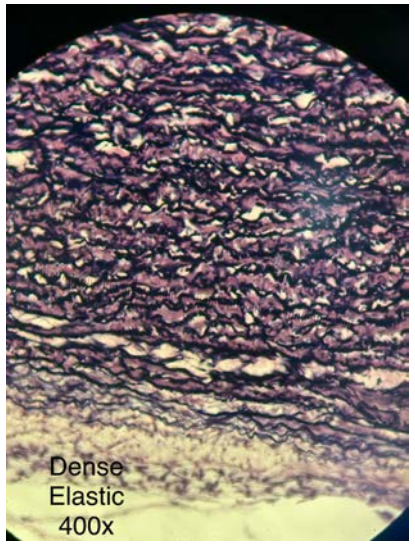
Student stations

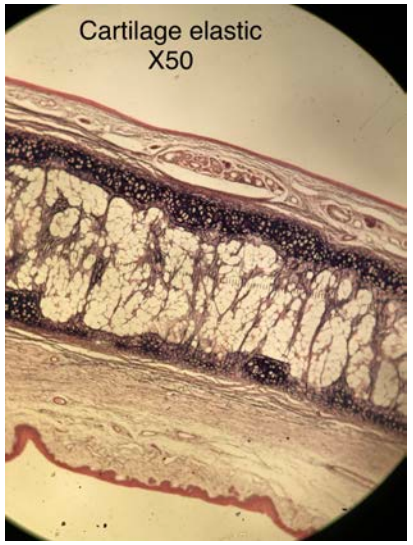
- Each student station had:
  - Compound microscope
  - Tray containing tissue slides indicated in lab manual

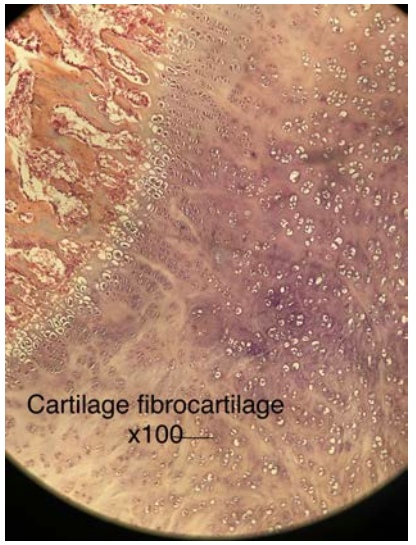
Objectives

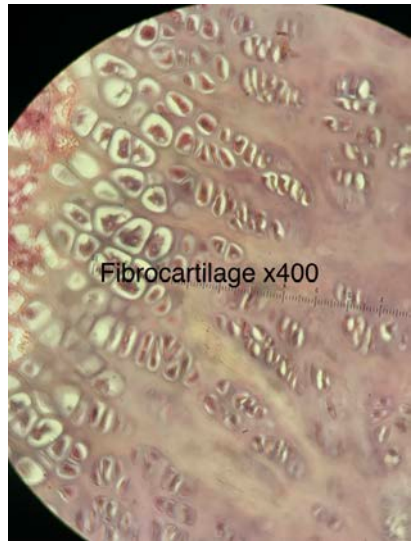
1. Observe and draw various tissue types, indicating the structures seen described in the manual description of each slide.
2. Note adjacent kinds of tissue
3. Note the types of cells associated with the tissue.
4. Note how the structure of the tissue fits its function

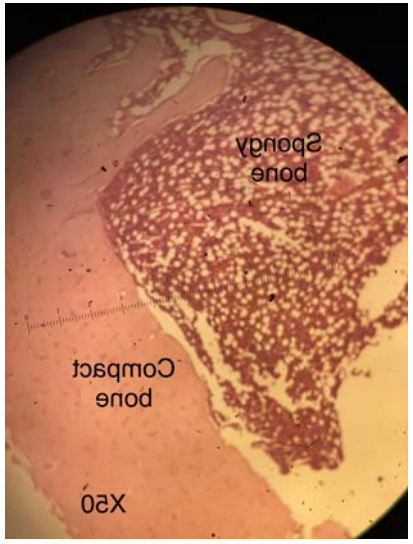
Slides submitted by students (2021)

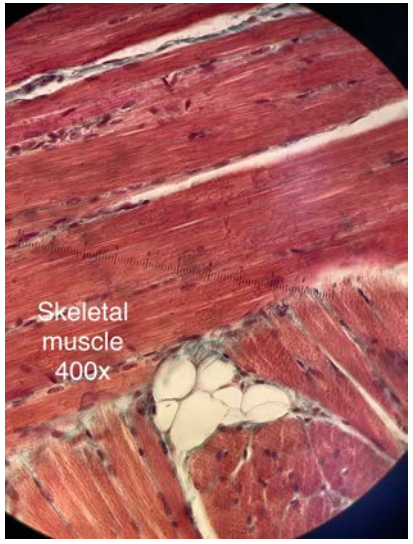


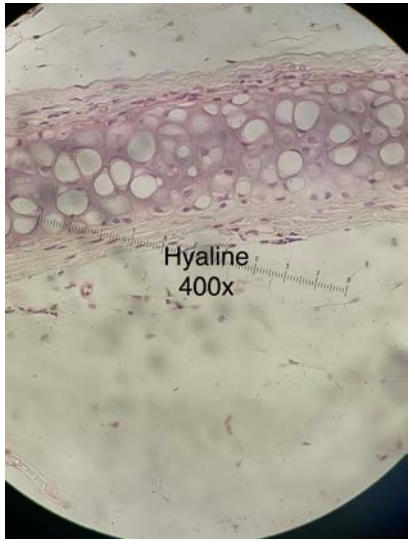




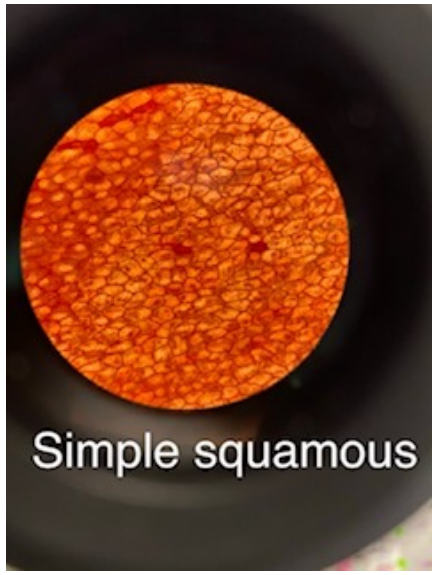


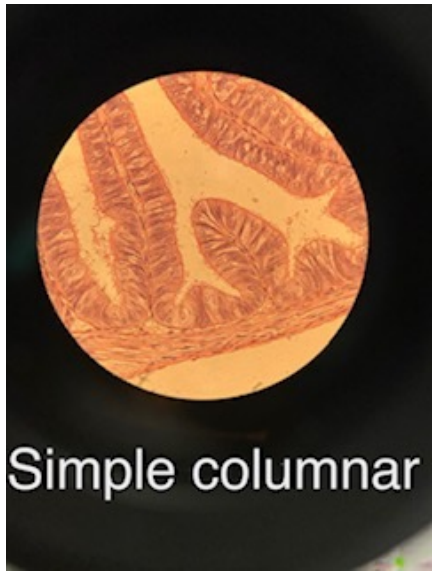


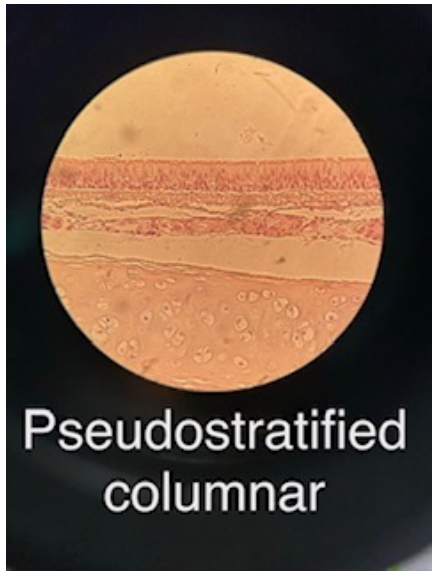


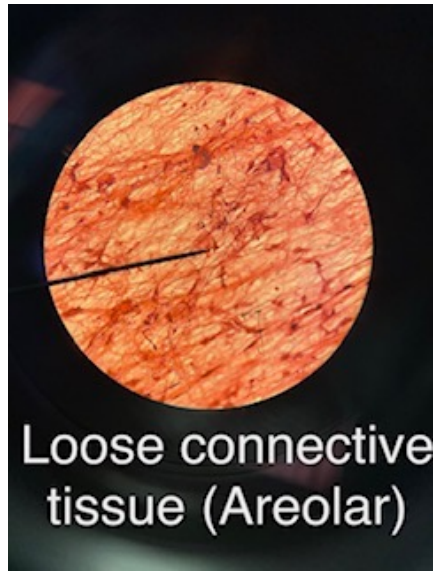


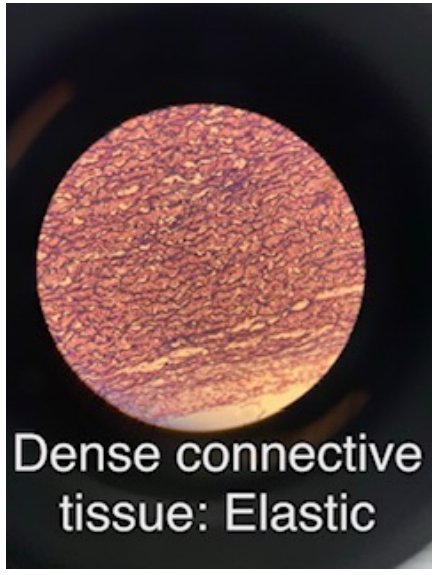
Slides submitted by students (2021)

