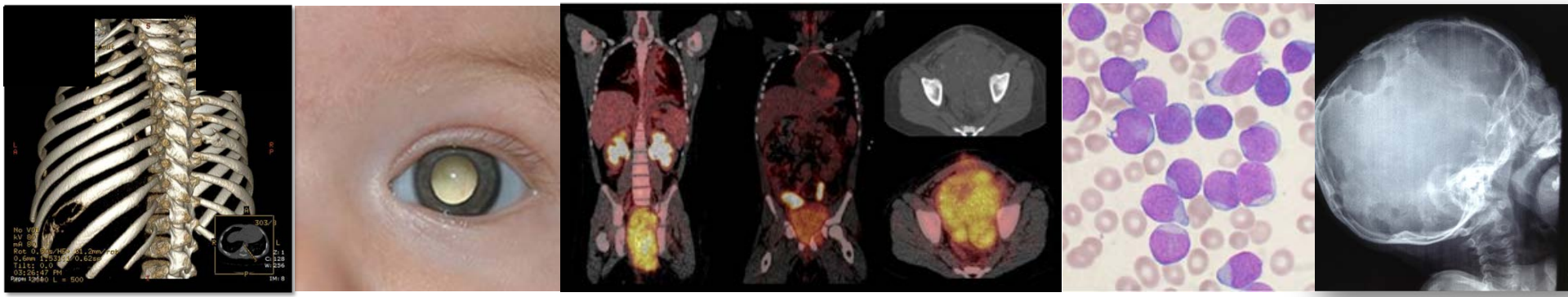
# When should we think about *MALIGNANCIES* in children?



**Maximize Quality of Life**
***Clinical Practice in Pediatrics***
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- cells of a benign tumor

- normal cells

- Cells of a malignant tumor


VS.

