Lymphadenopathy and Lymphadenitis

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Skip straight to lymphadenitis guideline

Background

- Most lymphadenopathy is due to benign self-limited disease, such as viral or bacterial infection
- Lymph nodes < 1cm are normal in children aged < 12 years. Axillary nodes up to 1 cm and inguinal nodes up to 1.5 cm also usually normal.
- If swelling is near the jaw line consider a **dental infection** – will need referral to Max-Facs, antibiotics, and OPG x-ray. See dental infections guideline.
- **Supraclavicular nodes of any size at any age warrant further investigation**

Definitions

**Lymphadenopathy:** enlarged lymph node(s). LN > 2cm have increased chance of being caused by serious pathology.

**Lymphadenitis:** enlarged lymph node that is due to an inflammatory / infective process; usually warm, tender, erythematous +/- systemically unwell

**Generalised lymphadenopathy:** lymph nodes enlarged in 2 or more non-contiguous areas

**Localised lymphadenopathy:** lymph nodes enlarged in only one area

**Acute lymphadenopathy:** < 2 weeks

**Subacute lymphadenopathy:** 2 – 6 weeks

**Chronic lymphadenopathy:** > 6 weeks

Aetiology

See endnotes for a quick guide to infections.

<table>
<thead>
<tr>
<th>Timing</th>
<th>Symmetry</th>
<th>Common</th>
<th>Less common</th>
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</thead>
<tbody>
<tr>
<td>Acute</td>
<td>Unilateral</td>
<td>Lymphadenitis – staph aureus and group A strep Newborn: staph aureus</td>
<td>GBS (age 3 – 7 wks) Anaerobes Kawasaki Malignancy LCH*</td>
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<tr>
<td></td>
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<td>Viral URTI – adenovirus, influenza, RSV Group A strep (age &gt;3yrs) EBV</td>
<td>CMV Malignancy LCH*</td>
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<tr>
<td>Chronic</td>
<td>Unilateral</td>
<td>Non-tuberculous mycoplasma (age &lt;5yrs) Cat scratch disease Malignancy – lymphoma, leukaemia</td>
<td>Toxoplasmosis TB LCH*</td>
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<tr>
<td></td>
<td>Bilateral</td>
<td>EBV CMV Malignancy – lymphoma, leukaemia</td>
<td>Toxoplasmosis HIV TB LCH*</td>
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</table>

*LCH = Langerhans cell histiocytosis
Assessment

History – ask about:
- Characteristics of lymph node – onset, size, duration, pain, distribution
- Recent infections – sore throat, earache, rash
- Constitutional symptoms – fever, night sweats, weight loss
- Ill contacts
- Recent travel and exposure to TB
- Food – unpasteurised milk, undercooked meats
- Immunisation - BCG
- Pets – most importantly cats
- Sexual history in adolescents
Examination
- Lymph node – size, site, colour, tender/non-tender, mobile, distribution, fluctuant, consistency
- Examine all lymph nodes regions
- Head and neck – oropharynx, conjunctiva, ears, scalp
- Abdomen – hepatosplenomegaly
- Skin – rashes, pallor

Investigations

First line
- Blood tests
  1. FBC, blood film, ESR, CRP (inflammatory markers usually raised in malignancy), LFT, LDH (can be useful if very high or normal), monospot. Add blood culture if febrile.
  2. Serology – EBV, CMV, ASOT and save serum
  3. Consider HIV, toxoplasmosis, B henselae (Cat scratch) serology based on consideration of immunosuppression and risk
- CXR – if concerned about malignancy or TB
- Ultrasound of node - may be used to diagnose abscess. Discuss with Radiologist prior to requesting.

Second line:
- Mantoux test – Done in clinic Mon / Wed by TB Nurse.
- Quantiferon test – blood test done Mon – Fri 9 am – 4 pm (must be in lab before 4pm)
- Consider biopsy – discuss with Dr Davidson, Dr Fidler or Dr Wynne as well as ENT or general paediatric surgeon. If biopsy is performed locally, the samples must be sent for microbiology, mycobacteria and histopathology.

It is important to ensure a clear follow up plan is made to review child with results.
Management (see pathway)

**If you think a patient needs a biopsy, d/w Dr Wynne / Dr Davidson**

**If they need TB investigation, d/w Dr Katy Fidler or Respiratory Team**

1. **Acute** – usually reactive lymphadenopathy secondary to clear pathology e.g. acute tonsillitis / otitis media / eczema flare OR lymphadenitis. Consider malignancy.
   - Treat underlying cause.