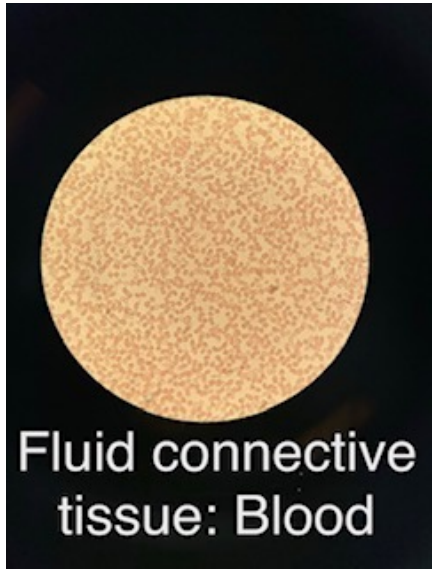


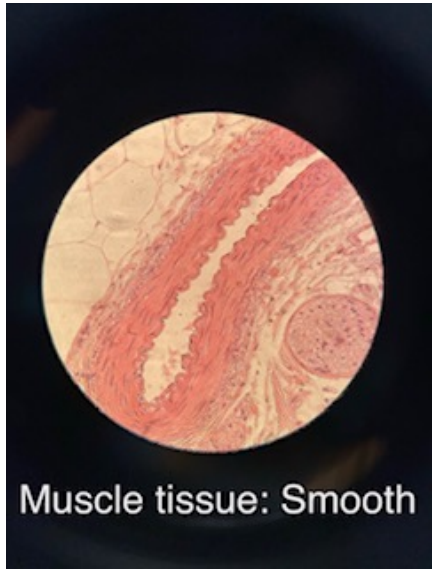


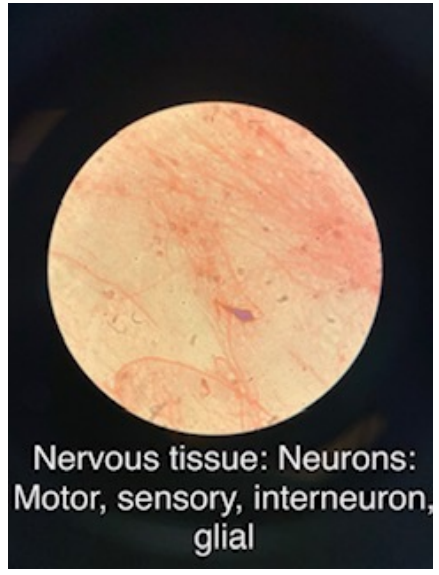












Practice

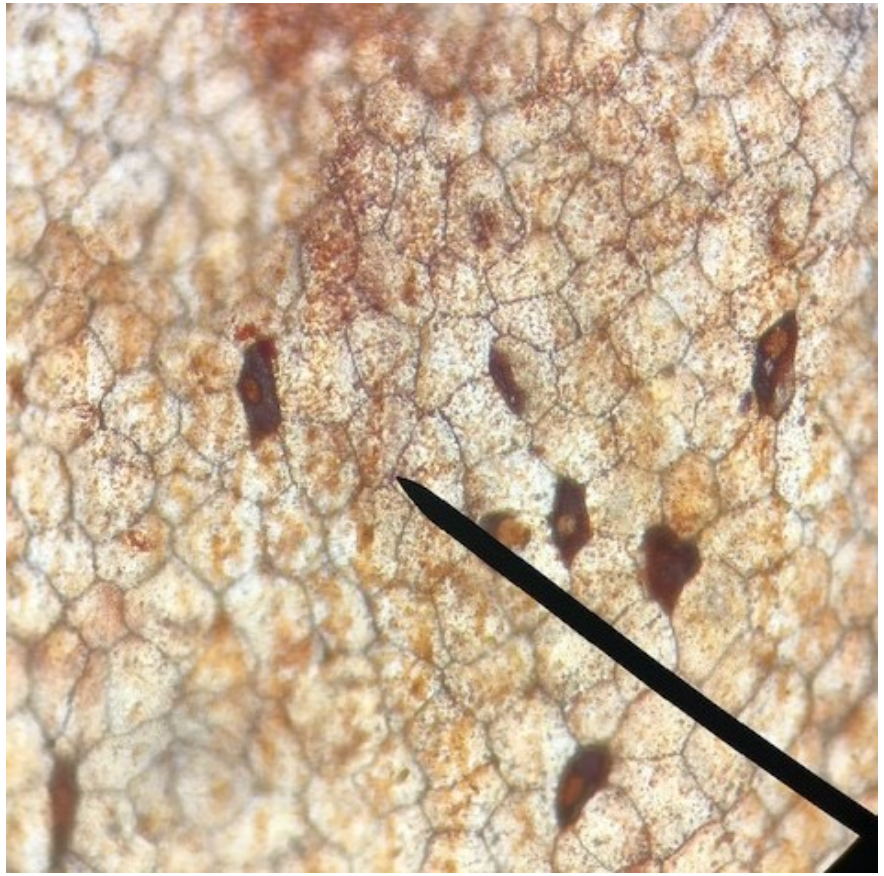
- Use the slides following to identify various tissue types.
- Compare those with the images and diagrams in the textbook, and on the sciencerocks.ca website.
- Identify the tissue types generally (columnar epithelial, blood – connective).
- Relate the form of tissue to its function (for example, long multinucleate skeletal muscle cells fit the function of moving long bones by being long with many individual contractile segments, and nuclei to service the entire cell length).

Notes on tissue observations

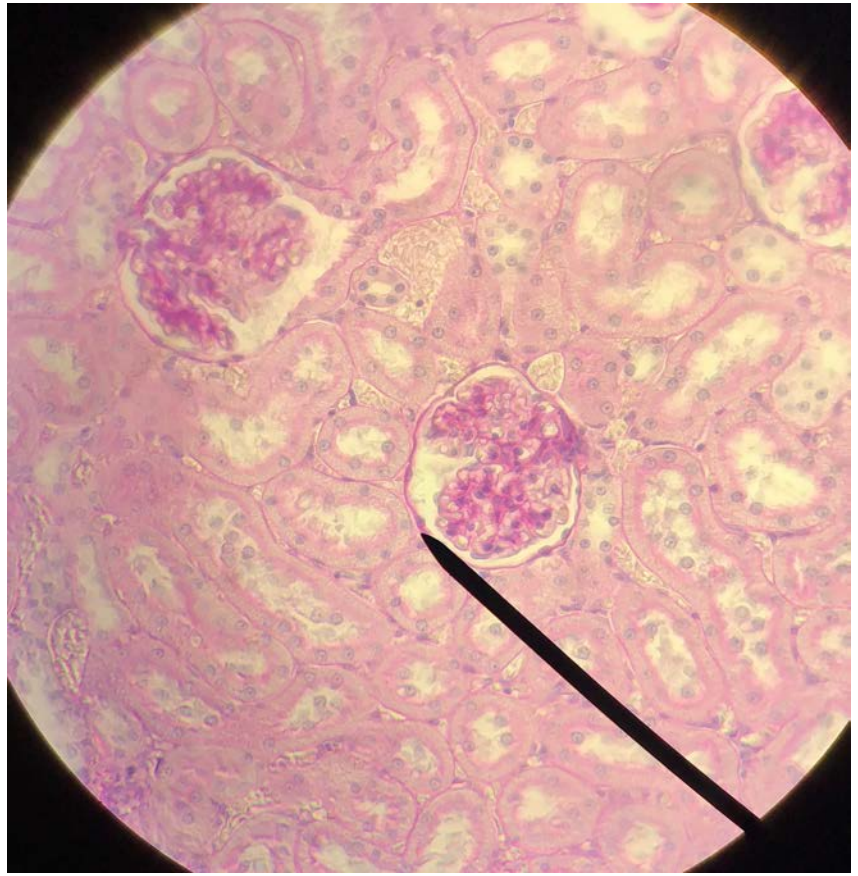
- While you are making observations, ask these questions:
  - Are the cells small and tightly packed (epithelial tissue mostly), or sparse in a matrix (areolar, bone, cartilage for example)? Are the fibres parallel and wavy (ligaments and tendons)?
  - Are the cells long and tubular (skeletal and cardiac muscle), with striations?
  - Are there other tissues present? (epithelial, connective and smooth muscle), what looks different about them?

Epithelial tissue

Simple squamous – Pointing at one simple squamous epithelial cell. 100x

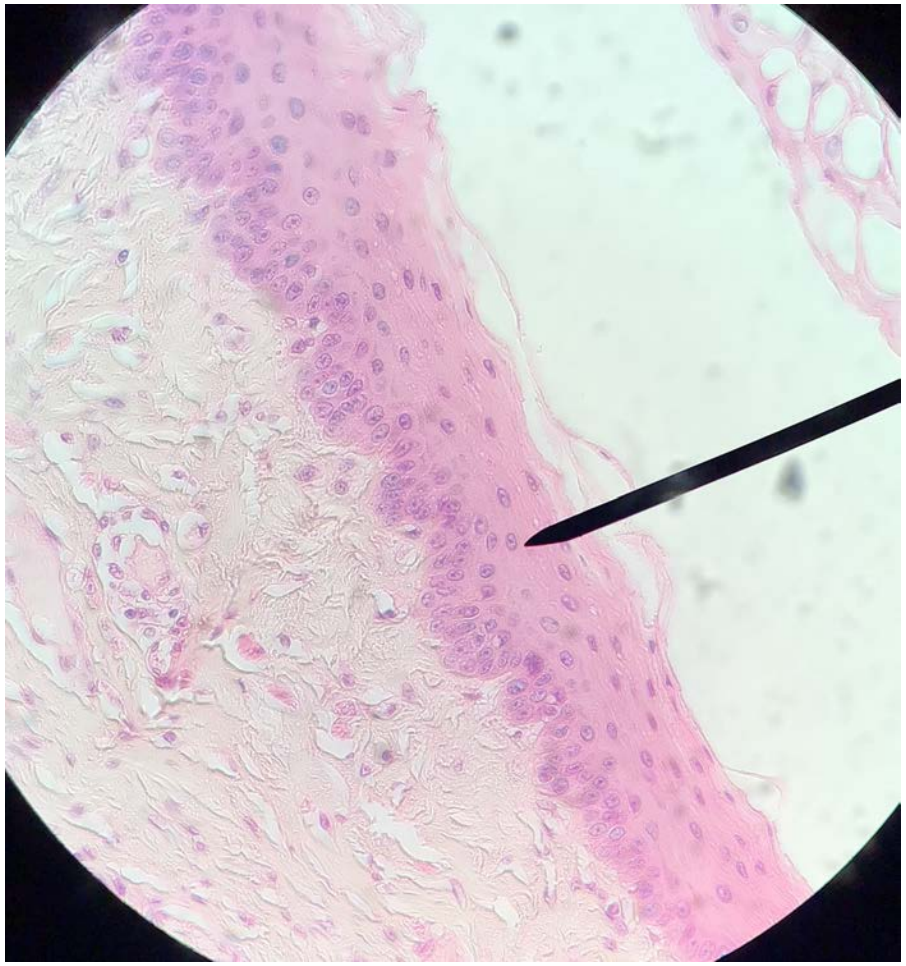


Simple squamous – Pointing at one simple squamous epithelial cell. 400x

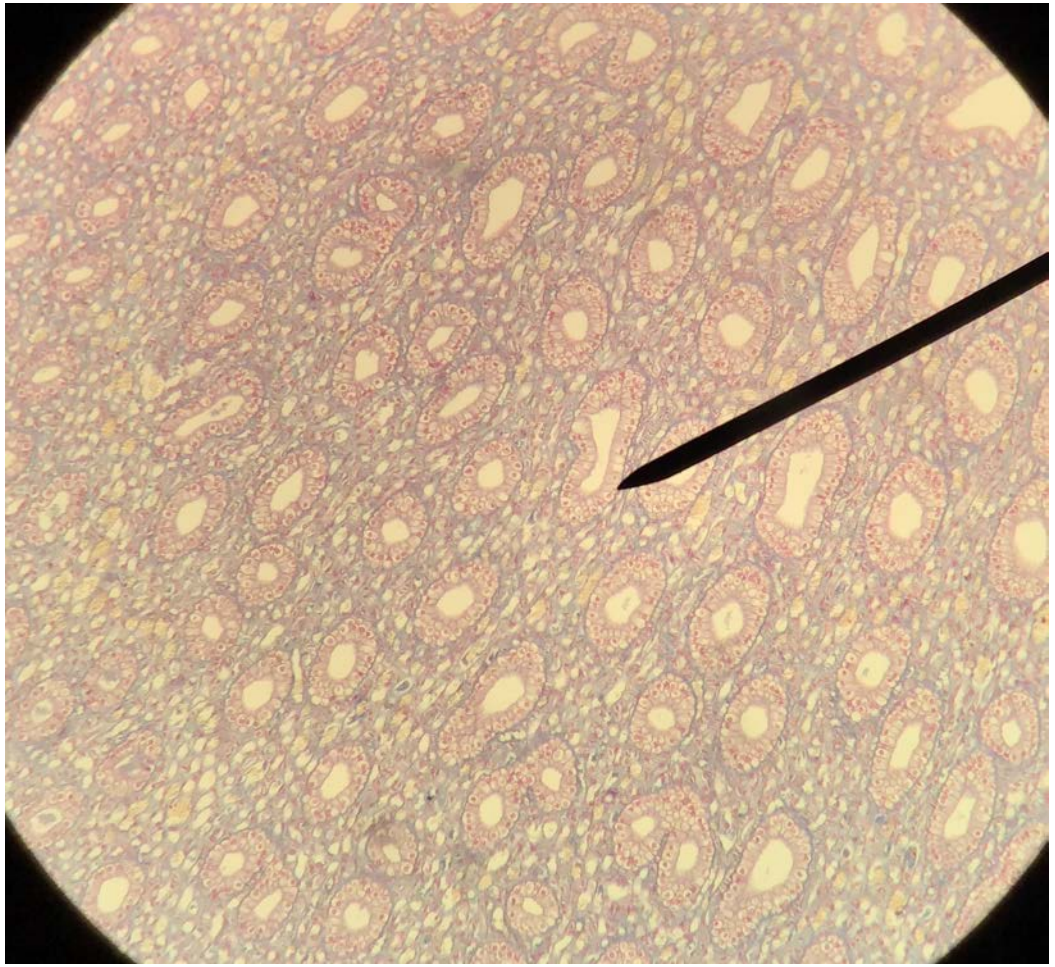


Simple squamous – Pointing at epithelial cells lining the glomerulus of the kidney. 400x

