

Connective Tissue

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Connective tissue comprise the major structural constituents of the body , they are derived from mesoderm, functionally connective tissue serve in support ,transport ,defense, storage and repair .All connective tissue consist of three main component :-

- 1-Ground substance (constitute the gel like matrix in which fiber and cell are embedded).
- 2-Fibers(collagenous which is thick and pink in color, reticular is less thick and dark color, elastic is fine and thin pink red in color).
- 3-Cells: There are many type of cell in connective tissue:
 - ▶ a- Fibroblast: predominant cell type is elongated with some projection, nuclei is a void and large(production of fibers and ground substance).

b- Macrophage (histiocyte): is rounded cell with small nucleus (phagocytosis of foreign substance and bacteria).

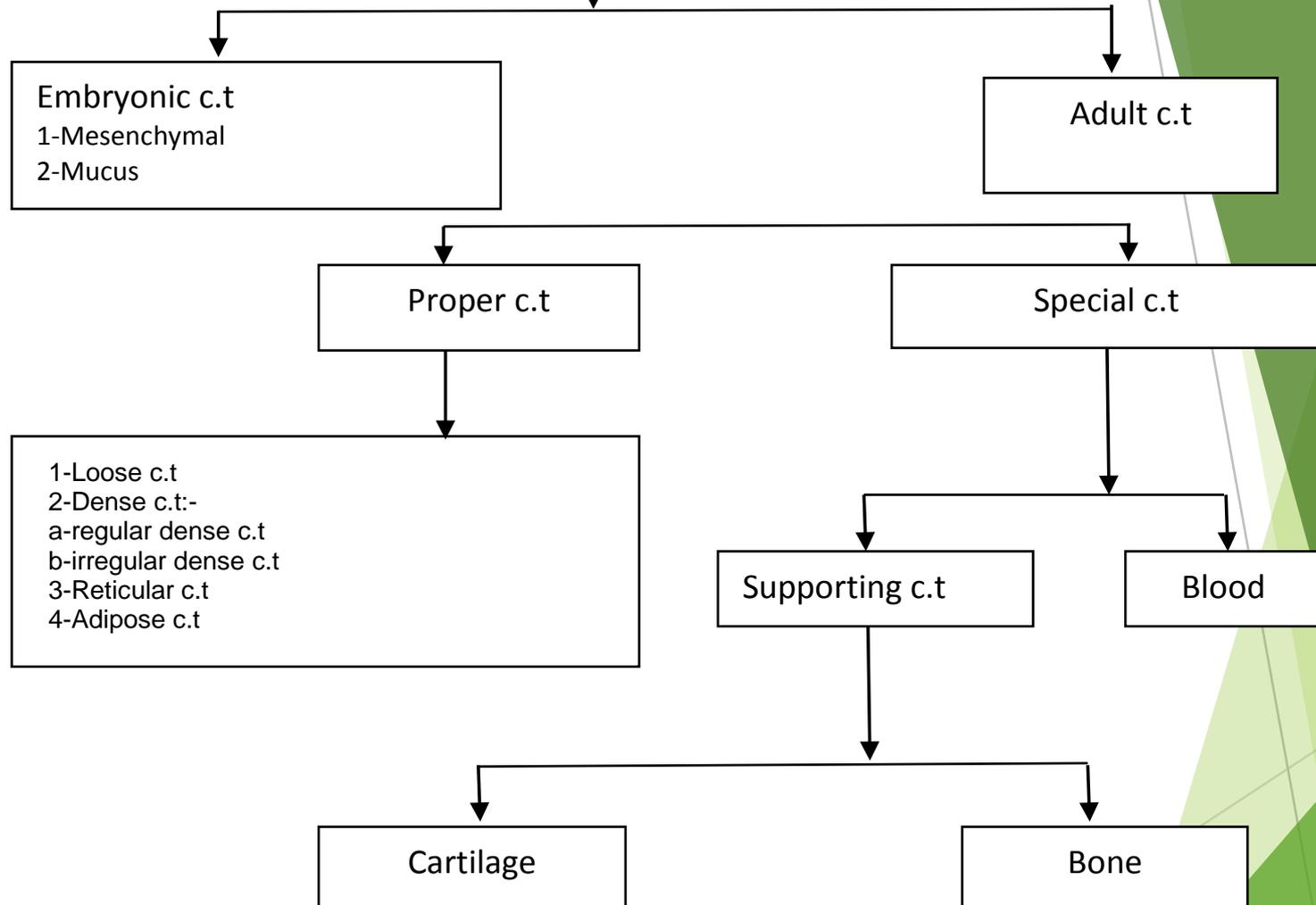
c- Mast cell: Oval to round with small pale, centrally located nuclei and cytoplasm filled with basophilic granules (libration of pharmacologically active substance e.g. histamine).

