

# TUMORS OF BLOOD VESSELS

- Tumors of blood vessels and lymphatics include:
  - common and benign tumors → hemangioma
  - borderline (locally aggressive but metastasize infrequently) → kaposi sarcoma
  - rare, highly malignant → angiosarcoma
- Benign tumors usually contain vascular channels lined by normal-appearing endothelial cells.
- Malignant tumors are more cellular, show cytologic atypia, are proliferative, and usually do not form well-organized vessels

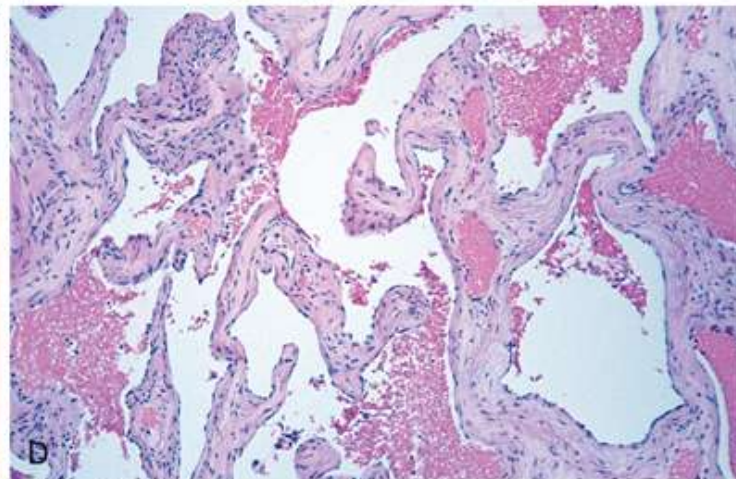
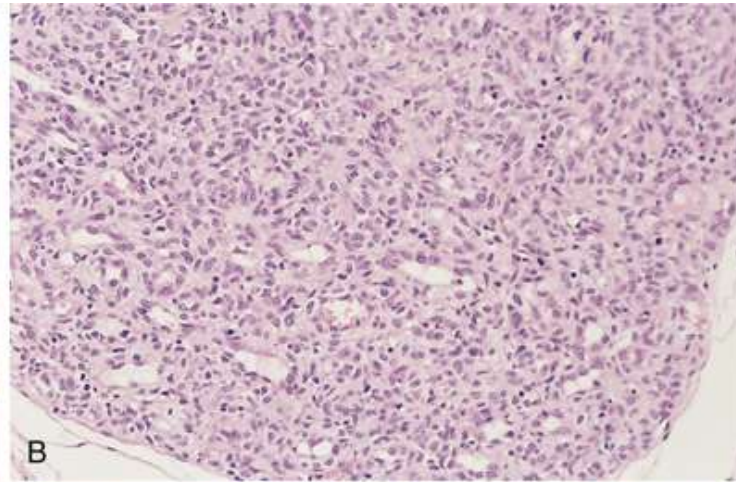


# HEMANGIOMAS

- are very common tumors composed of blood-filled vessels.
- Most common in infancy and childhood
- most are present from birth and initially increase in size, but many eventually regress spontaneously.
- Most common in the head and neck
- can arise internally (1/3 → liver)
- Malignant transformation is rare



# HEMANGIOMA



Kumar et al: Robbins Basic Pathology, 9e.  
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# HISTOLOGIC AND CLINICAL VARIANTS:

- 1- ***Capillary hemangiomas*** : most common type; occur in the skin, subcutaneous tissues, and mucous membranes of the oral cavities and lips
- 2- ***Juvenile hemangiomas*** (so-called strawberry hemangiomas) of the newborn skin
- 3- ***Pyogenic granulomas*** are rapidly growing red pedunculated lesions on the skin, gingival, or oral mucosa ( $\frac{1}{4}$   $\rightarrow$  history of trauma)
- 4- ***Cavernous hemangiomas*** : composed of large, dilated vascular channels; frequently involve deep structures, and do not spontaneously regress



# INTERMEDIATE-GRADE (BORDERLINE) TUMORS

- *Kaposi Sarcoma (KS)*
- a vascular neoplasm caused by a *herpesvirus* (KSHV= human herpesvirus-8 = HHV-8).
- *most common in patients with AIDS*
- its presence is used as a criterion for the diagnosis of AIDS.
- multiple red-purple skin plaques or nodules, usually on the distal lower extremities; progressively increase in size and number and spread proximally