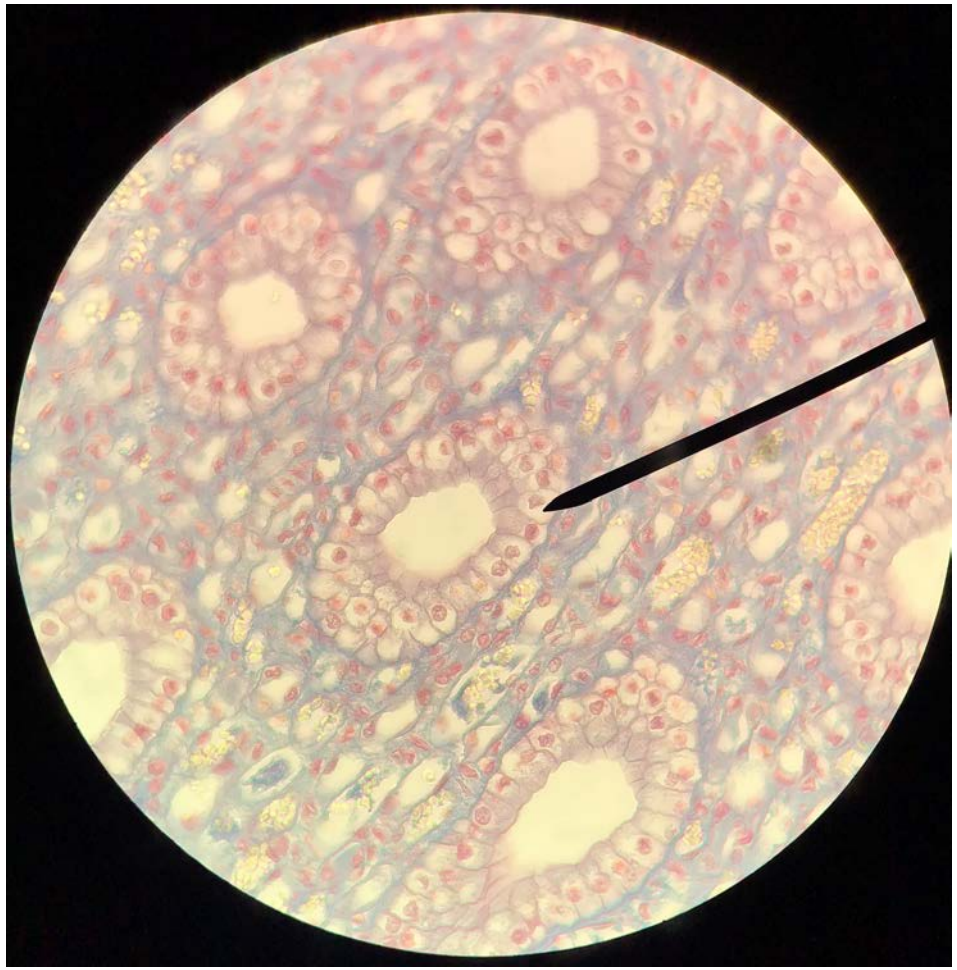
Stratified squamous – Pointing at stratified layer lining a rabbit esophagus. 100x



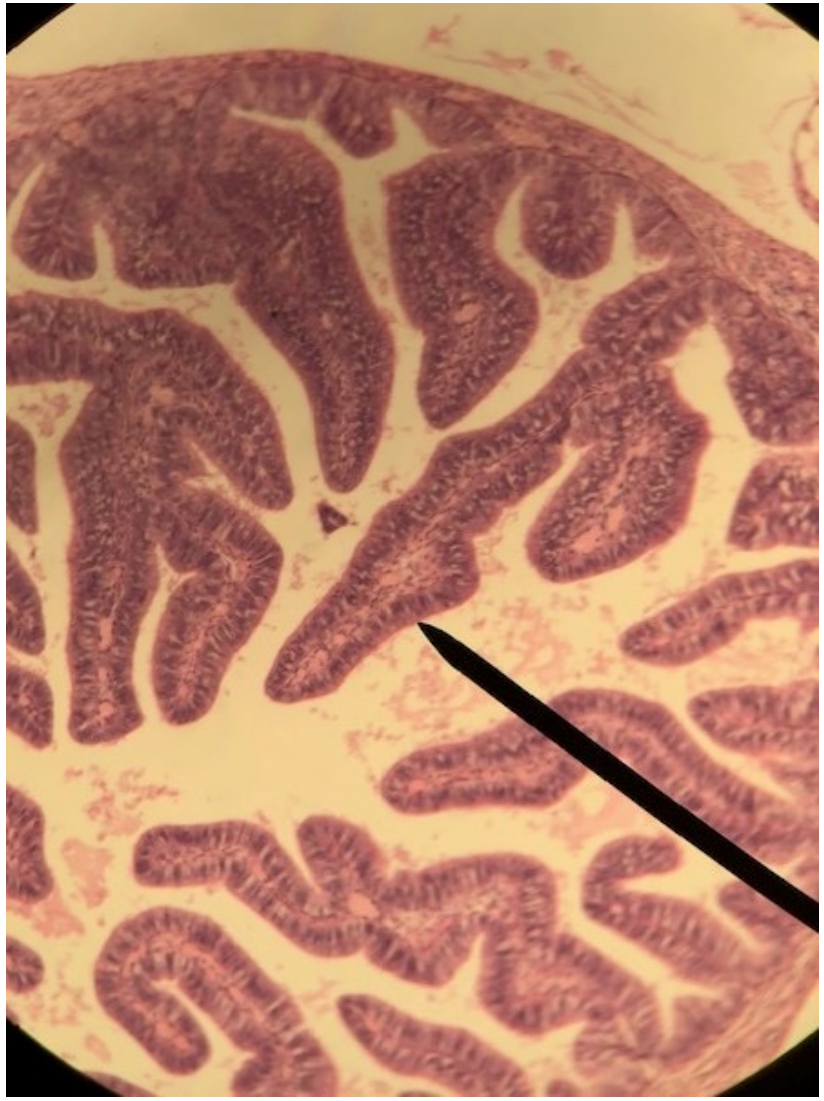
Stratified squamous – Pointing at stratified layer lining a rabbit esophagus. 400x



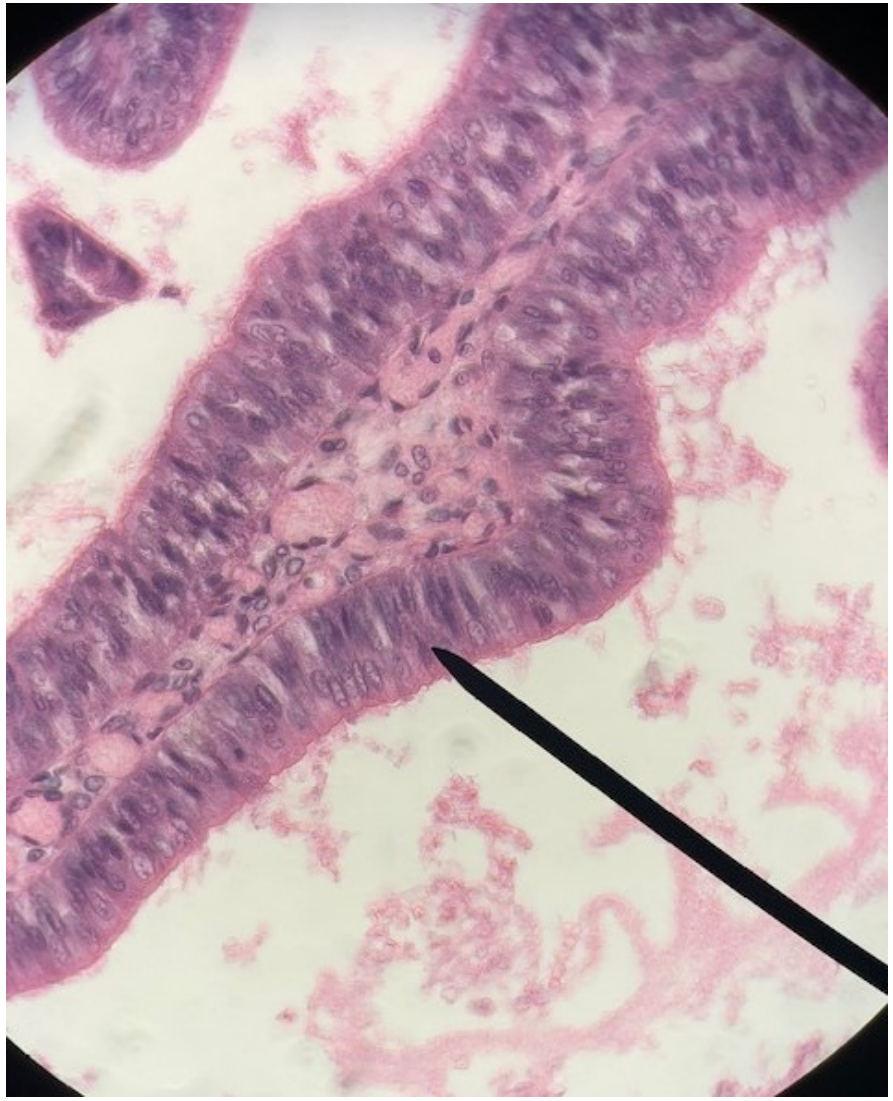
Simple cuboidal – Pointing at simple cuboidal cells lining a duct. 100X