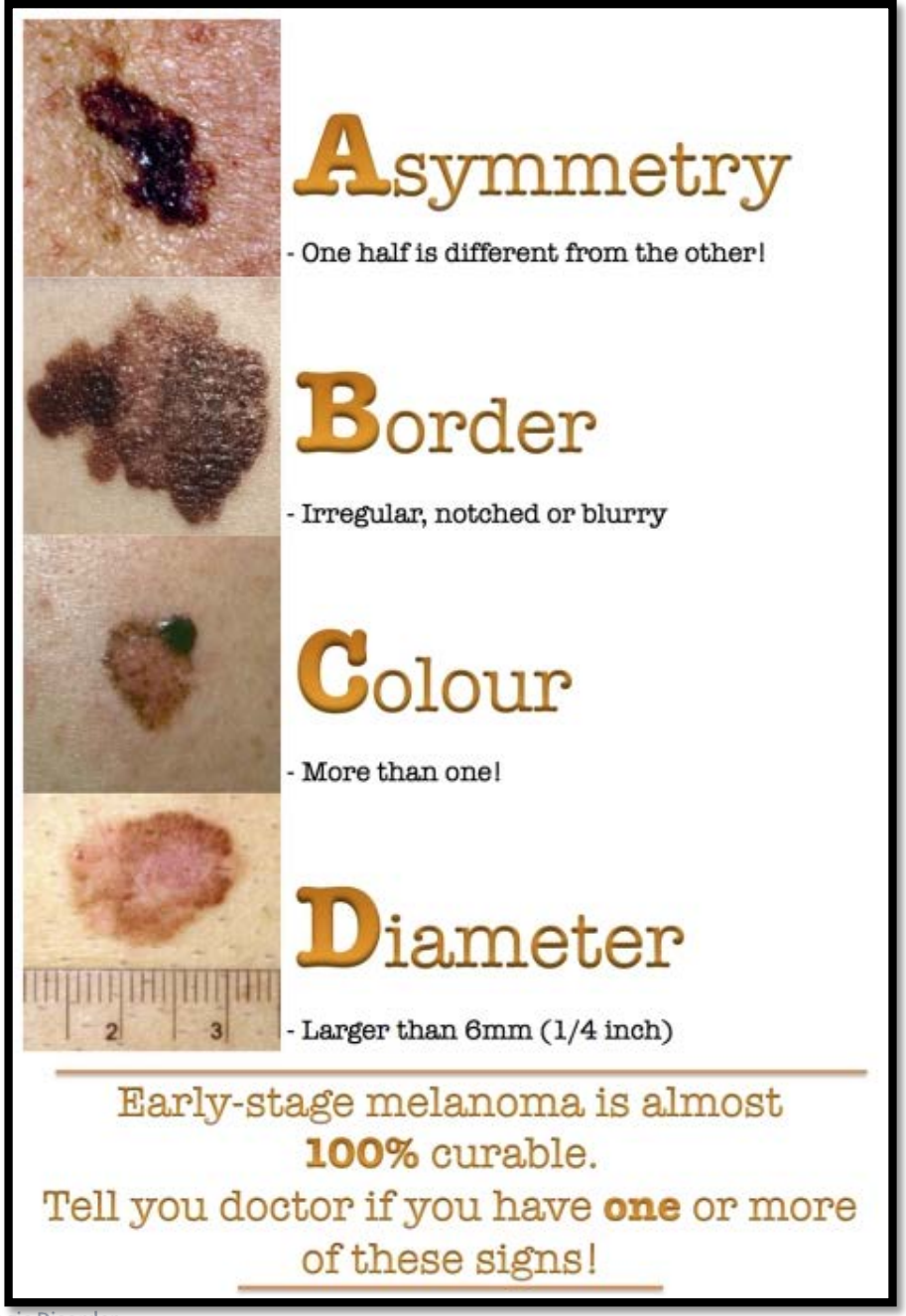

Benign Tumor

Malignant Tumor

# Why concerning???

- Timeline
- Effects treatment
- Early stage ➡ Advance stage
- Tumor ➡ Cancer

*Early Detection is a key!!!!!!*

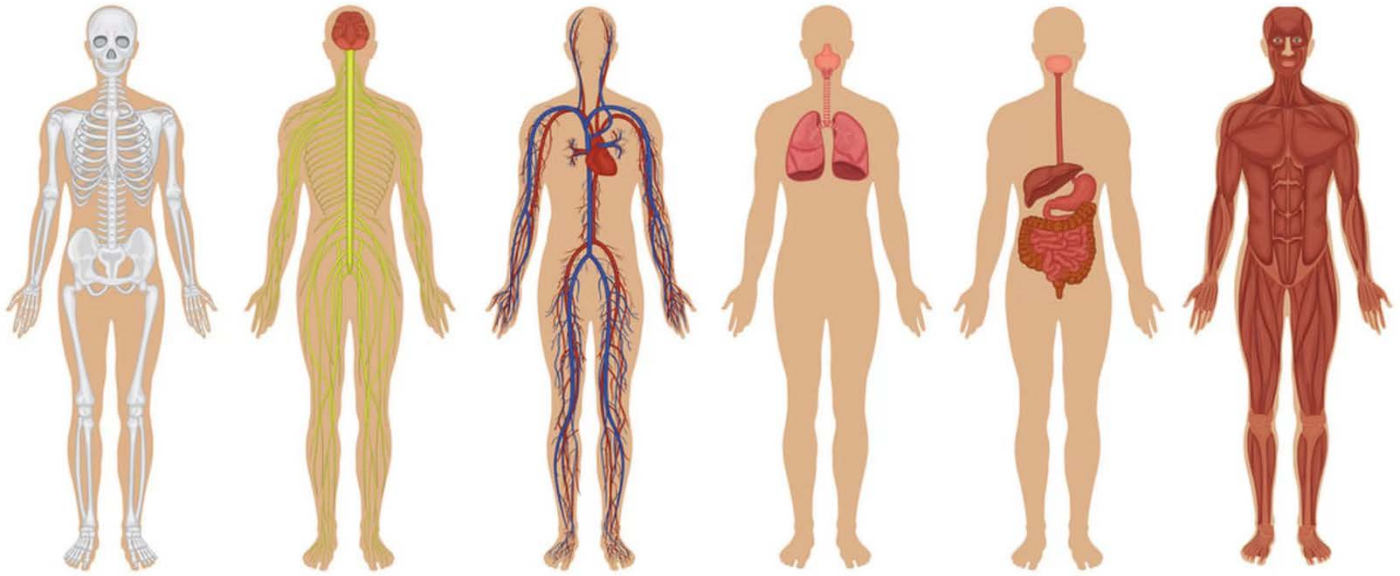





https://sunspotsblog.wordpress.com/2013/04/09/moles-vs-melanoma/

# MASS

## Benign vs. Malignant



## Benign masses

- Slow growing
- Firm or rubbery
- Painful
- Regular borders
- Solid or cystic consistency
- Mobile
- No infiltration
- No metastasis
- Capsulated

## Malignant masses

- Rapid growing
- Hard
- Painless‘
- Irregular borders
- Solid consistency
- Fixed to skin/soft tissue
- Infiltrative
- Metastasis
- Non-capsulated

## Differential Diagnosis

- Age
- Location
- Pattern of growth
- Constitutional symptoms
- Associated symptoms: pain, anemia etc.