   **Management of lymphadenitis**
   
   a) Severe – massive lymphadenopathy, systemically unwell (fever, vomiting), evidence of abscess formation.
      - Admit
      - I.V co-amoxiclav
      - Consider USS (discuss with Radiology) and Surgical referral for abscess – fluctuance / persistence of fever despite oral antibiotics
   
   b) Mild
      - Oral co-amoxiclav
      - GP follow up 2 days
      - Oral antibiotics can have limited penetration into lymph node and take some time to work – consider I.V if no resolution of fever 48 hours

2. **Sub-acute** – likely secondary to recent infection. Must consider malignancy / serological disease / mycobacterium
   - Investigate - bloods and CXR.
   - If unexplained, consider course of oral co-amoxiclav for 2 weeks and arrange follow up with GP or at RACH to ensure resolution – d/w CED Senior doctor, COW or Consultant in clinic depending on where patient is seen.
   - Safety-net for malignancy – rapid growth of nodes, systemic upset (night sweats / fever / weight loss) or signs of SVC obstruction.

3. **Chronic** – rule out malignancy or mycobacterium
   - Benign looking lymphadenopathy:
      - Investigate - bloods and CXR.
      - Safety-net for malignancy – rapid growth, systemic upset or signs of SVC obstruction.
   - Bigger nodes not obviously infected:
      - Investigate - bloods and CXR. Consider ultrasound of node (discuss with Radiology prior to requesting).
      - Consider course of oral co-amoxiclav for 2 weeks and arrange follow up. Safety net for malignancy – rapid growth, systemic upset or signs of SVC obstruction.
Notes: Quick guide to infections

<table>
<thead>
<tr>
<th>Infection</th>
<th>Common clinical features</th>
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<tr>
<td>Anaerobes</td>
<td>Lymphadenopathy, periodontal disease</td>
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<tr>
<td>Brucellosis</td>
<td>Lymphadenitis, Fever, sweats, malaise, weight loss, ingestion of unpasteurised milk, exposure to cattle/sheep/goats</td>
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<td>Cat scratch</td>
<td>Tender, axillary / cervical / submandibular / epitrochlear node, history of cat scratch/lick in previous 2 weeks (90%), possible papule at site</td>
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<tr>
<td>CMV</td>
<td>Fever, malaise, hepatosplenomegaly (occasional), older children</td>
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<tr>
<td>EBV</td>
<td>Tonsillopharyngitis, splenomegaly (&gt;50%), fever, malaise, older children, posterior cervical and / or generalised nodes.</td>
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<td>GAS + Staph aureus</td>
<td>Clinical features not useful in distinguishing the two, recent URI or impetigo, node 3-6cm, 25-33% suppurate and fluctuant</td>
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<td>GBS</td>
<td>“Cellulitis-adenitis” syndrome, febrile, irritable, poor feed, submandibular, node with overlying cellulitis, bacteraemia common. Exclude concurrent meningitis in neonates.</td>
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<td>HIV</td>
<td>Recurrent bacterial infection, opportunistic infection, fever, diarrhoea, encephalopathy, failure to thrive, hepatosplenomegaly, generalised lymphadenopathy.</td>
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<td>Kawasaki</td>
<td>Conjunctivitis, skin peeling on hands, diffuse rash, strawberry tongue, fever, single non-tender non-purulent node</td>
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<td>NTM</td>
<td>Signs are very characteristic, submandibular (87%) and preauricular/parotid (9%), mostly unilateral (98.6%), violaceous discoloration of overlying skin, tender, rubbery</td>
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<td>Syphilis</td>
<td>Rash, fever, malaise, anorexia, weight loss, hepatomegaly, LN near site of chancre or generalised. Epitrochlear LN.</td>
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<tr>
<td>Toxoplasmosis</td>
<td>Mostly asymptomatic, myalgia, fatigue, fever, splenomegaly, maculopapular rash, cat exposure, ingestion of partially cooked meat</td>
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<tr>
<td>Viral reactive</td>
<td>Diffuse non-tender nodes, may persist for weeks, especially ENT-related.</td>
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Features which may prompt a lymph node biopsy in a child with peripheral lymphadenopathy.