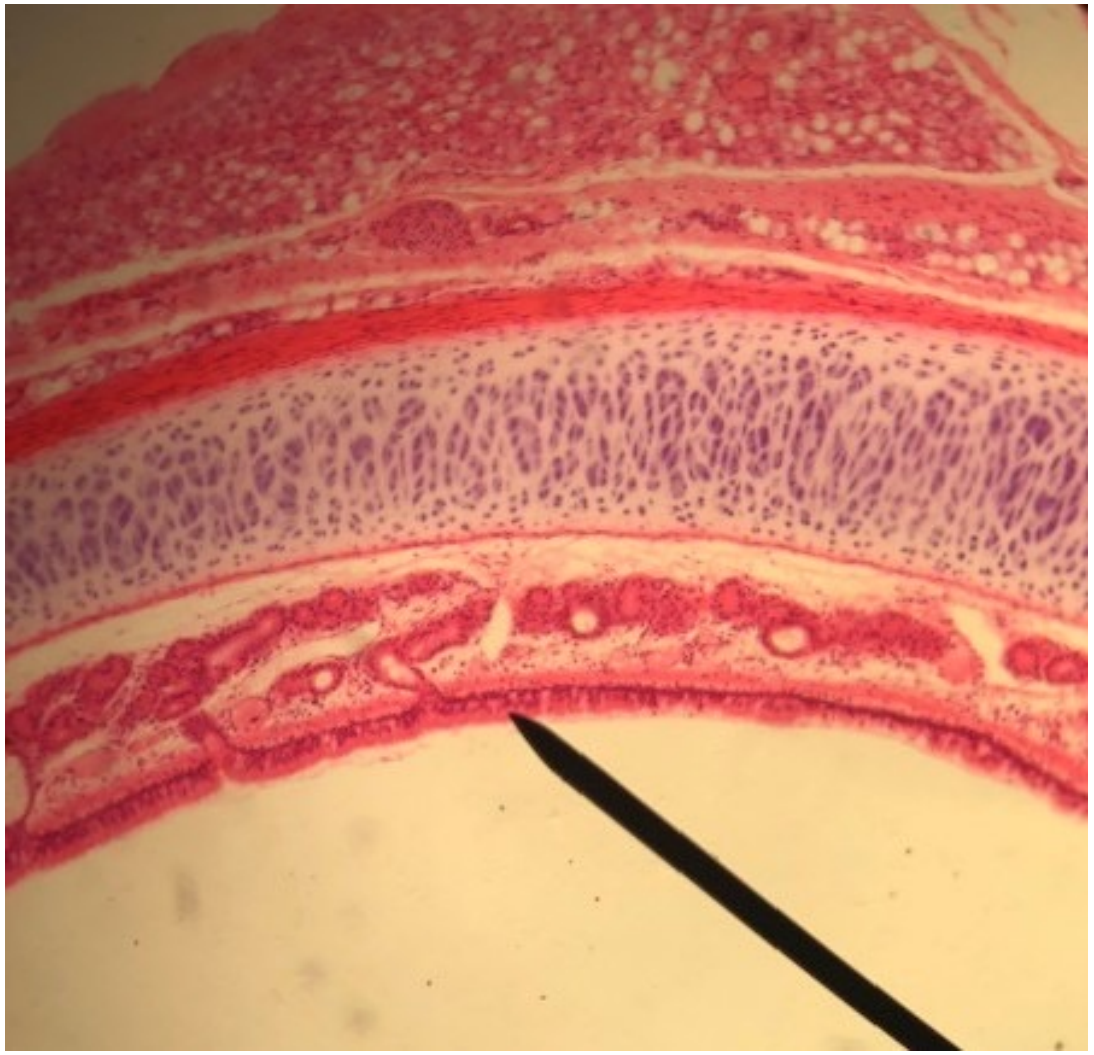
Simple cuboidal – Pointing at simple cuboidal cells lining a duct. 400X



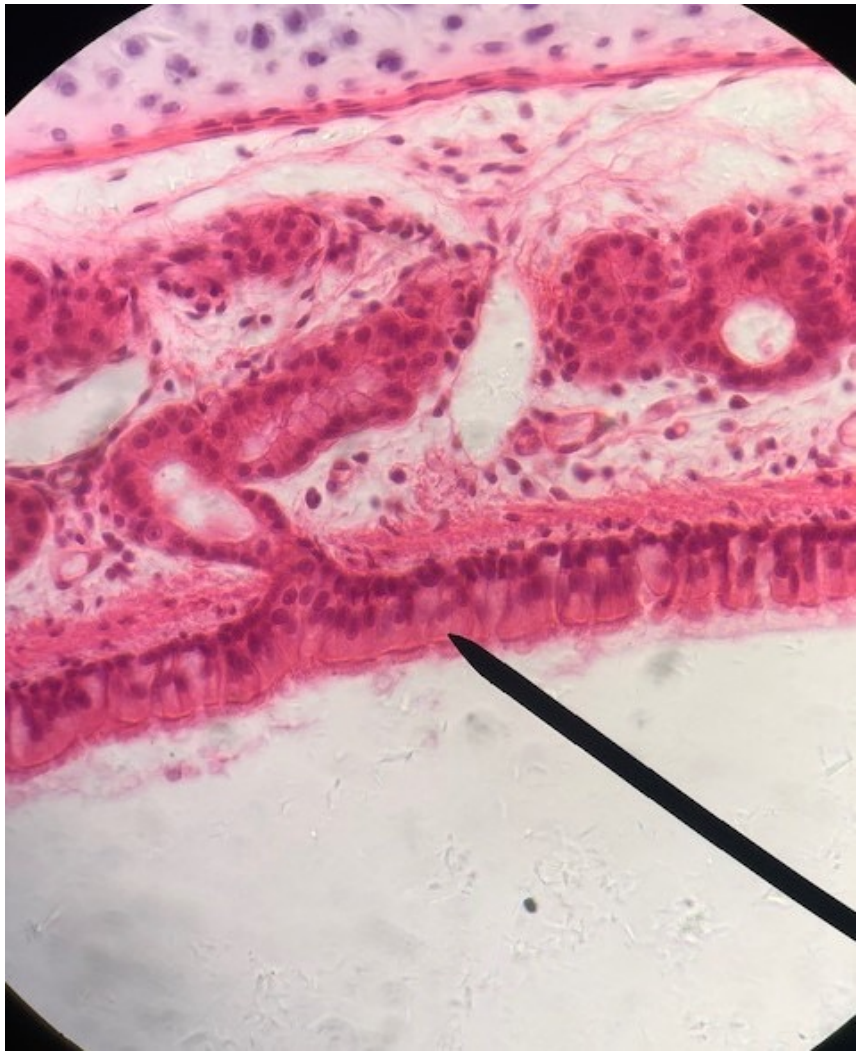
Simple columnar – Pointing at simple simple columnar lining an intestine. 100x



Simple columnar – Pointing at simple simple columnar lining an intestine. 400x

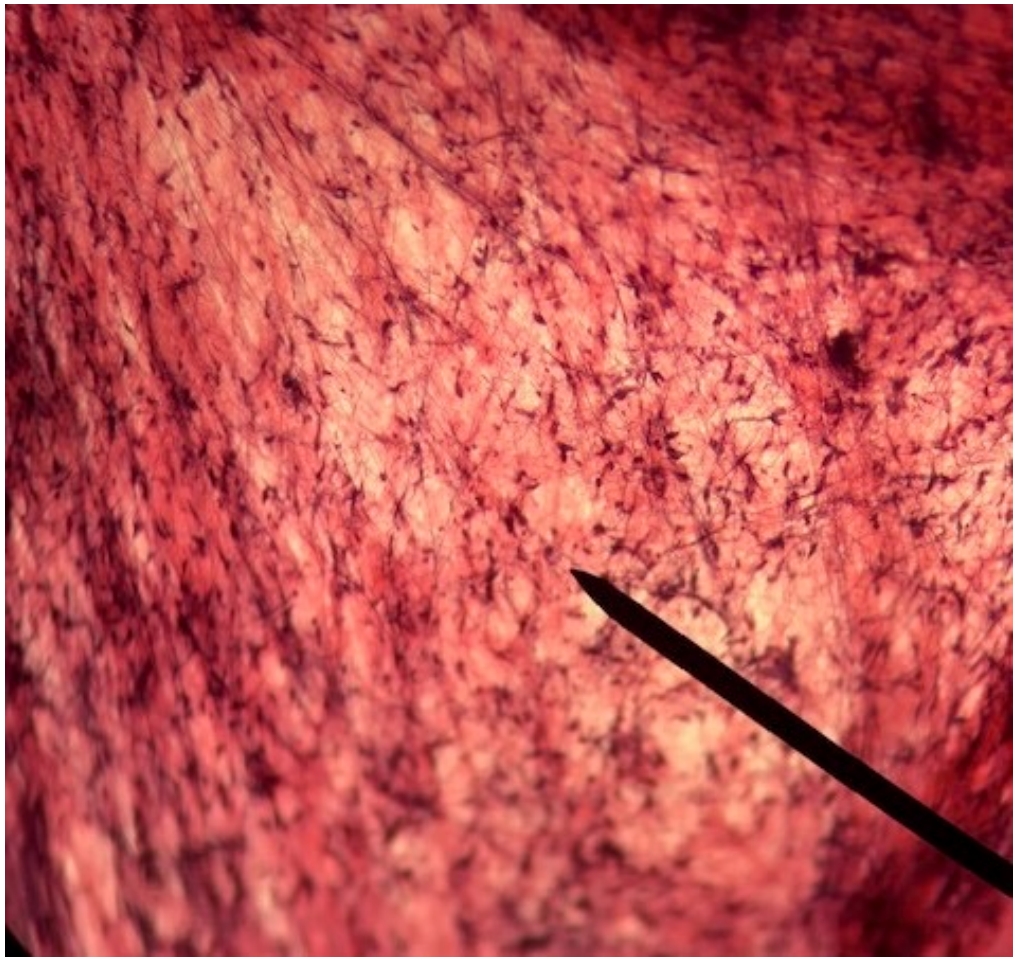


Psuedostratified columnar epithelium. These tracheal cells have cilia. There is a layer of hyaline cartilage (purple) 100X

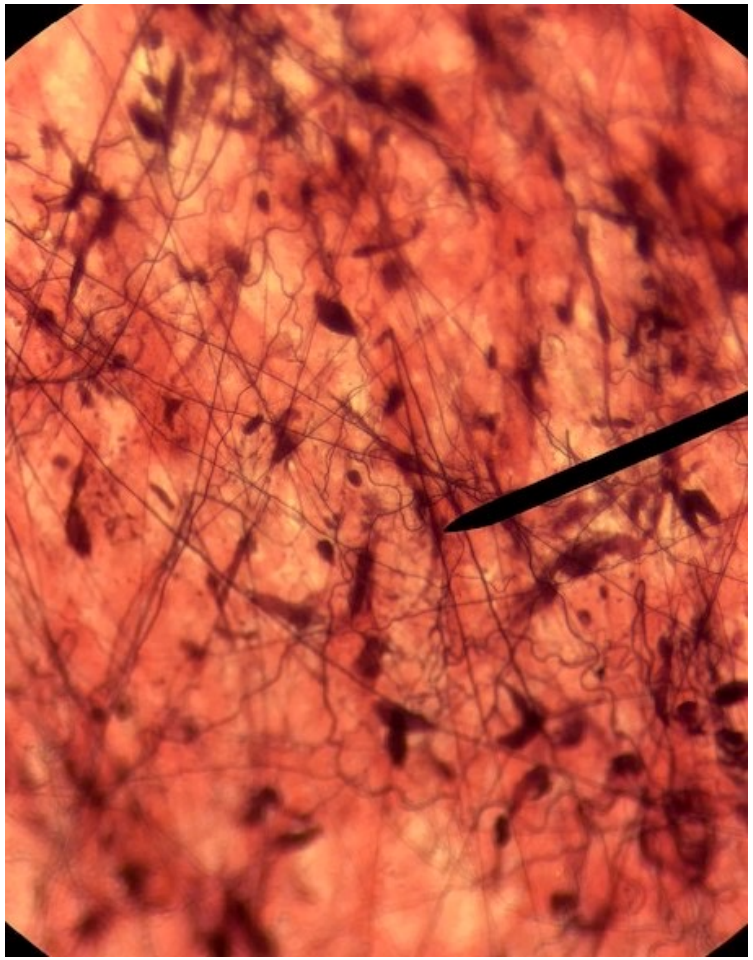


Psuedostratified columnar epithelium. These tracheal cells have cilia. There is a layer of hyaline cartilage (purple) 400X

