

Approach to child with suspected malignancy

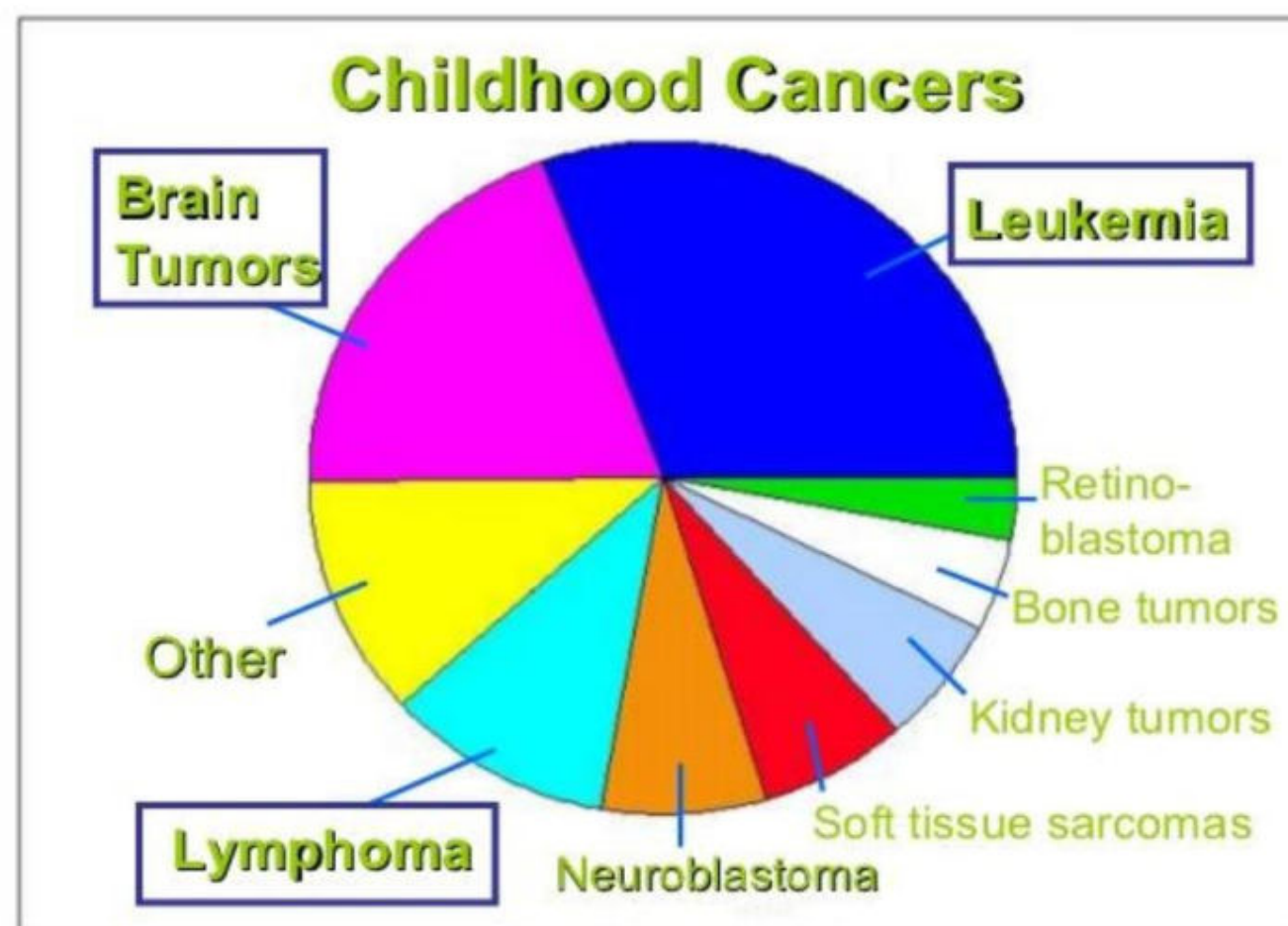
Department of Pediatrics

Objectives

- To recognize conditions that mimic cancer.
- To recognize symptoms suggestive of cancer.
- To interpret results of initial work up.
- To appreciate the importance of early referral of suspected cases.

How childhood malignancy different from adult malignancy

- Rare but important cause for mortality and morbidity for children <15 years
- Difficult to detect
- Clinical features nonspecific
- Mimic many common childhood disorders
- Clinico-biologically distinct
- Potentially curable



Incidence of Childhood Cancers

Leukemia-----	30.2
Central nervous system tumor--	21.7
Lymphoma-----	10.9
Neuroblastoma-----	8.2
Soft tissue sarcoma-----	7.0
Renal tumor-----	6.3
Bone tumor-----	4.7
Others-----	11.0

Specific Signs and Symptoms

Depend on

- type of cancer
- site(s) of disease
- age of patient

What are the symptoms?

