

---

# American Family Physician

A peer reviewed journal of the American Academy of Family Physicians

November 1, 2008 Table of Contents

## FPIN's Clinical Inquiries

### Management of Cervical Lymphadenitis in Children

MICHAEL F. DULIN, MD, PHD, and TIMOTHY P. KENNARD, MD, *Carolinas Medical Center-Eastland Department of Family Medicine, Charlotte, North Carolina*

LAURA LEACH, MLIS, *Carolinas Healthcare System, Charlotte Area Health Education Center, Charlotte, North Carolina*

Clinical Commentary by RICHARD WILLIAMS, MD, *University of Nevada, Reno, Nevada*

#### Clinical Question

What is the appropriate management of cervical lymphadenitis in a child?

#### Evidence-Based Answer

Cervical lymphadenitis, defined as an acute symptomatic enlargement of the cervical lymph nodes, is a common condition in children of all ages. Most cases of cervical lymphadenitis in children are self-limited and can safely be monitored for spontaneous resolution over four to six weeks. (Strength of Recommendation [SOR]: C, based on expert opinion). If there is a failure to regress, or symptoms are consistent with a bacterial infection (e.g., unilateral lymphadenopathy, purulent skin drainage, tenderness, fever, node size larger than 3 cm in diameter), obtaining cultures and initiation of empiric antibiotics against *Staphylococcus aureus* or group A streptococcus are indicated. (SOR: C, based on disease-oriented evidence and expert opinion). A diagnostic ultrasonography or fine-needle aspiration can help guide further treatment. Excision of the cervical lymph node should be saved as a last resort because it has the highest risk of complications. (SOR: C, based on case series and expert opinion).

#### Evidence Summary

There is limited evidence to suggest a single definitive approach to the work-up and treatment of a child with cervical lymphadenitis. Nine studies examined the etiology of neck masses in small cohorts of children presenting to referral centers after failure of conservative therapy (Table 1<sup>1-6</sup>).<sup>1-5,7-10</sup> Even in a referral setting, most cases (87 to 100 percent) were related to a benign process, indicating that watchful waiting is a valid initial approach. A study of 19 cases of cervical lymphadenitis in children who were referred for surgical excision identified tenderness, bilateral lymphadenopathy, node size smaller than 3 cm in diameter, lack of systemic symptoms, and fluctuating node size to be associated with a reactive process that did not require further treatment.<sup>1</sup>

---

#### Table 1. Potential Causes of Cervical Lymphadenitis

---

**Common**

Viral infection: adenovirus, influenza virus, respiratory syncytial virus, rhinovirus, Epstein-Barr virus

Bacterial infection: *Staphylococcus aureus*, group A streptococcus

**Uncommon**

Bacterial infection: Bartonella, atypical mycobacterium, *Mycobacterium tuberculosis*

Neoplastic disease: lymphoma

Collagen vascular diseases

Kawasaki disease

**Rare**

Fungal infection

Viral infection: cytomegalovirus, human immunodeficiency virus, rubella virus, mumps, varicella-zoster virus

Anaerobic bacteria

Toxoplasmosis

Drugs: phenytoin (Dilantin), isoniazid, vaccines

Neoplastic: leukemia, neuroblastic tumors, neurofibromas, other soft tissue tumors

*Information from references 1 through 6.*

Two studies evaluated the usefulness of ultrasonography in the diagnosis of cervical lymphadenitis in children.<sup>2,7</sup> The first study, conducted in Greece, evaluated 102 consecutive children two months to 14 years of age who were referred for ultrasonography.<sup>2</sup> The second study, conducted in Poland, examined ultrasonography results in 87 children referred to an ear, nose, and throat specialist for evaluation of cervical lymphadenitis.<sup>7</sup> In both studies, ultrasonography findings were compared with a final diagnosis made by biopsy.<sup>2,7</sup> Based on these studies, ultrasonography appears to be a safe way to verify lymph node involvement and to provide accurate measurements of enlarged lymph nodes; however, ultrasonography was not able to differentiate benign and malignant forms of cervical lymphadenitis, and had a positive predictive value for malignancy of only 20 percent.<sup>2</sup>

Fine-needle aspiration was used to make the diagnosis in most of the studies evaluating etiology. No complications of fine-needle aspiration were reported, and no comparisons were made to excisional biopsy. One study examined 360 children undergoing excisional biopsy and found that 24 percent of patients had complications, such as hypertrophic scarring, recurrence, hematoma formation, wound infection, and nerve palsy, that were related to the procedure.<sup>3</sup> All of the studies were conducted in an inpatient setting or specialist office; therefore, results may not be applicable to the primary care setting.