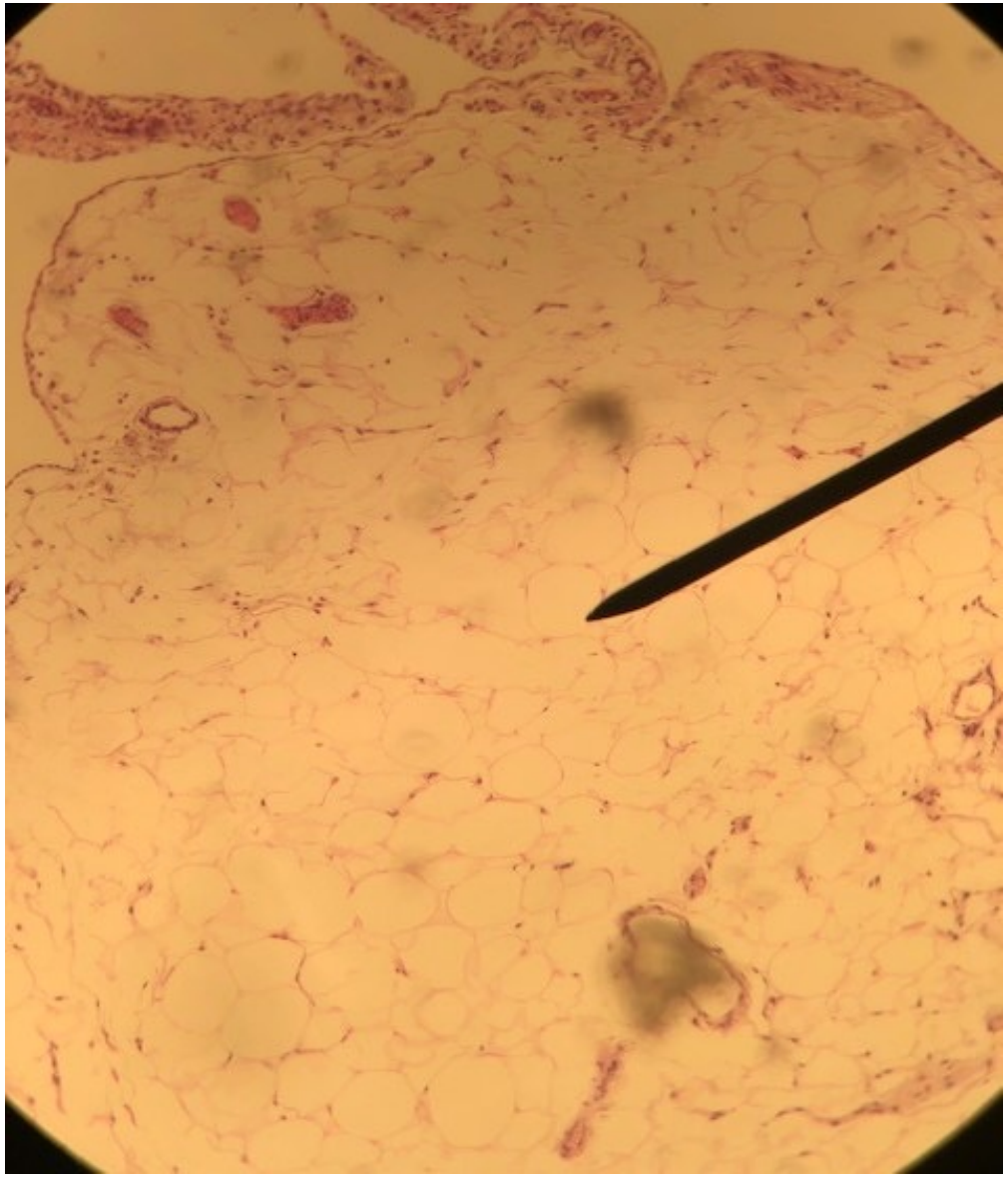
Next few slides are connective tissue



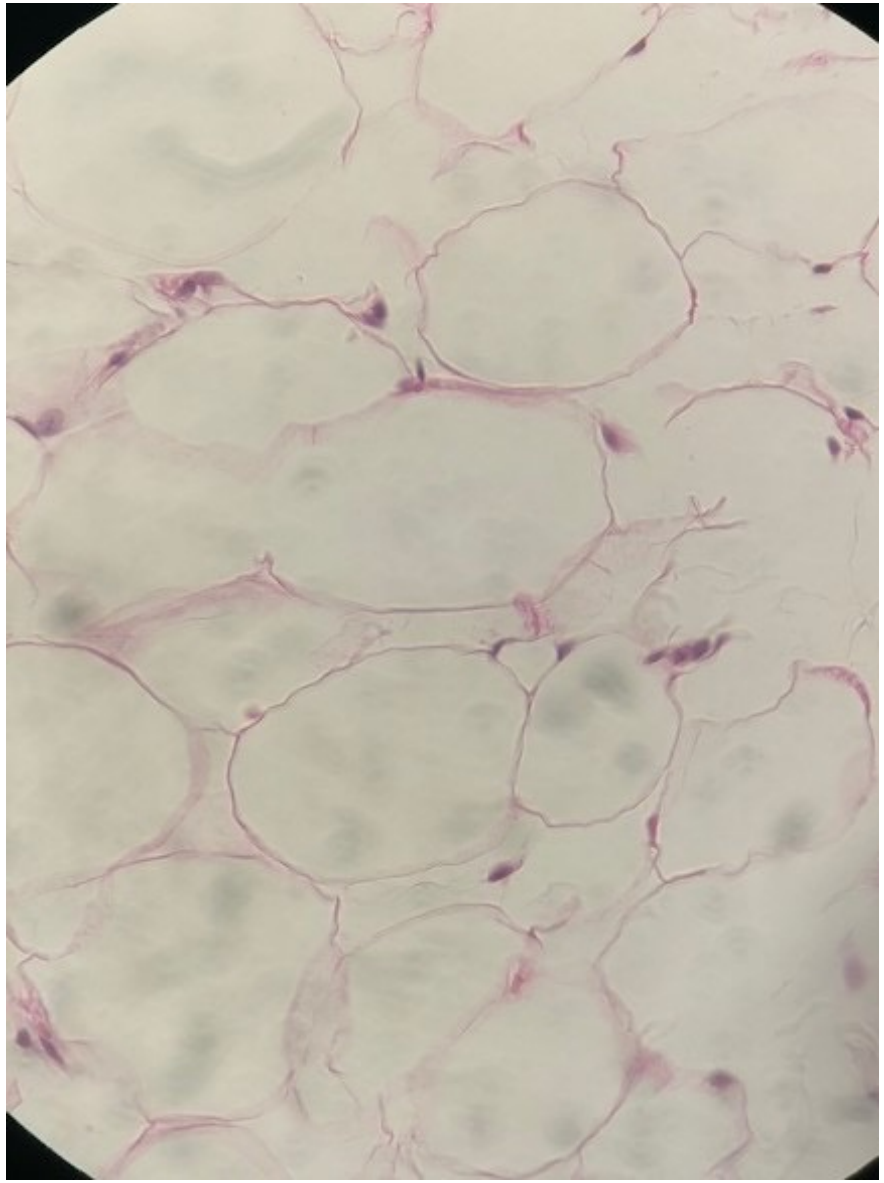
Areolar tissue (loose connective tissue)
100x



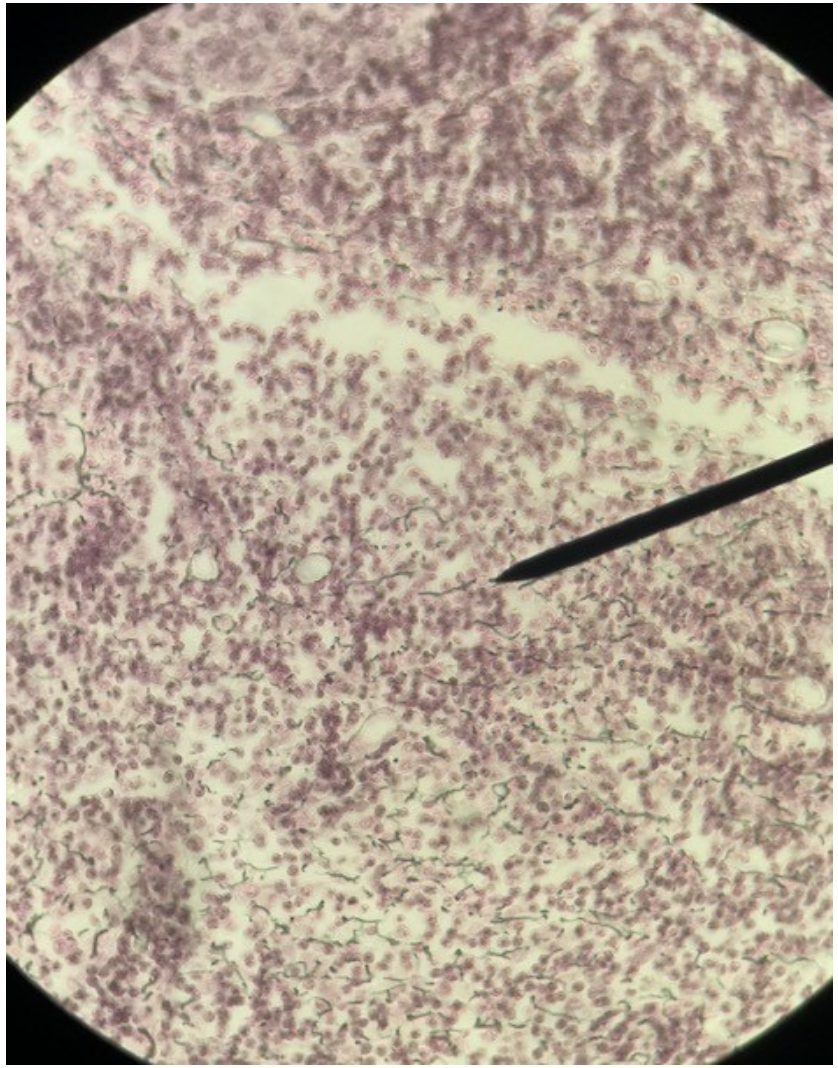
Areolar tissue (loose connective tissue).
Pointing at a collagen fibre 400x



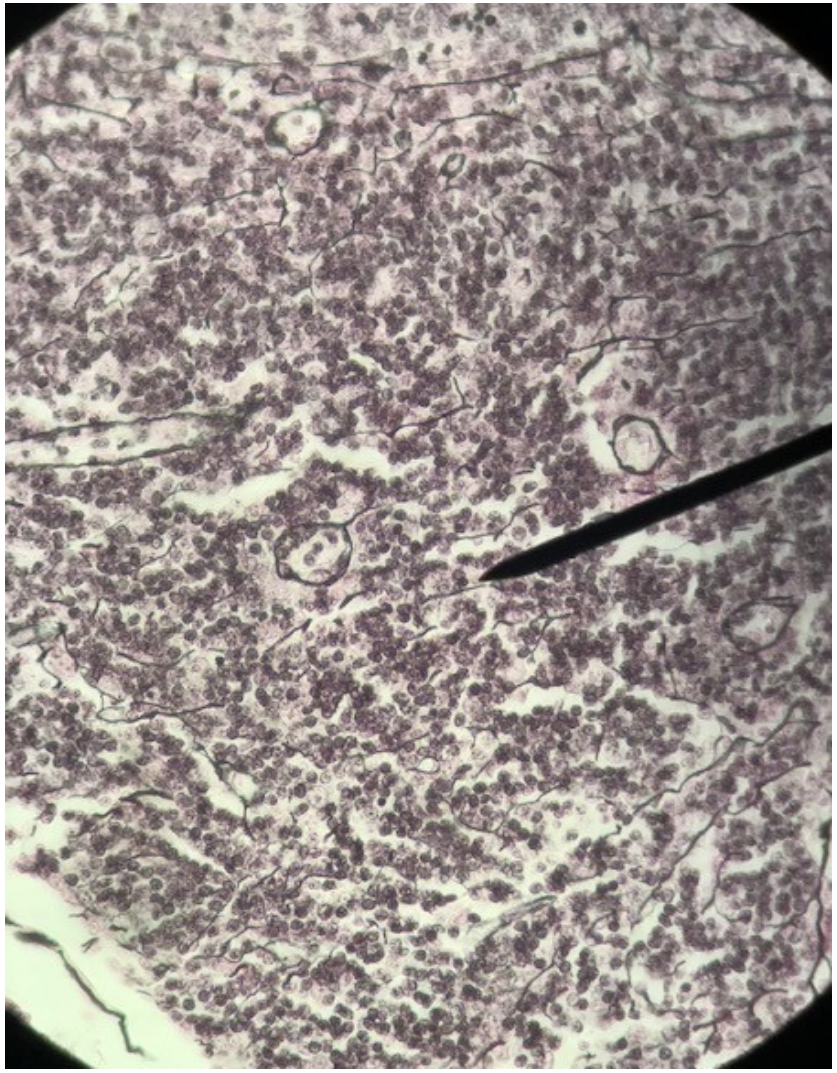
Adipose tissue. Each cell has a droplet of fat. 100X