- Anemia
- Bleeding
- Bone tenderness
- Lymphadenopathy
- Hepatosplenomegaly
- Headaches
- Mass; Abdominal / Mediastinal
- Fever

**Cancer in children may present
as**

- A mass
- Symptoms directly related to tumor
- Non specific symptoms related to tumor or metastatic growth

Symptoms that may indicate the presence of a malignancy in children

- Unexplained paleness and fatigue
- Loss of energy (limited time at play)
- Persistent localized pain or swelling
- Prolonged unexplained fever or illness, especially with bone pain
- Frequent headaches, especially in the morning, often with vomiting
- Sudden eye or vision changes
- Lymphadenopathy

Symptoms that may indicate the presence of a malignancy in children

- Excessive rapid weight loss
- Swelling of the face and neck
- Cat's eye reflex
- Limping
- Vaginal bleeding in a premenstrual child, or prolonged bleeding between or with periods, excessive bleeding during periods.

**Signs and Symptoms of Childhood Cancers and
Conditions That Can Mimic These Cancers**

Fever	Leukemia, lymphoma	Infection
Vomiting	Abdominal mass, brain tumor	Infection, gastroesophageal reflux
Constipation	Abdominal mass	Poor diet
Cough	Mediastinal mass	Upper respiratory infection, reactive airway disease, pneumonia
Bone or muscle pain	Leukemia, bone tumor, Neuroblastoma	Musculoskeletal injury, viral infection

**Signs and Symptoms of Childhood Cancers and
Conditions That Can Mimic These Cancers**

Headache	Brain tumor	Tension headache, migraine, infection
Lymphadenopathy (>3 cm)	Leukemia, lymphoma, metastatic disease	Lymphadenitis, systemic infection, collagen vascular disease
Hematuria	Wilms' tumor	Urinary tract infection, glomerulonephritis
Voiding difficulty	Rhabdomyosarcoma	Congenital urinary tract abnormalities

Symptoms Suggestive of Childhood Cancers:

Pallor, fatigue, malaise

Leukemia, lymphoma, neuroblastoma,
Wilms Tumor

Iron deficiency anemia

Symptoms Suggestive of Childhood Cancers:

Weight loss, night sweats

Hodgkin lymphoma

Neuroblastoma

Wilms Tumor

Viral infections, TB

What can permit an early diagnosis?

- Careful clinical examination
- Screening laboratory tests
- Appropriate radiologic studies
- Biopsy procedures

When and How to Evaluate Signs and Symptoms for Cancer

Fever		
Vomiting	Fever lasts > 14 days with no identifiable cause.	CBC with differential
	Vomiting lasts > 7 days with no identifiable cause.	Abdominal and head CT scans
	Vomiting is associated with headache during sleep.	Head CT scan
Constipation	Constipation is prolonged (>1 month) and does not respond to conventional measures.	Abdominal and pelvic CT scans
Cough		Chest radiograph
	Cough is prolonged (>2 weeks) and has no identifiable cause.	
Bone or muscle pain	Pain is prolonged (>2 weeks) and has no identifiable cause.	Plain-film radiograph, bone and CT scans, CBC

When and How to Evaluate Signs and Symptoms for Cancer

Headache	Headache occurs during sleep, is associated with neurologic signs and vomiting, or in the absence of a family history of migraine.	Head CT scan
Hematuria	Evaluate immediately if hematuria has no identifiable cause.	Abdominal U/S
Voiding difficulty	Evaluate immediately if voiding difficulty has no identifiable cause.	Abdominal U/S
Lymphadenopathy (>3 cm)	Evaluate if lymphadenopathy does not respond to a 7-day course of antibiotic.	CBC with differential, lactate dehydrogenase level

Clinical and epidemiological clues

Age and Cancer

Infancy - Embryonal tumors, neuroblastoma, retinoblastoma and hepatoblastoma.

Childhood: – Acute lymphatic leukemia and brain tumors.

Adolescents: - Lymphomas, rhabdomyosarcoma and Ewing's tumor.

Clinical and epidemiological clues

- Signs and symptoms according to 1^{ry} site and mets
 - Pulmonary
 - Abdominal
 - Neurologic
- Congenital anomalies

Laboratory tests

Essential lab.

CBC

Chemical profile; hepatic, renal, lytes and urinalysis

Bone marrow aspirate and/or biopsy

Lumber puncture

Tumor markers

NSE

AFP

HCG

Do's and don'ts for diagnosis of Pediatric Cancer

- Do not administer steroids in a suspected case of JRA without doing a BM aspiration.
- Do not start anti TB therapy/ antibiotics in patients with lymphadenopathy without a definite diagnosis.

Do's and don'ts for diagnosis of Pediatric Cancer

- Do a lymph node biopsy if FNAC is inconclusive and neoplasia is suspected.
- Give a blood transfusion prior to a definite diagnosis only if Hb is <5gm/dl or if there are impending features of CCF.
- Refer children suspected to have a neoplastic disease as early as possible.

THANK YOU

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