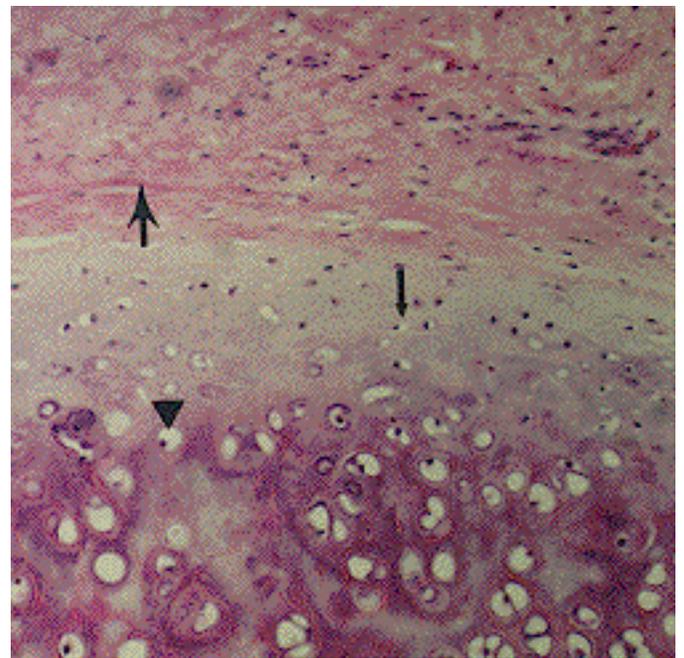


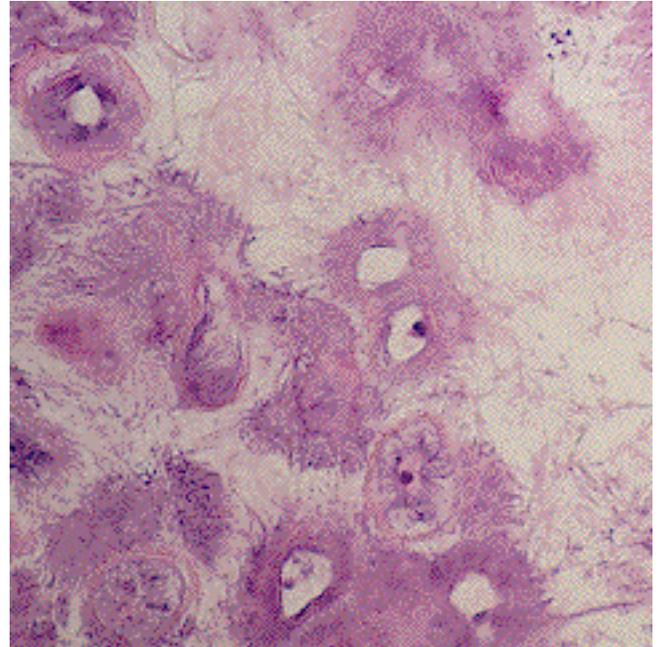
## CARTILAGE

Cartilage forms most of the temporary skeleton of the embryo and provides a model in which most bones develop. It persists in the adult in the external ears, respiratory passages and joints. There is no blood supply to adult cartilage; it gets nourishment by diffusion through its matrix from capillaries in the perichondrium. There are three forms of cartilage: hyaline (glasslike), found in the respiratory passages, including thyroid, cricoid, trachea, external ear, ventral ends of ribs, nasal cartilages, and articular surfaces of most joints; elastic found in the external auditory canal and pinna, eustachian tube, epiglottic and corniculate and cribriform cartilages; fibrocartilage found in intervertebral discs and about dense connective tissue of capsules and ligaments of joints.

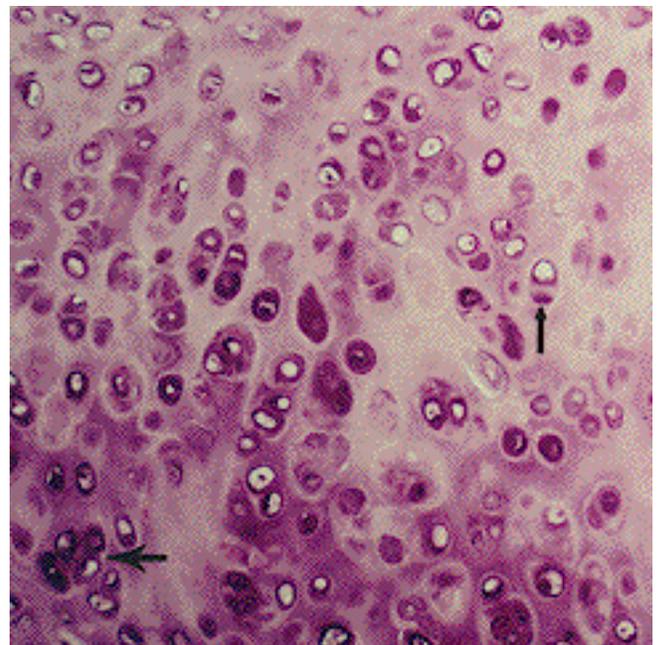
Elastic cartilage, At the periphery of mature cartilage there is a layer of supporting tissue called perichondrium (large arrow) containing blood vessels and chondroblasts with cartilage-forming potential. The cells of the perichondrium resemble mature fibroblasts. The cells of perichondrium nearest the cartilage (small arrow) blend into the cartilage and eventually look like the cartilage cells. Cartilage cells (chondrocytes) occur individually or in nests and are surrounded by matrix made of collagen fibers and glucoseaminoglycosides, but since the two have similar optical densities, the fibers of collagen are not seen and there remains a glassy, uneven staining matrix. Ovoid spaces in the matrix are called lacunae ("hollow places") and contain chondrocytes which fill the lacunae. However, during histologic preparation the chondrocytes shrink, leaving clear spaces (triangle). Matrix located close around cell groups ("territorial" matrix) is more eosinophilic than that which separates the cell groups ("interterritorial").



Elastic cartilage. Collagen fibers are clearly visible.



Hyaline cartilage, high power, is identical to elastic cartilage but there are no elastic fibers visible. Nests (large arrow) of cells and individual cells (small arrow).



**CLINICAL ASPECTS:**

Some clinicians believe that perichondrium and cartilage are better protected than most tissue from invasion by malignant cells but this uncertain observation must not encourage the surgeon to fail to remove cartilage adjacent to invasive cancer.

Cartilage, because it has no direct blood supply, is subject to necrosis and poor healing in the case of ulceration of the overlying mucoperichondrium—e.g., nasal septal ulceration. In such an instance in order to effect healing of the septum and prevent septal perforation, the septal dermoplasty operation is valuable. In this procedure exposed cartilage is resected and a split thickness skin graft applied to the raw surface of the opposite perichondrium where it can be expected to “take” and thus restore the previously ulcerated nasal septum.