Cervical Swelling: What in the Neck is It?

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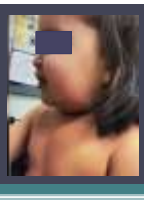
What in the Neck is it?



Chief Complaint: 17 month old with neck area swelling

Management Decision Matrix

History & Physical

- Acute or chronic?
- Degree of tenderness?
- Unilateral or bilateral?
- Associated localized or systemic symptoms?
- Location – Anatomic relationships
- Exposure history

Management Decisions

- Empiric treatment (Abx) warranted?
- Diagnostic studies appropriate?
- Is referral to subspecialist needed?

Cervical Swelling: What in the Neck is it?

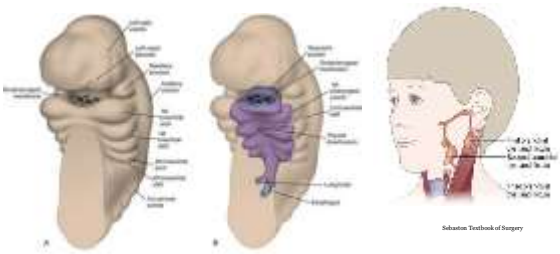
Congenital

- Branchial cleft cyst
- Thyroglossal duct cyst
- Cystic Hygroma
- Thymic Cyst
- Thyroid nodule
- Hemangioma
- Dermoid/Epidermoid cyst
- Teratoma

Acquired

- Inflammatory
  - Infectious (viral, bacterial/mycobacterial, fungal, parasitic)
  - Non-infectious
    - Reactive, Kawasaki Syndrome, Systemic Lupus Erythematosus
    - Kikuchi histiocytic necrotizing lymphadenitis
- Neoplastic
  - Benign (lipoma, hemangioma, fibroma, adenoma)
  - Malignant

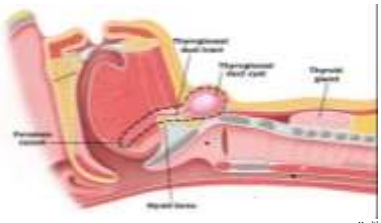
Branchial Clefts



Sperling, VR

Sabaston Textbook of Surgery

Thyroglossal Duct Cyst



Healthmaz.com

Branchial Cleft Cyst

- Consider when:
  - Mass is in lateral neck region, esp anterior to the sternocleidomastoid muscle
  - Dimple, pit or possible sinus tract noted
  - May be asymptomatic
  - Recurrent symptoms

Thyroglossal Duct Cyst

- Consider when:
  - Mass is midline
  - Moves with tongue movement

Doernbecher Children's Hospital

Cystic Hygroma

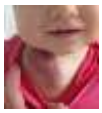
- Consider when:
  - Large, non tender mass
  - Located lower neck
  - "Crosses" landmarks
  - Sudden expansion respiratory compromise
  - Expands into surrounding tissue

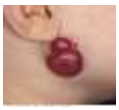
Boyle, KP, NeoReviews 2006

Thymic Cyst

- Consider when:
  - Location in path of 3rd branchial cleft
  - Anterior and deep to the sternocleidomastoid muscle

Hemangiomas





Dermoid/Epidermoid Cyst

Thyroid Nodule

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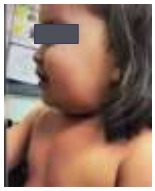
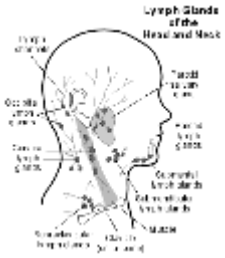
Clinical Case #1

- 17 mos old – 3 wks of progressive left neck swelling
- Initially noted mild URI symptoms but no associated fever, pharyngitis or noticeable weight loss
- Vital signs – unremarkable
- PE: Normal except 3.5 cm swelling left anterior cervical neck with overlying erythema, 1-2+ tenderness



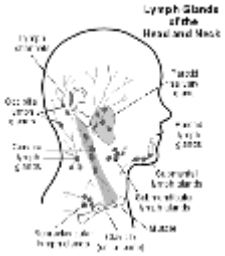
Parotid Gland



Parotitis

- Viral Pathogens:
  - Mumps
  - EBV
  - Coxsackie
  - Influenza A
  - Parainfluenza
- Bacterial Pathogens:
  - Staphylococcus aureus
  - Streptococcus species
  - Anaerobes (adults)

Lymph Glands – Infectious Agents



- Anterior cervical chain
- Posterior cervical chain
- Occipital nodes
- Submandibular nodes
- Submental nodes
- Supraclavicular nodes

Cervical Adenitis: Inflammatory - Infectious Pathogens

Bacterial	Viral
• Staphylococcus aureus • Streptococcus pyogenes • Mycobacterium M. tuberculosis M. Avium Complex M. marinum • Bartonella hensalae • Nocardia asteroides • Actinomyces israelii	• Epstein Barr Virus • Enteroviruses • Adenovirus • Cytomegalovirus • HIV