Pediatric Cancer & Hematologic Disorder
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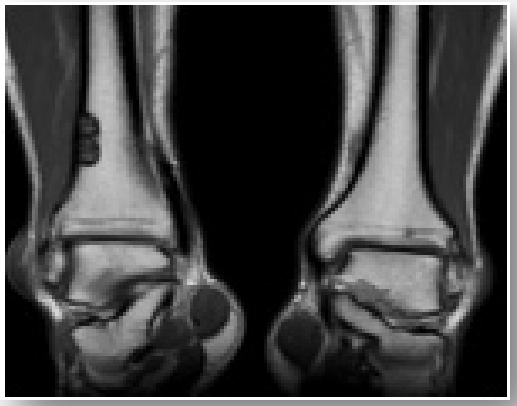
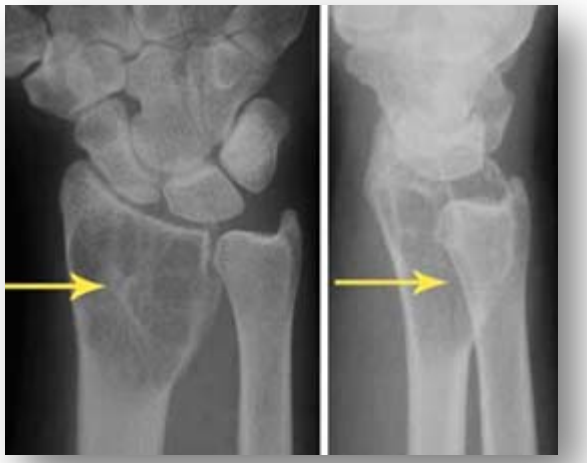
# Bone Tumors in Children

- Only half of bone lesions in children are malignant
- Other half benign or nonneoplastic lesions





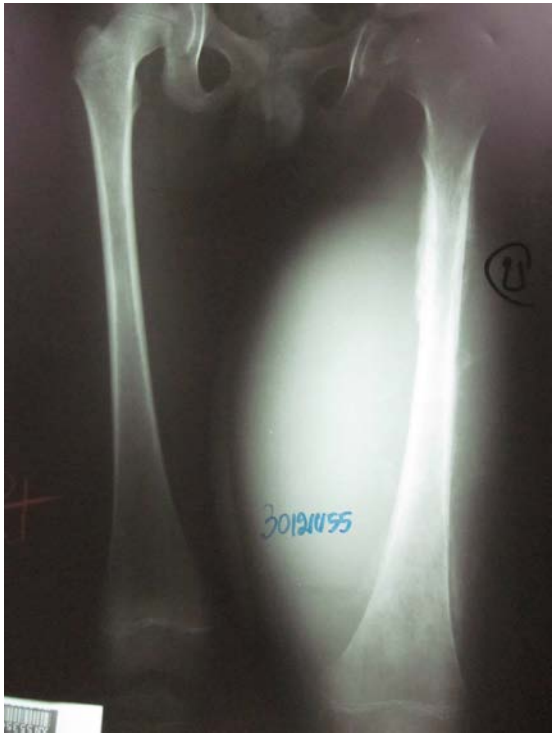
# Bone Tumors

| Malignant | Benign | Non-neoplastic |
| --- | --- | --- |
| Osteosarcoma | Osteoid osteoma | Fibrous dysplasia |
| Ewing's Sarcoma | Osteoblastoma | Fibrous cortical defect |
| Chondrosarcoma (classical, clear cell, mesenchymal) | Enchondroma | Aneurysmal bone cyst |
| Undifferentiated pleomorphic sarcoma (formerly MFH) | Chondroblastoma | Myositis ossificans |
| Isolated Bone Lymphoma | Chondromyxoid fibroma | Avulsion/stress fracture |
| Metastatic Tumor | Hemangioma | Solitary bone cyst |
| | | Osteomyelitis |

