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May 4th, 11:30 AM - 1:30 PM

## **Diagnosis, Management, and Treatment of Lymphadenitis and Deep Neck Space Infections at a Children's Hospital**

Aaron Shaw

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## Research Abstract Title

**Submitting/Presenting Author (must be a trainee):** Aaron Shaw  
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- Medical Student  
 Resident/Psychology Intern ( $\leq 1$  month of dedicated research time)  
 Resident/Ph.D/post graduate ( $> 1$  month of dedicated research time)  
 Fellow

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**Other authors/contributors involved in project:**

- Brian Lee PhD, MPH
- Lauren Kazmaier

**IRB Number:** STUDY00001752

**Describe role of Submitting/Presenting Trainee in this project (limit 150 words):**  
Designed project, constructed REDCap database, performed over 60% of data collection from charts, supervised remaining data collection by medical student, and wrote abstract.

### **Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words**

**Background:** Although cervical lymphadenitis and deep neck space abscesses (DNSA) are relatively common pediatric diagnoses, no standardized approach exists for management of these infections.

**Objectives/Goal:** To assess variability in diagnosis and treatment of cervical lymphadenitis and DNSA in a children's hospital.

**Methods/Design:** Charts were obtained using ICD9/10 codes for diagnoses of retropharyngeal and parapharyngeal abscess, and lymphadenitis between 1/1/10-12/31/20. 1,237 charts were identified. Patients with a retropharyngeal and/or parapharyngeal abscess were defined as DNSA. Charts were excluded if the diagnosis was not a bacterial infection (e.g. Kawasaki disease), if the lymphadenitis was not in the neck, or if caused by less common bacteria (e.g. tuberculosis). Information on presenting signs, symptoms, imaging studies, antibiotics, microbiology results, and surgical interventions were collected. Statistical analyses between lymphadenitis and DNSA groups were performed with Fisher's exact t-test and Wilcoxon rank-sum test.

**Results:** 760 patients were identified; 419 patients were diagnosed with lymphadenitis, 252 with retropharyngeal abscess, and 127 with parapharyngeal abscess. 38 patients had more than one diagnosis. Median age differed between lymphadenitis and DNSA, but no difference was seen in gender or race between groups. (Table) Presenting symptoms, including neck swelling, skin color changes, dysphagia, drooling,

hoarseness, sore throat, and reduced neck range of motion were different between groups ( $p < 0.0001$ ) (Figure 1). Imaging and surgical drainage were more common in patients with DNSA. (Table) Group A streptococcus was the most common organism found in DNSA and Staphylococcus aureus was more common in adenitis. Despite this, >70% of patients with DNSA received  $\geq 2$  antibiotics. (Table). Clindamycin was the most commonly used antibiotic in 86.1% and 82.3% of patients with lymphadenitis and DNSA respectively, and the sole agent in 32.7% of all cases.

**Conclusions:** Children with lymphadenitis were younger and more likely to have neck swelling and discoloration than children with DNSA, were less likely to undergo imaging, and were less likely to receive more than 1 antibiotic. However, diagnostic and treatment strategies overlapped, demonstrating variability in the approach, highlighting an opportunity to standardize diagnosis and treatment of these infections.