Cervical Adenitis: Inflammatory - Infectious Pathogens

Fungal	Parasitic
• Coccidioides immitis • Histoplasma capsulatum	• Toxoplasma gondii

Clinical Case #1

Initial Management

- Labs: CBC, CRP, ESR, LDH, Blood culture, EBV panel, Bartonella IgM, IgG, lytes, creatinine, BUN
- Rx: TMP-S

Clinical Course

- Abx changed to augmentin
- HNS -> PPD, add clarithromycin
- Peds ID referral

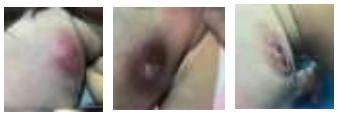
Diagnostic Studies

- CRP = 3.5 mg/l
- ESR = 18 m;hr
- LDH 229
- EBV panel: Neg VCA-IgG, VCA-IgM EBV Ab all negative
- Bartonella henselae IgM, IgG = negative
- Toxopama gondii IgM, IgG = neg
- Coccidioides IgM,IgG = negative
- PPD – 22 mm induration

Dx: Scrofula/ Mycobacterium tuberculosis

Mycobacterium tuberculosis Adenitis

10 days, 3 mos and 4 mos of INH + Rifampin



@ 5 months

Non-tuberculous Mycobacterium Avium Complex Lymphadenitis

- Age: 1- 5 yrs
- Unilateral and predominately submandibular nodes involved
- Associated overlying violaceous discoloration and fluctuant
- PPD 5-10 mm induration
- Treatment
  - Surgical excision
  - Clarithromycin (or Azithromycin) + ethambutol +/- rifabutin (or rifampin)
  - Duration of antibiotic treatment unknown

Clinical Case #2

- 3 yo with 3-4 day history of progressive right neck area swelling
- No associated fever , URI symptoms
- Travel History: Visited family in Bakersfield for 2 weeks ago with outdoor activities including a Petting Zoo. + pet dog
- Vital Signs: unremarkable
- PE: Unremarkable except for 2-3 cm left neck mass with 2 + tenderness and slight overlying erythema, multiple insect bites with single small pustule on cheek

Diagnostic Work Up?

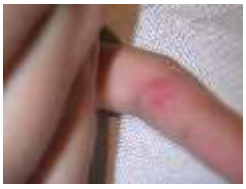
Clincal Case #2 – Differential Diagnosis

History -> Acute + Unilateral – Infectious
Tenderness – Suppurative -> Bacterial
Associated skin lesion –> Innoculation site/organismso

Travel Hx -> Cocci?
Animal/Pets -> but not cat ?

DDX: Adenitis secondary to S. aureus or Strep pyogenes
Pustuar lesion -> Other?

Cat Scratch Lymphadenitis



Sheldon Kaplan, MD

Cat Scratch Lymphadenitis

- Etiologic agent: Bartonella henselae
- Clinical Course
  - Spontaneous resolution
  - Suppurate spontaneously (10-25%)
- Treatment
  - Short term vs long term outcome
  - Azithromycin vs Observation

Toxoplasmosis

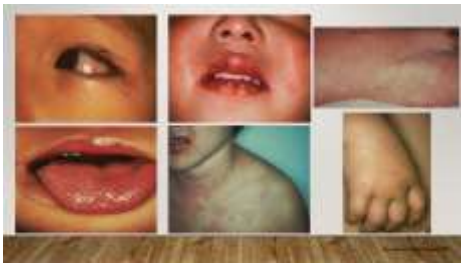
- Protozoan parasite – Toxoplama gondii
- Present in small intestine of cats in oocysts form
- Environment:
  - Contaminated soil, water
  - Ingestion of raw beef or cured/dried/smoked meats
- Seroprevalence rate ~ 11%, higher in other countries
- Ocular toxoplasmosis
- Treatment: Pyrimethamine + Sulfadiazine w/leucovorin (? TMP-S?)

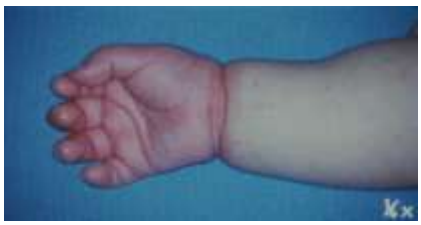
Cervical Adenitis: Non-Infectious Pathogens

Inflammatory	Neoplastic
•Reactive Lymphadenitis •Kawasaki Syndrome •Systemic Lupus Erythematosus •Kikuchi histiocytic necrotizing lympadenitis	•Lymphoma ▫Consider if: ·Posterior triangle tumor ·Multiple anterior triangle tumors ·Anterior + Posterior triangle tumors ·Overlying/adjacent to thyroid gland

Clinical Case #3

14 month old female with fever x 5 days. Fevers to 102 F with left neck swelling on 3rd day of fever and amoxicillin/clavulanate Rxed.
Fevers persisted with development of non purulent conjunctivitis and some redness of tongue and lips. Erythematous rash on trunk and accentuated in the diaper area. Additional questioning revealed potentially some mild of swelling of fingers.