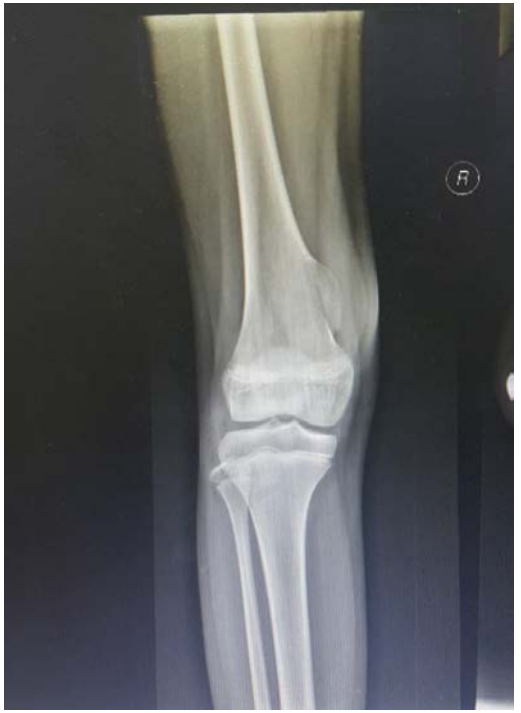
## Intermediate

Langerhans' Cell Histiocytosis

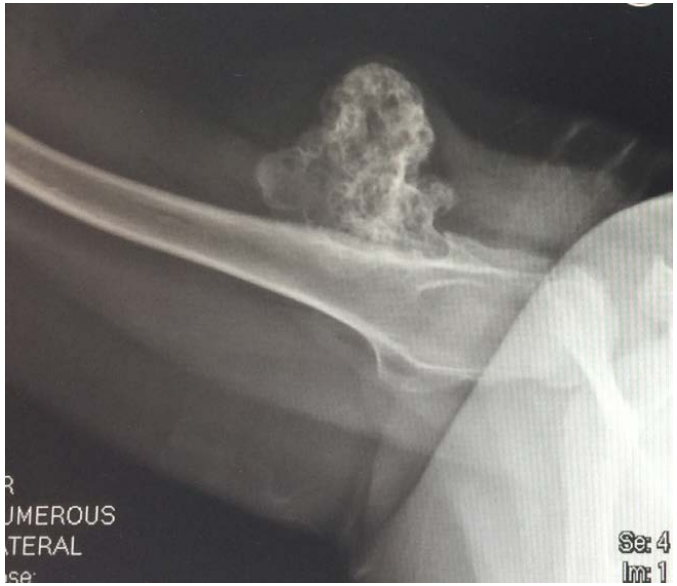
Giant Cell Tumor



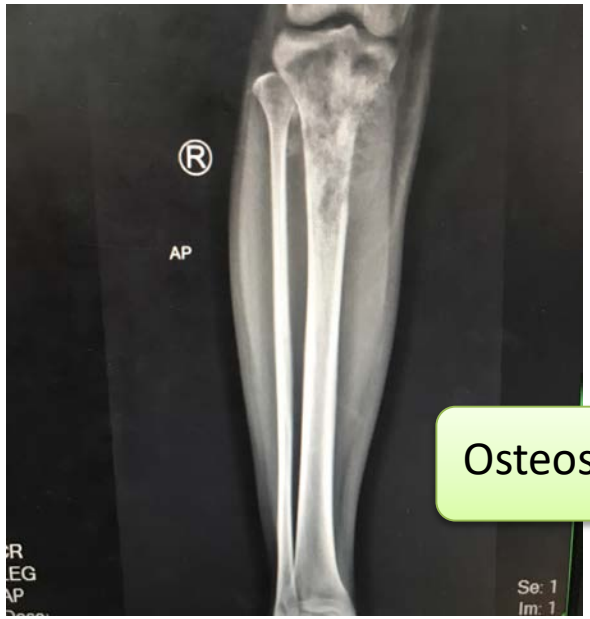
Ewing's sarcoma



Exostosis

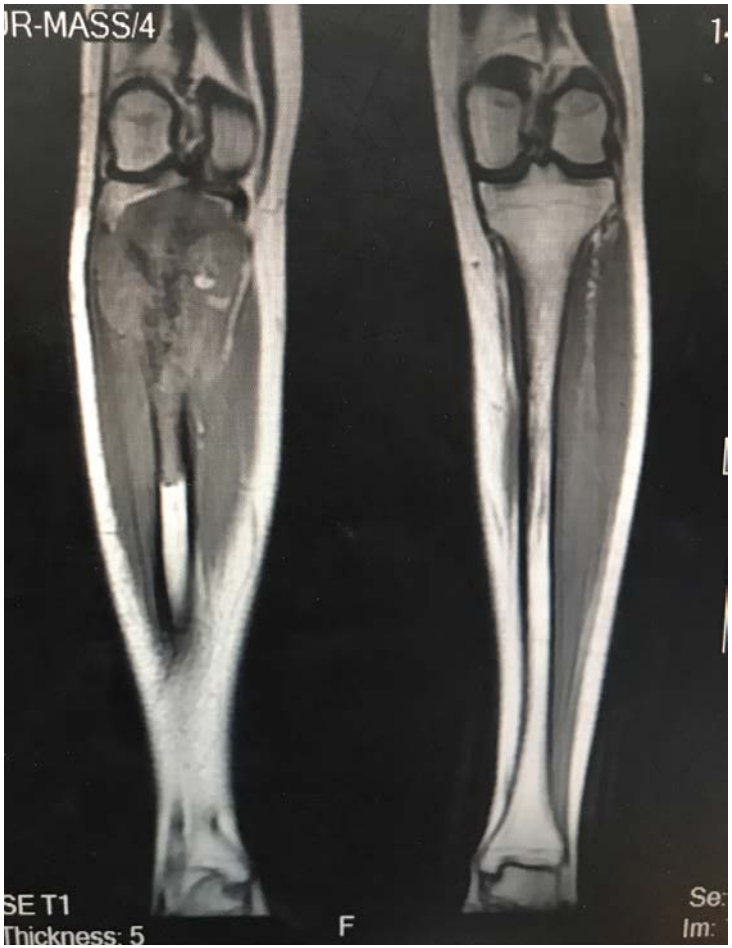


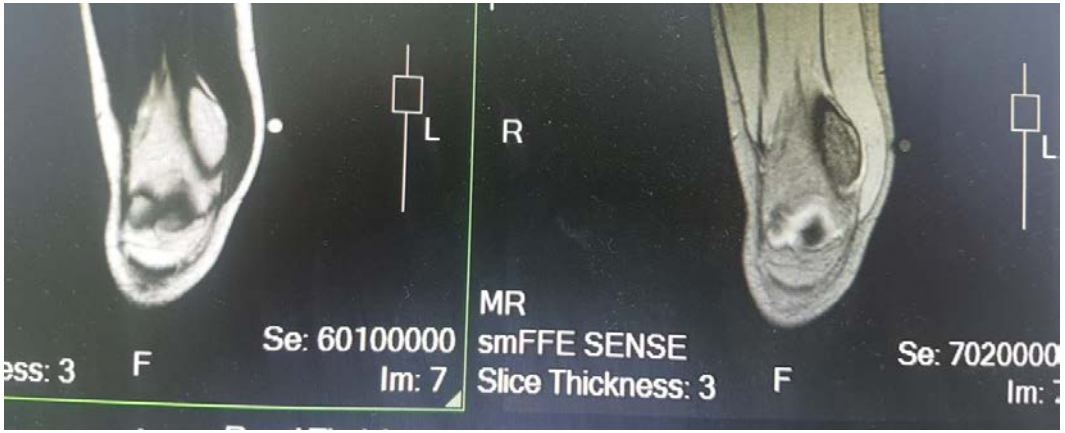

Exostosis




Osteosarcoma

Osteosarcoma




Exostosis

# 12. Abnormal laboratories

- Abnormal CBC
- Hyperuricemia
- Hypercalcemia, hypocalcemia
- Metabolic acidosis
- High LDH
- High ferritin
- High ALP

# Cancer Predisposition Syndrome

- Very early onset adult-type tumors (e.g. breast cancer, colon cancer)
- Bilateral involvement of paired organs (e.g. Retinoblastoma)
- Specific cancer types and histologic features (e.g. Medullary Thyroid Cancer (MTC) and Multiple Endocrine Neoplasia Type 2 (MEN2))
- Second primary neoplasm (Osteosarcoma, breast cancer in Li-Fraumeni Syndrome (LFS))
- Specific physical findings

# Cancer Predisposition Syndrome

- Family history of cancer
  - Cancer in ≥2 close relatives
  - Early age at cancer diagnosis
  - Bilateral or multi-focal cancers
  - Multiple primary tumors
  - Similar type of tumors
  - Autosomal dominant transmission