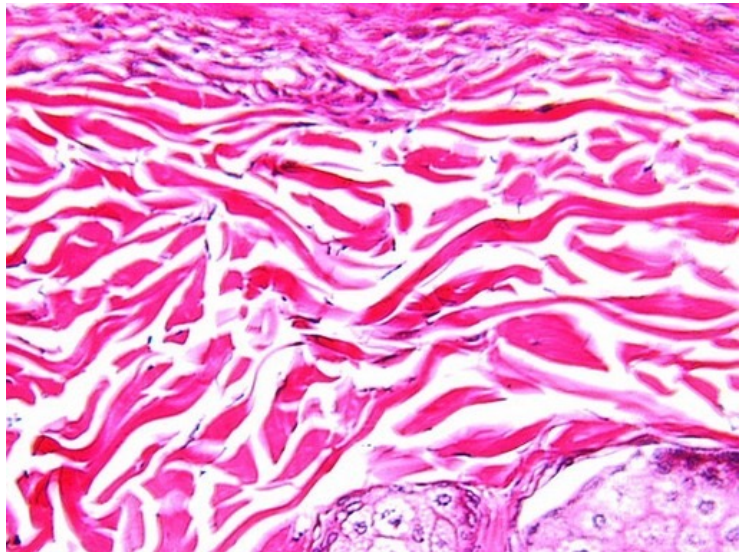
Adipose tissue. Each cell has a droplet of fat. The nuclei are pushed to the edge of the cells. 400X



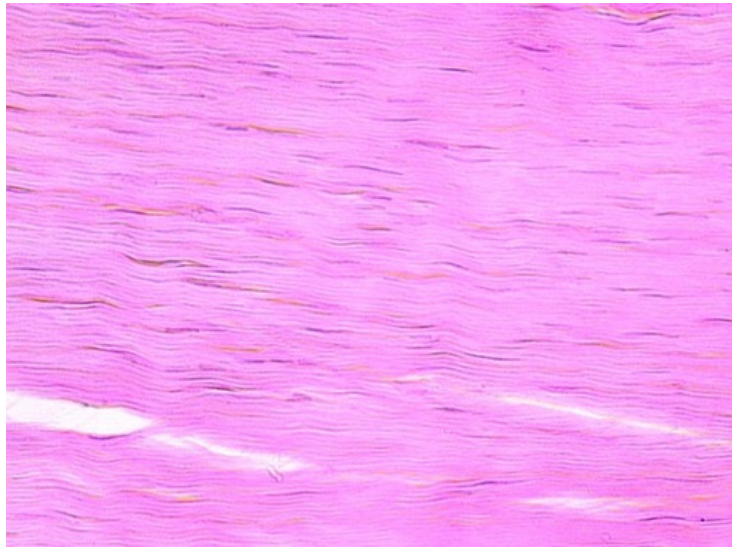
Reticular connective tissue – network of reticular fibres provide support. 100X



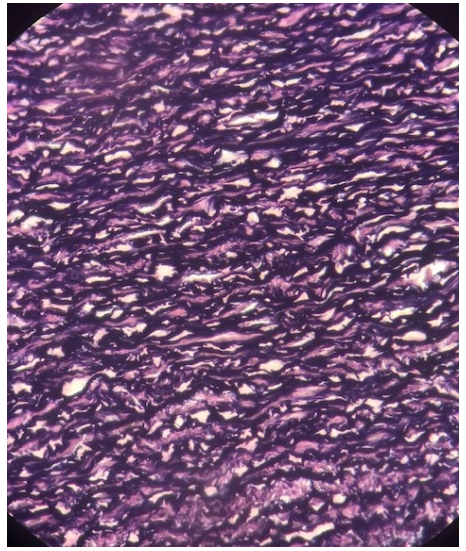
Reticular connective tissue – pointing at a reticular fibre. 400X



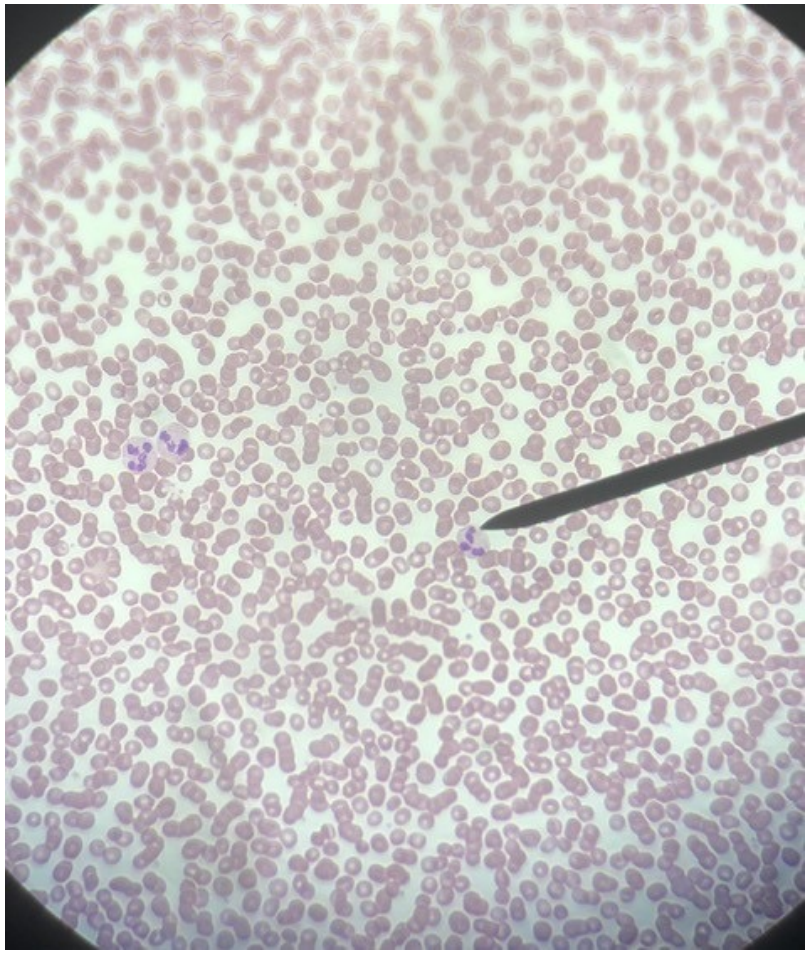
Dense irregular connective tissue found in dermis. 400X



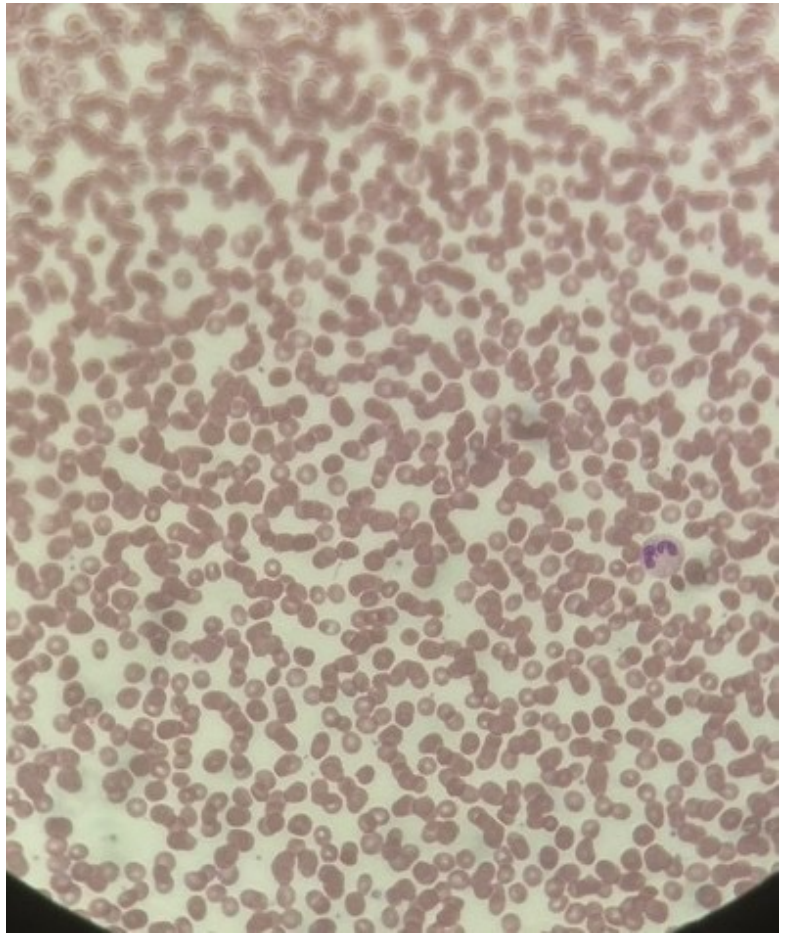
Dense regular connective tissue – tendon 400X