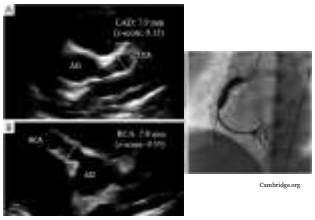
Kawasaki Syndrome

1. Erythema and cracking of lips, strawberry tongue, and/or erythema of oral and pharyngeal mucosa
2. Bilateral bulbar conjunctival injection without exudate
3. Rash: maculopapular, diffuse erythroderma, or erythema multiforme-like
4. Erythema and edema of the hands and feet in acute phase and/or periungual desquamation in subacute phase
5. Cervical lymphadenopathy (≥1.5 cm diameter), usually unilateral

Kawasaki Syndrome

Diagnostic Testing

- CBC
- CRP
- Urinalysis
- Albumin
- LFTs
- EBV panel
- Echocardiogram
- Don't Forget Measles!

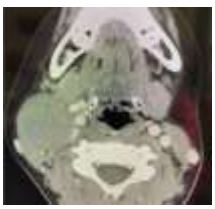


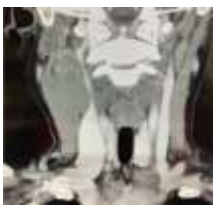
Researchgate.net

Cumbridge.org

Clinical Case # 4

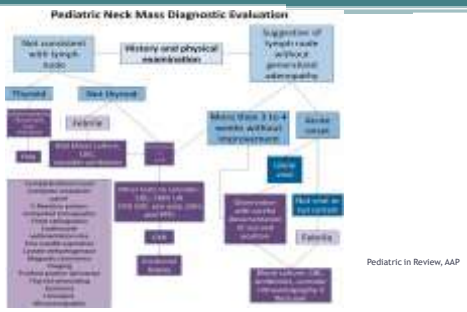
- 10 ½ year old Asian male
- Neck swelling first noted ~ 3 months prior
- Empiric amox/clavulanate – clinical improvement
- Admitted with 5 x 8 cm neck mass, IV clindamycin + ceftriaxone
- Labs/CXR normal except elevated CRP/ESR
- Discharged home on oral abx w/normal CRP and ESR = 28
- Swelling persisted at f/u visit





3.5 x 3.3 x 4.2 cm mass anterior to sternocleidomastoid

Biopsy – Necrotic mass -> Burkitt's lymphoma



Pediatric in Review, AAP

Management Decision Matrix

- Acute or Chronic?
- Degree of tenderness?
- Unilateral or Bilateral?
- Localized or Systemic Symptoms?
- Location – Anatomic
  - Congenital -> Empiric Tx warranted, earlier radiographic studies
  - Lymph node (s) or Parotid gland -> Observation vs Empiric Tx; diagnostic studies vs observation
- Exposure history – CSD, TB, Toxo, Cocci, Syphillis
- Diagnostic studies appropriate?
- Empiric treatment (Abx) warranted?

Diagnostic Testing

- Observation
- Non-specific (inflammatory markers)
- Serologic (EBV, Bartonella, Cocci, Toxo,Histo, Syphilis)
- Radiographic/Imaging
- Other (PPD, Rheumatologic markers, r/o KS labs)
- Response to empiric treatment
- Microscopic (pathology/culture)

Diagnostic Decision Pathway

- Acute, bilateral -> Reactive -> Observation
- Acute , unilateral -> Assoc symptoms, degree of tenderness or inflammation -> Observation vs Empiric Abx
- Acute, unilateral with failed empiric Tx -> CBC, Serologies*, PPD, secondary empiric Abx. Consider ultrasound, CT/MRI (? HNS/ID referral?)
- Chronic -> CBC, Serologies*, Uric acid, LDH, PPD, ESR, CXR. Consider ultrasound, CT/MRI; Referral (HNS-Biopsy, ID, Heme-onc?)
- *EBV, CSD, Cocci, Toxo and if appropriate: Histo, Syphilis EIA

Treatment

- Warm compresses (+/-)
- Empiric Antibiotics IF suspicious for bacterial infxn
  - Cephalexin
  - Clindamycin
  - TMP-Sulfa
  - Tetracycline/Doxycycline (> 8 yrs of age)
  - ? Amoxicillin/Clavulanate?
  - Clarithromycin/Azithromycin (? + Ethambutol or rifampin?)