# Li-Fraumeni Syndrome associated cancers

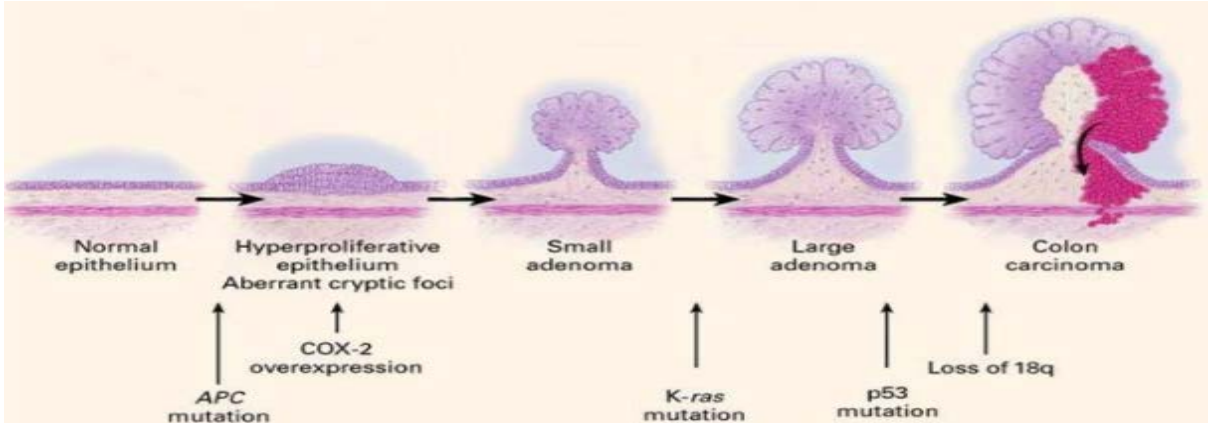

- Adenocortical carcinoma (ACC)
- Soft-tissue sarcoma < 45 yo
- Osteosarcoma
- Early-onset breast cancer < 45 yo
- Brain tumors: medulloblastoma, astrocytoma
- Leukemias

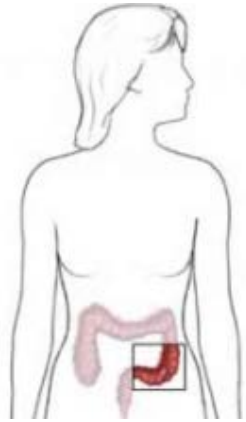
*SBLA*

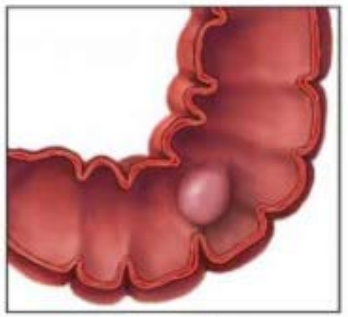
*(Sarcoma, Breast/brain, Leukemia and Adrenal)*

# Familial Adenomatous Polyposis (FAP)

- Prototypical hereditary polyposis syndrome
- Autosomal dominant
- Frequency about 1:10,000
- Account for about 1% of all colorectal cancers




Colon polyp

# Surveillance

| Familial Adenomatous Polyposis (FAP) | SCREENING RECOMMENDATIONS |
|---|---|
| **Colorectal cancer: 100%** | Colonoscopy annually, beginning age 10-12 yr continuing until age 35 to 40 if negative |
| **Duodenal or periampullary cancer: 5-10%**<br>**Gastric cancer: <1%** | Upper GI endoscopy every 1-3 yr, beginning age 20-25 yr or When polyps first identified |
| **Pancreatic cancer: 2%** | Possible periodic abdominal ultrasound |
| **Thyroid cancer: 2%** | Annual thyroid examination |
| **Central nervous system cancer: <1%** | Annual physical examination |

# Conclusions

- Tumor ≠ Cancer
- Characteristic of malignancies
- Suggestive malignancies
  1. Palpable mass: any sites- H&N, trunk, testis, extremities
  2. Proptosis
  3. Gum hypertrophy
  4. Abdominal distension
  5. Adnormal bleeding: petechiae, ecchymosis, bruise, hematuria, hematochezia
  6. Raccoon eyes

# Conclusions

- Suggestive malignancies
  7. Neurological changes
  8. Systemic symptoms
  9. Decreased movement
  10. Leukocoria
  11. Dermatitis liked
  12. Abnormal LAB
  13. History of cancer predisposition syndrome

*Early Detection is a key!!!!!!*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