Abdominal Masses in Infants and Children

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MEDICAL IMAGING
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Imaging

- Identify the primary tumour mass
- Staging - Document the extent of disease (nodes, vascular encasement and involvement, intraspinal extension, metastasis)
- Biopsy
- Subsequent assessment response to treatment
Abdominal Mass

1. Ultrasound
2. CT scan or MRI
3. Nuclear medicine
   - Abdominal Series
Neonatal

• 55 %
  – Hydronephrosis
  – Multicystic Dysplastic Kidney
Hydronephrosis
Uretero-Pelvic Junction obstruction
Multicystic Dysplastic Kidney

- Non-functional kidney, replaced by multiple cysts and dysplastic tissue,

- Can vary in size from 10-15 cm to only 1-2 cm
Liver Tumors
In 2007, a new classification was proposed (Christison-Legay). Hepatic hemangiomas are divided into: focal, multifocal and diffuse lesions.
Mesenchymal hamartoma

- Mesenchimal hamartoma is usually seen in children up to 2-years-old
- considered the second most common benign hepatic tumors.
- It can be cystic/ multicystic or have more predominant stromal component with a Swiss-cheese appearance.
- They are developmental lesions and have mesenchymal tissue with bile ducts.
Hepatoblastoma

- is the most common primary hepatic neoplasm of childhood and accounts for 79% of all liver tumors in children.
- The typical presentation is that of an asymptomatic abdominal mass in a young child, usually under the age of 3 years, with a peak incidence seen between the ages of 18 and 24 months.
- An increased incidence has been noted in patients with Beckwith-Wiedemann syndrome, hemihypertrophy syndromes and those with familial adenomatous polyposis coli.
- Low birth weight infants have also been found to have an increased incidence.
Bone Scan

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<th>Time</th>
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MIBG
Neuroblastoma

- Peak age 2 y, 25%: 1st year
- 3rd most common malignancy in infants
- Anywhere sympathetic neural chain
- 36% adrenal
- Calcification in 85% (CT)
Neuroblastoma Staging

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<thead>
<tr>
<th>Tumor Stage</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>Localized tumor with complete gross excision, with or without microscopic residual disease; representative ipsilateral lymph nodes negative for tumor microscopically. Nodes attached to and removed with the primary tumor may be positive.</td>
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<tr>
<td>2A</td>
<td>Localized tumor with incomplete gross excision; representative ipsilateral nonadherent lymph nodes negative for tumor microscopically</td>
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<tr>
<td>2B</td>
<td>Localized tumor with or without complete gross excision, with ipsilateral nonadherent lymph nodes positive for tumor; enlarged contralateral lymph nodes negative microscopically</td>
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<td>3</td>
<td>Unresectable unilateral tumor infiltrating across the midline (beyond the opposite side of the vertebral column) with or without regional lymph node involvement, or midline tumor with bilateral extension via infiltration (unresectable) or lymph node involvement</td>
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<td>4</td>
<td>Any primary tumor with dissemination to distant lymph nodes, bone, bone marrow, liver, skin, and/or other organs (except as defined for stage 4S disease)</td>
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<td>4S</td>
<td>Localized primary tumor (as defined for stage 1, 2A, or 2B disease) with dissemination limited to skin, liver, and/or bone marrow (limited to infants younger than 1 year, marrow involvement of less than 10% of total nucleated cells, and MIBG scan findings negative in the marrow)</td>
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Abdominal Ultrasound
CT Abdomen with contrast
Bilateral Wilm’s Tumour and Nephroblastomatosis
Wilm’s Tumour

- commonest malignant abdominal neoplasm in children under the age of 9 years.
- Peak at 3-4 years of age
- Accounts for up to 12% of childhood cancers
- And for 90% of pediatric renal tumours
Wilm’s Tumour

- At presentation they are typically large and spherical
- Average diameter 12cm
- They usually compress and distort the collecting system
- It could contain calcifications which are usually curvilinear
- Metastasis: Lungs ++++
  Nodes
Multilocular Cystic Renal Tumor

Multilocular cystic renal tumors tend to manifest at two age peaks: in children aged 3 months to 4 years (predominantly boys with cystic partially differentiated nephroblastoma) and in adults (predominantly women with cystic nephroma).

Patients frequently present with a painless abdominal mass, and systemic symptoms are rare.
Thank You!