**Recommendations from Others**

The textbook *Principles and Practice of Pediatric Infectious Diseases* recommends that cervical lymphadenitis that is bilateral, with node size smaller than 3 cm, and that is not erythematous or exquisitely tender should be observed without further evaluation or treatment.<sup>6</sup> Cervical lymphadenitis should be empirically treated with antibiotics if patients have no systemic symptoms, node size larger than 2 to 3 cm in diameter, unilateral lymphadenopathy, erythema, and tenderness. Antibiotics should be targeted against *S. aureus* and group A streptococcus, and should include a 10-day course of oral cephalexin (Keflex), amoxicillin/clavulanate (Augmentin), or clindamycin (Cleocin). Symptoms that should prompt consideration of biopsy to rule out malignancy include supraclavicular node location, node size larger than 2 cm in diameter, enlargement for more than two weeks, no decrease in size after four to six weeks, lack of inflammation, firm or rubbery consistency, ulceration, failure to respond to antibiotic therapy, and systemic symptoms (e.g., fever, weight loss, hepatosplenomegaly). Finally, cervical

lymphadenitis with abscess formation will require fine-needle aspiration or surgical excision.

## Clinical Commentary

Cervical lymphadenitis in children can be difficult to manage for physicians. The challenge is the many potential etiologies. Also, the majority of cases of lymphadenitis are benign, but malignancy remains a rare possibility. Very little evidence exists, so recommendations generally rely on expert opinion for appropriate management. This review describes a common and acceptable approach of watchful waiting, a trial of antibiotics, and, if the lymphadenitis does not resolve, a biopsy. As shown by the evidence, I have not found ultrasonography to be helpful because it fails to differentiate benign from malignant lymphadenitis, and it is generally not needed to diagnose an abscess. The clinical presentation is also an important consideration. For example, if mononucleosis is likely, perhaps a serum mononucleosis spot test or Epstein-Barr virus titer would be a more appropriate step than biopsy.

Copyright Family Physicians Inquiries Network. Used with permission.

Address correspondence by e-mail to Michael F. Dulin, MD, PhD, at [michael.dulin@carolinashalthcare.org](mailto:michael.dulin@carolinashalthcare.org). Reprints are not available from the authors.

Author disclosure: Nothing to disclose.

## REFERENCES

1. Srouji IA, Okpala N, Nilssen E, Birch S, Monnery P. Diagnostic cervical lymphadenectomy in children: a case for multidisciplinary assessment and formal management guidelines. *Int J Pediatr Otorhinolaryngol*. 2004;68(5):551-556.
2. Papakonstantinou O, Bakantaki A, Paspalaki P, Charoulakis N, Gourtsoyiannis N. High-resolution and color Doppler ultrasonography of cervical lymphadenopathy in children. *Acta Radiol*. 2001;42(5):470-476.
3. Connolly AA, MacKenzie K. Paediatric neck masses-a diagnostic dilemma. *J Laryngol Otol*. 1997;111(6):541-545.
4. Torsiglieri AJ Jr, Tom LW, Ross AJ III, Wetmore RF, Handler SD, Potsic WP. Pediatric neck masses: guidelines for evaluation. *Int J Pediatr Otorhinolaryngol*. 1988;16(3):199-210.
5. Yamauchi T, Ferrieri P, Anthony BF. The aetiology of acute cervical adenitis in children: serological and bacteriological studies. *J Med Microbiol*. 1980;13(1):37-43.
6. Long SS, Pickering LK, Prober CG. Principles and Practice of Pediatric *Infectious Diseases*. 2nd ed. New York, NY: Churchill Livingstone; 2003.
7. Niedzielska G, Kotowski M, Niedzielski A, Dybiec E, Wieczorek P. Cervical lymphadenopathy in children-incidence and diagnostic management. *Int J Pediatr Otorhinolaryngol*. 2007;71(1):51-56.
8. Barton LL, Feigin RD. Childhood cervical lymphadenitis: a reappraisal. *J Pediatr*. 1974;84(6):846-852.
9. Dajani AS, Garcia RE, Wolinsky E. Etiology of cervical lymphadenitis in children. *N Engl J Med*. 1963;268:1329-1333.
10. Sundaresh HP, Kumar A, Hokanson JT, Novack AH. Etiology of cervical lymphadenitis in children. *Am Fam Physician*. 1981;24(1):147-151.

Clinical Inquiries provides answers to questions submitted by practicing family physicians to the Family Physicians Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review. The strength of recommendations and the level of evidence for individual studies are rated using criteria developed by the Evidence-Based Medicine Working Group ([http://www.cebm.net/levels\\_of\\_evidence.asp](http://www.cebm.net/levels_of_evidence.asp)).

The complete database of evidence-based questions and answers is copyrighted by FPIN. If interested in submitting questions or writing answers for this series, go to <http://www.fpin.org> or e-mail: [questions@fpin.org](mailto:questions@fpin.org).

Copyright © 2008 by the American Academy of Family Physicians.

This content is owned by the AAFP. A person viewing it online may make one printout of the material and may use that printout only for his or her personal, non-commercial reference. This material may not otherwise be downloaded, copied, printed, stored, transmitted or reproduced in any medium, whether now known or later invented, except as authorized in writing by the AAFP. Contact [afpserv@aafp.org](mailto:afpserv@aafp.org) for copyright questions and/or permission requests.