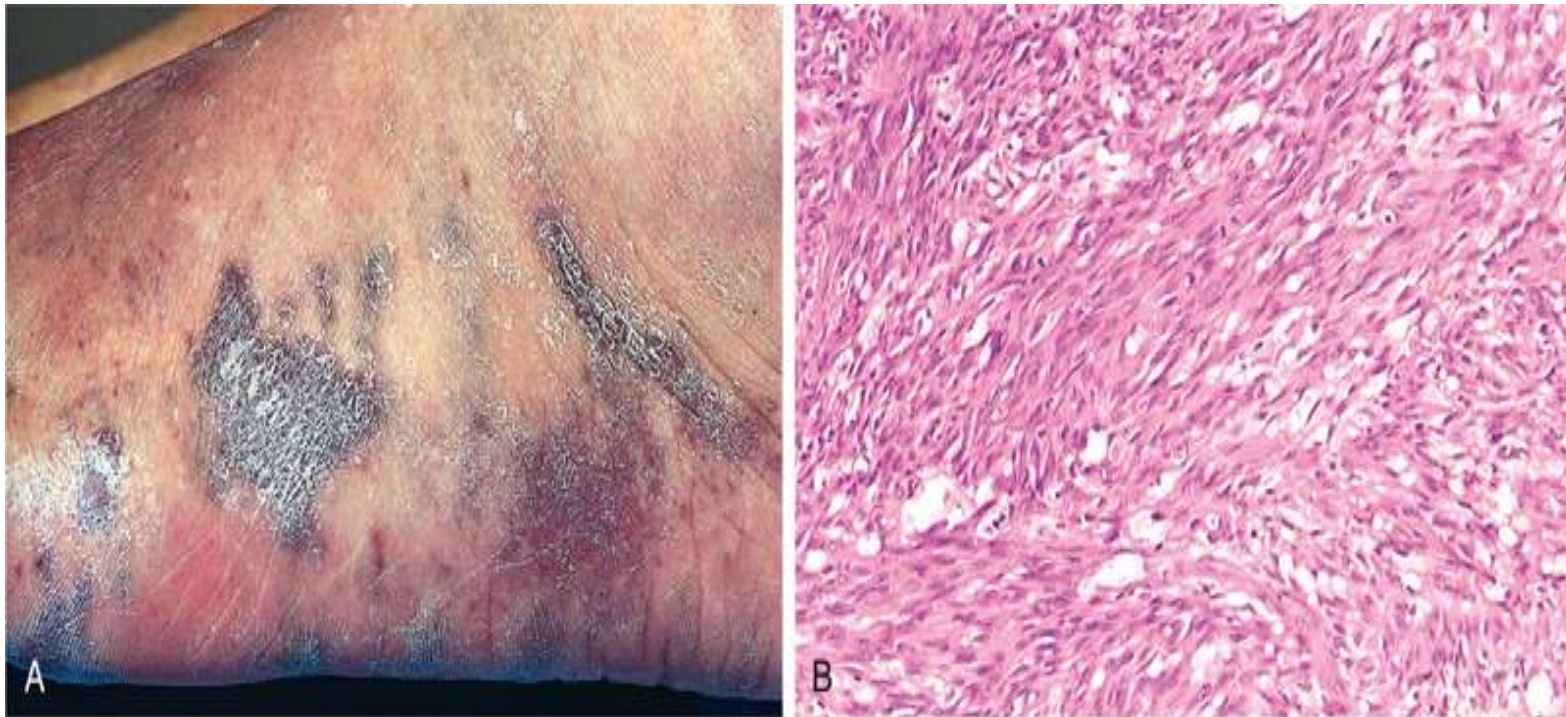
# PATHOGENESIS

- *KS is the most common HIV-related malignancy*
- AIDS-associated KS often involves lymph nodes and disseminates widely to viscera early in its course.
- transmitted both through sexual contact and by poorly understood nonsexual routes (oral secretions and cutaneous exposures).
- KSHV and altered T cell immunity probably are required for KS development
- KSHV-encoded proteins disrupt normal cellular proliferation controls (a viral homologue of cyclin D) and prevent apoptosis by inhibiting p53.



**A, Characteristic** coalescent cutaneous red-purple macules and plaques.

**B, Histologic view** of the nodular stage, demonstrating sheets of plump, proliferating spindle cells and slitlike vascular spaces



# MALIGNANT TUMORS

- Angiosarcomas :
- malignant endothelial neoplasms
- Older adults are more commonly affected.
- There is no gender bias
- lesions can occur at any site, but most often involve the **skin**, soft tissue, breast, and liver.
- Pathogenesis= carcinogens
- A latent period of years between exposure and subsequent tumor development is typical.





# RISK FACTORS OF ANGIOSARCOMAS

- Chemical carcinogens → liver angiosarcoma
- Irradiation
- Lymphedema → ipsilateral upper extremity several years after radical mastectomy (i.e., with lymph node resection) for breast cancer
- long-term (years) indwelling foreign bodies (e.g., catheters).



# CARDIAC TUMORS

## Metastatic Neoplasms :

- *the most common malignancy of the heart*
- occur in 5% of patients dying of cancer.
- certain tumors have a higher predilection for cardiac metastases. In descending order these are:
  - **lung cancer** → **most common primary**
  - lymphoma
  - breast cancer
  - Leukemia
  - Melanoma
  - hepatocellular carcinoma
  - colon cancer.



# PRIMARY CARDIAC TUMORS

- *uncommon*
- most are benign (80% to 90% of all primary heart tumors).
- The five most common in descending order of frequency: **Myxoma**; Fibromas; Lipomas; papillary fibroelastomas; rhabdomyomas.
- Angiosarcomas constitute the most common **primary *malignant*** tumor of the heart.



# MYXOMA

- the most common **primary** tumors of the **adult** heart
- 90% → atrium (left atrium >80%)
- pedunculated lesion arises from the atrial wall with a gelatinous appearance
- The cells are embedded in an abundant acid mucopolysaccharide ground substance
  
- ***Rhabdomyoma***
- the most frequent **primary** tumors of the heart in infants and **children**
- often regress spontaneously for unknown reasons
- Morphology: characteristic large cells containing numerous glycogen vacuoles separated by strands of cytoplasm running from the plasma membrane to the centrally located nucleus, so-called **spider cells**



# CLINICAL FEATURES AND SIGNIFICANCE

- 1- valvular "ball-valve" obstruction
  - 2- Embolization
  - 3- constitutional signs and symptoms (fever and malaise) → attributable to tumor elaboration of the cytokine **interleukin-6**, a major mediator of the acute-phase response.
- Diagnosis: Echocardiography
  - Treatment: surgical resection is almost uniformly curative in benign tumors.