d- Plasma cells: are large ovoid cells with spherical eccentrically located nuclei (synthesis of antibody).

e- Adipose cells: are spherical cell with peripheral flattened nuclei (storage fat and heat production).

f- Leukocyte: They migrate across capillary and venule wall from blood to connective tissue (these cell with immune and defense function e.g. lymphocyte)

Type of Connective Tissue



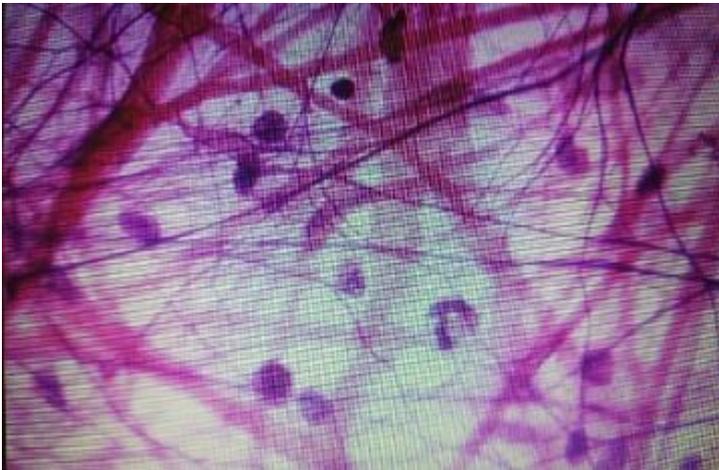
Mucous c.t.:

has an abundance of amorphous ground substance ,it is a jelly like tissue containing collagen fiber .The cell in this tissue are mainly fibroblast ,mucous tissue is the principle component of umbilical cord .



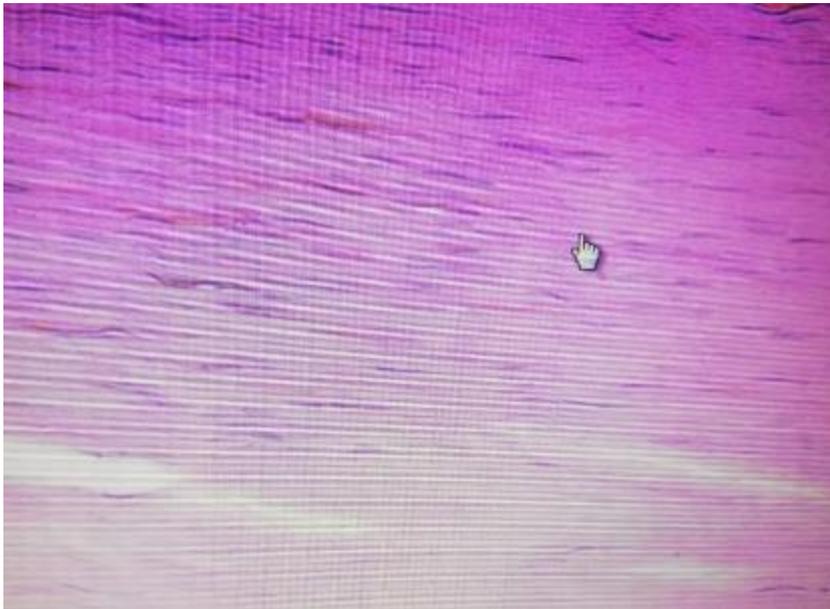
Loose connective tissue:

consist of all main component of connective tissue .The most numerous cell are fibroblast as well as to macrophage ,mast, plasma ,adipose and lymphocyte cell, collagen fiber are the most numerous and largest of fibers .Elastic fiber are fine and single ,reticular fiber are not apparent .this type of tissue fills space between fiber and muscle sheaths ,support epithelial tissue and form a layer that en sheathes the lymphatic and blood vessel .Loose connective c .t also found in the papillary layer of dermis ,in the serosal lining of peritoneal and pleural cavities and in glands .