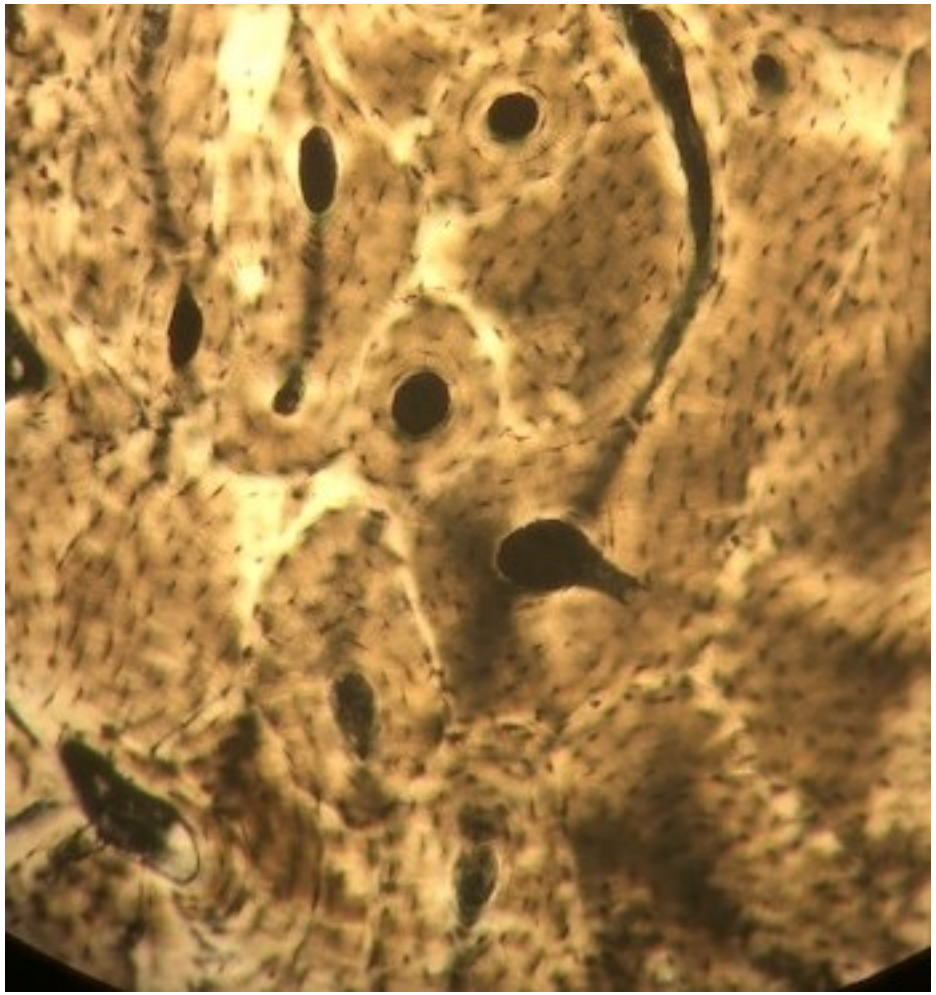
Dense elastic tissue 400X



Human blood. Pointing at white blood cell. 100X

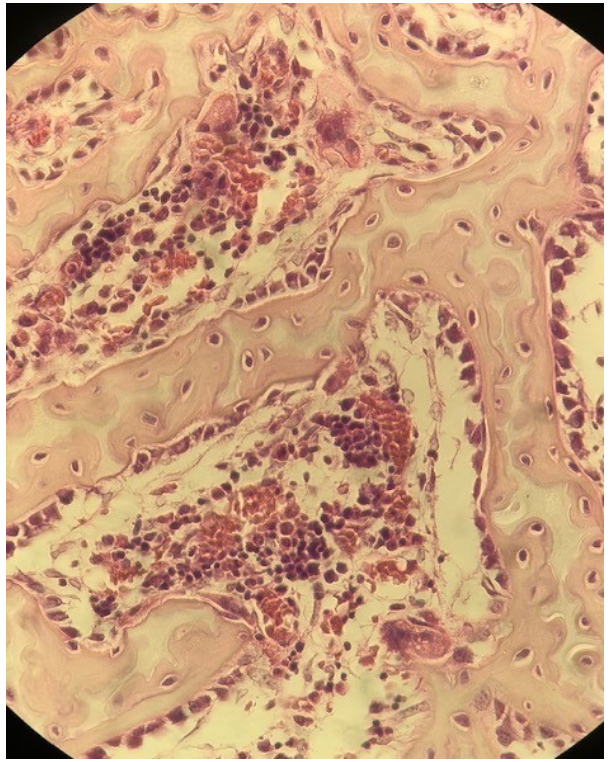


Human blood smear. 400X

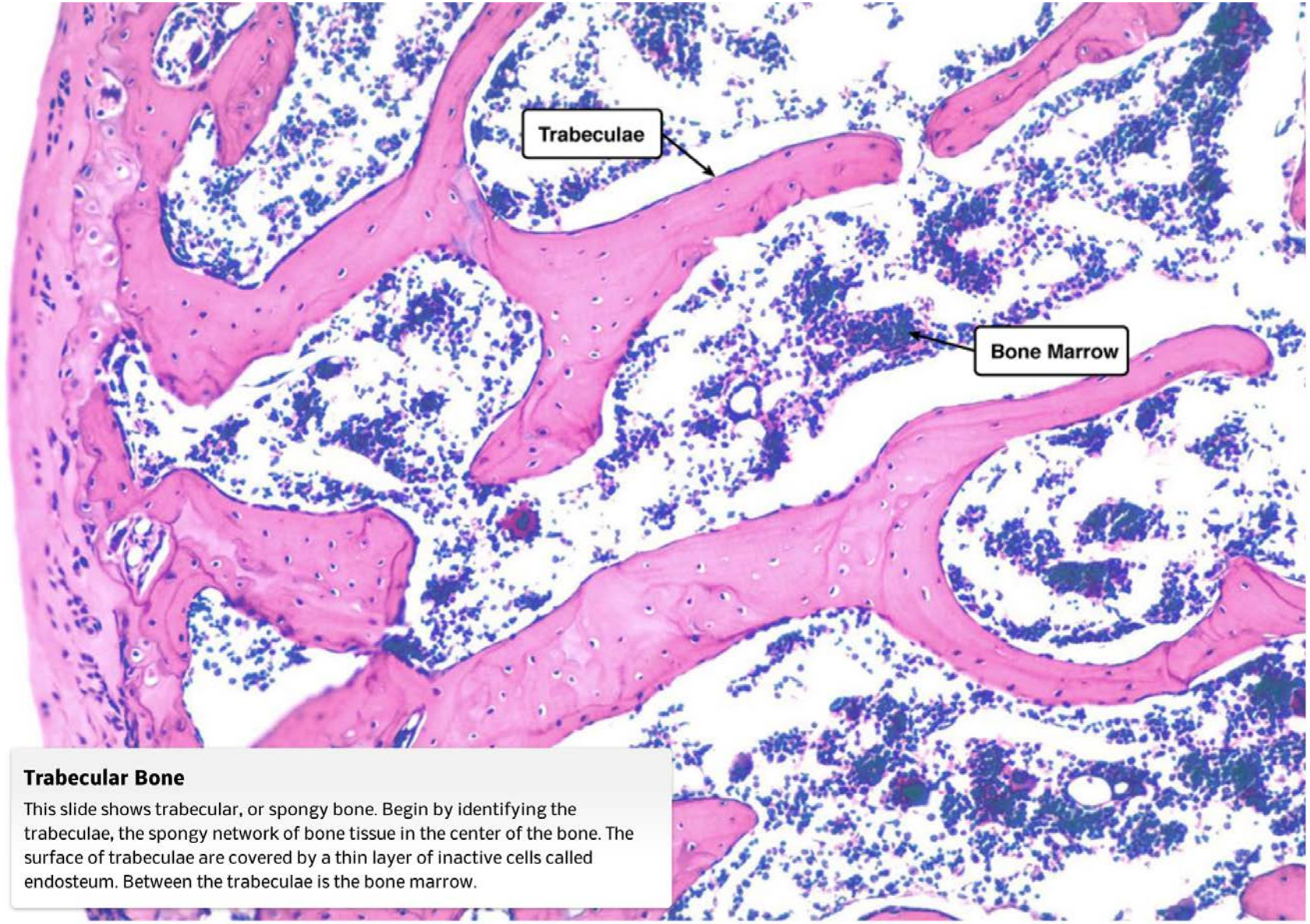


Compact bone 100X

Compact bone. Pointing at an osteocyte. 400X

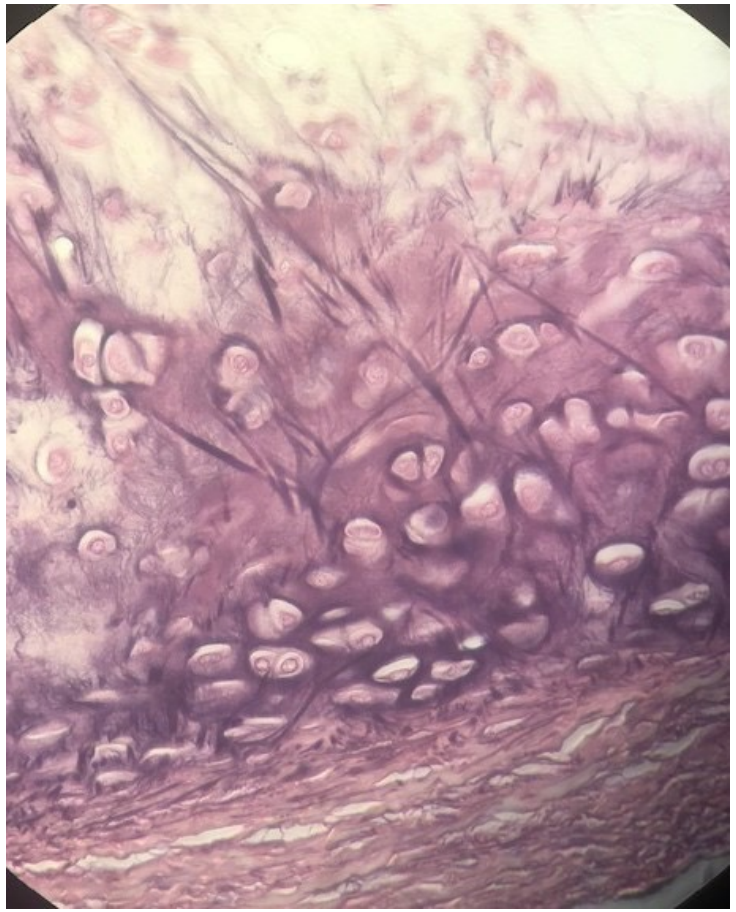


Spongy (trabecular) bone 400X



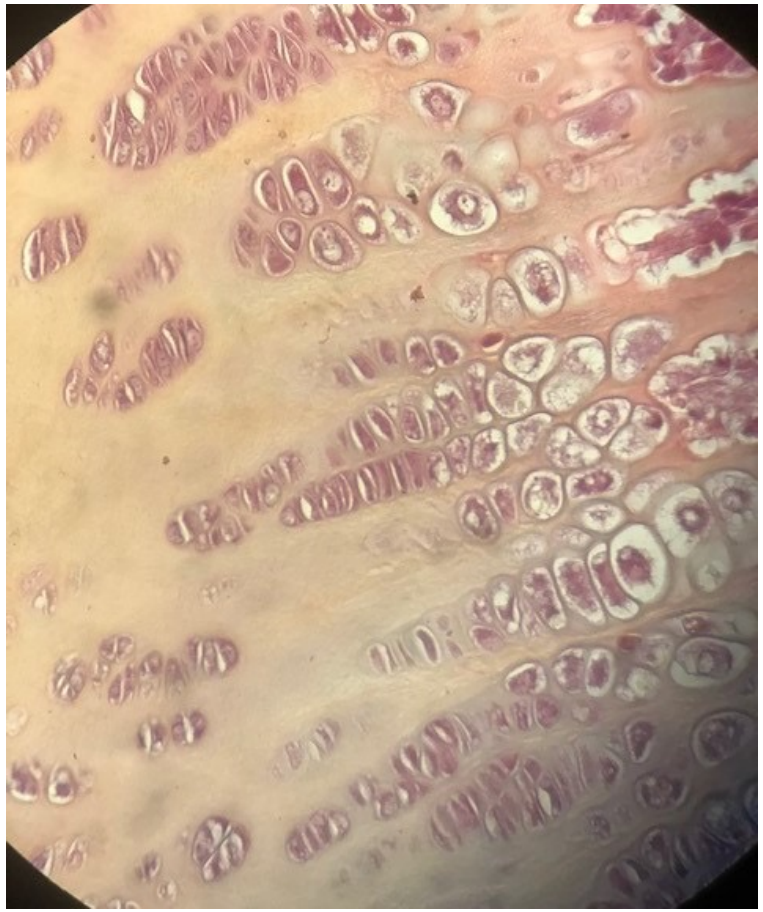
Trabecular Bone

This slide shows trabecular, or spongy bone. Begin by identifying the trabeculae, the spongy network of bone tissue in the center of the bone. The surface of trabeculae are covered by a thin layer of inactive cells called endosteum. Between the trabeculae is the bone marrow.