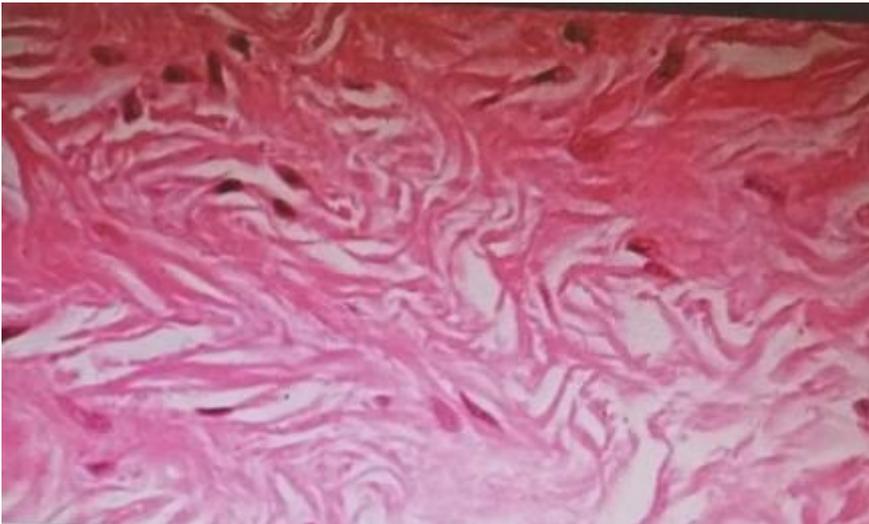
Dense regular connective tissue:

The collagen fiber in this tissue are arranged in compact parallel bundles, between bundle are thin partition of loose connective tissue in which are rows of fibroblast , this type of tissue is present in tendon and ligament



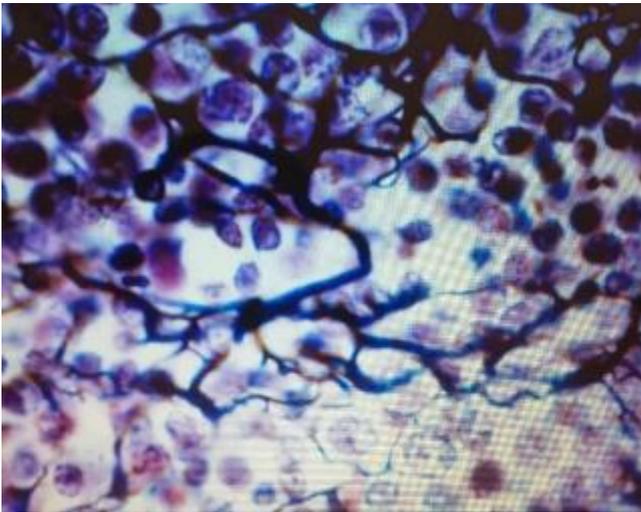
Dense irregular c.t.:

In this type of tissue the collagen fibers are arranged in bundles without a definite orientation. The collagen forms a three-dimensional network in this tissue and provides resistance to stress from all directions. Thin wavy elastic fibers form a fine network, the cells of this tissue are mostly fibroblasts and macrophages, whose nuclei appear as dark dots scattered throughout the field. This type of tissue is encountered in such areas as the dermis of skin and mammary gland.



Reticular connective tissue :

Reticular cells are found only in reticular connective tissue ,they are satellite in shape and envelope the reticular fiber ,reticular cells are simply fibroblast specialized for secreting the reticular fibers ,these cell possess large ,oval ,pale nuclei and their cytoplasm is not easily visible with light microscope other cell in this type of tissue are lymphocyte ,macrophage reticular fiber constitute the major portion of intracellular matrix with the use of silver stain ,they are evident as dark ,thin branching fiber . This tissue present in spleen, liver, lymph node, endocrine gland.



Adipose tissue:

Adipose cell are close together and they are separated by small amount of connective tissue in which fibroblast are compressed, blood vessel and nerves are distributed ,this type of tissue is found under skin and around the kidney.