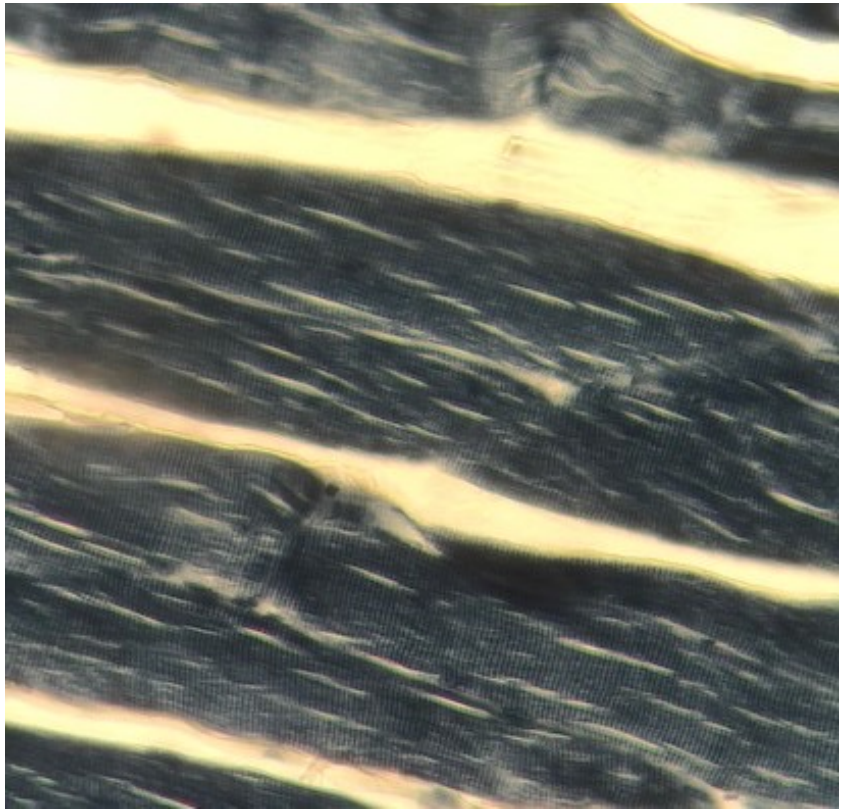
Elastic cartilage 400X

Hyaline cartilage 400X

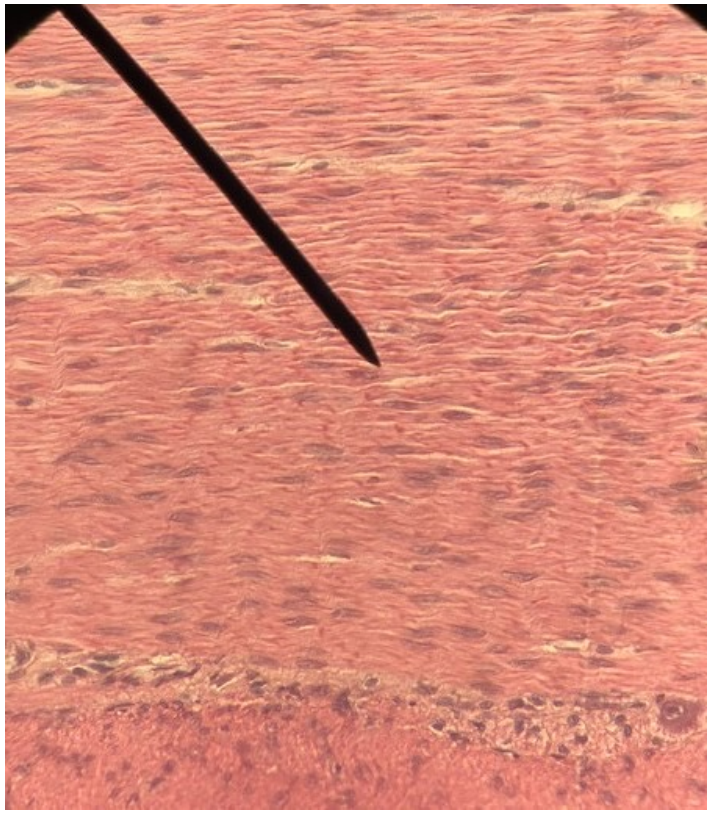


Fibrocartilage 400X

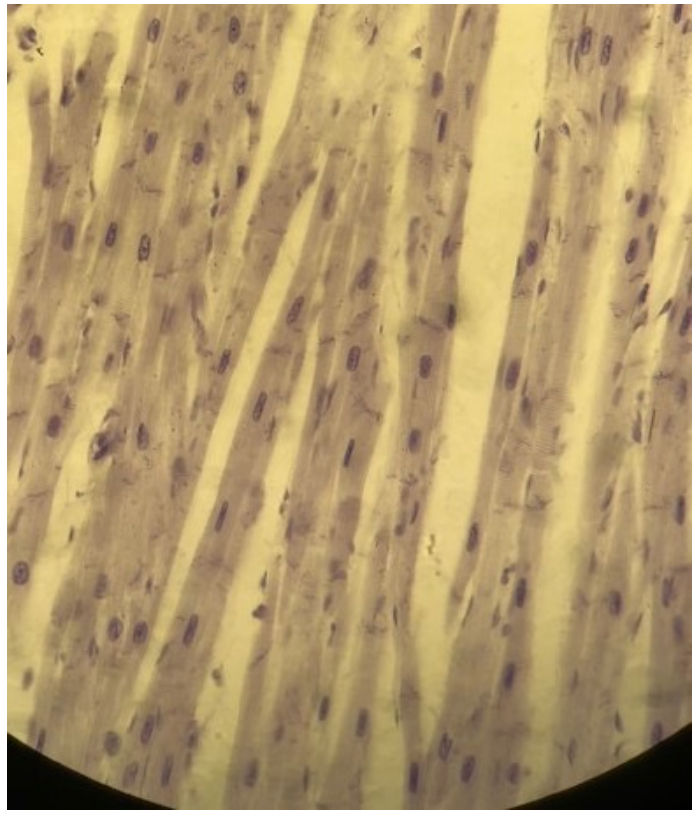
Muscle tissue



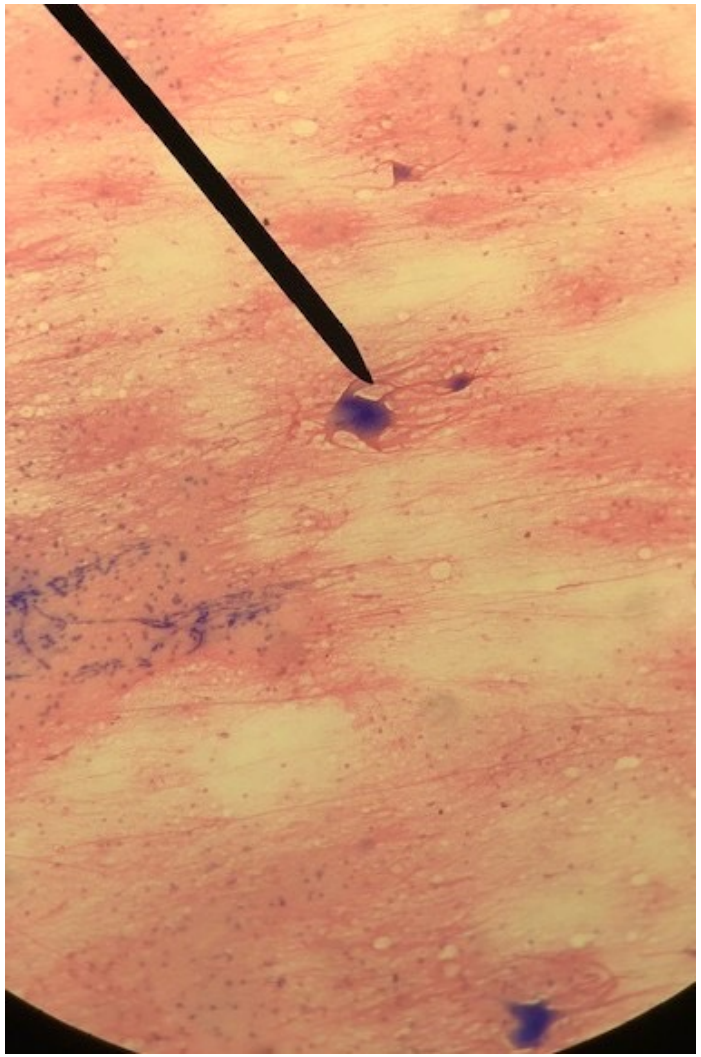
Skeletal muscle 400X



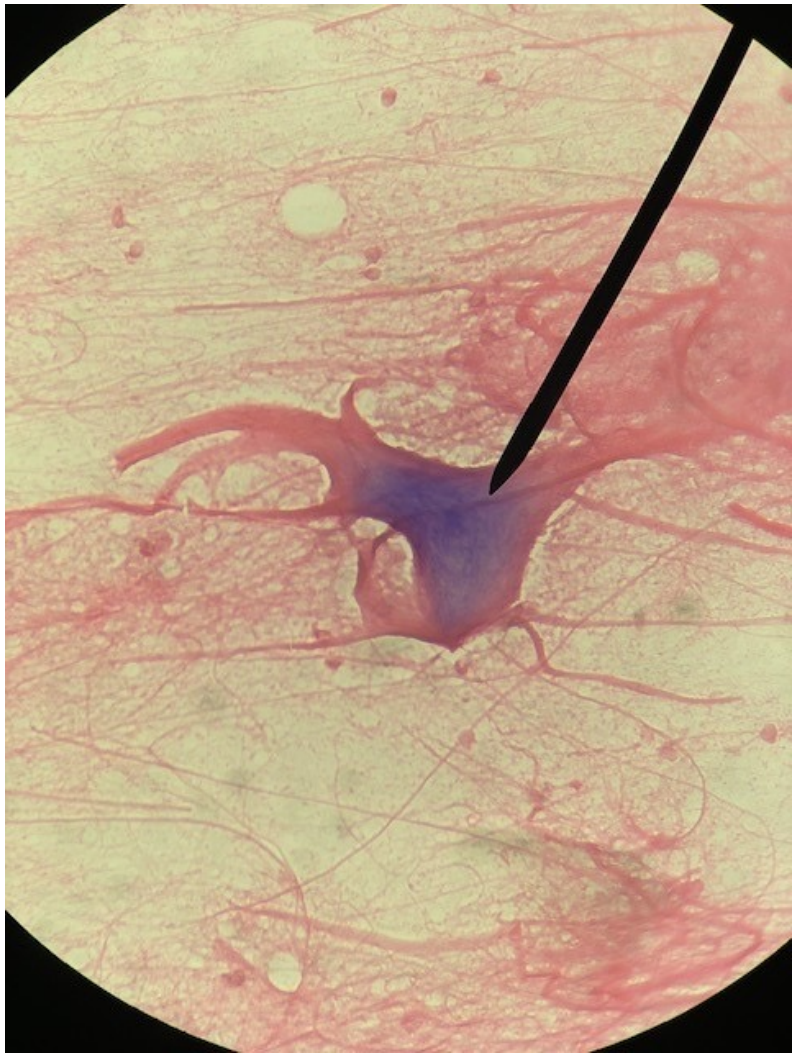
Smooth muscle 400X



Cardiac muscle 400X



Nervous tissue. Pointing at cell body of a neuron.100X



Nervous tissue. Pointing at cell body of a neuron.400X

Nervous tissue

Resources

- Sciencerocks website: https://sciencerocks.ca/biology-1120/1120-labs/histology-lab-slides/
- Virtual microscopy laboratory: https://histologyguide.com/
- There are also occasionally open labs at VCC. Ask a lab demonstrator!