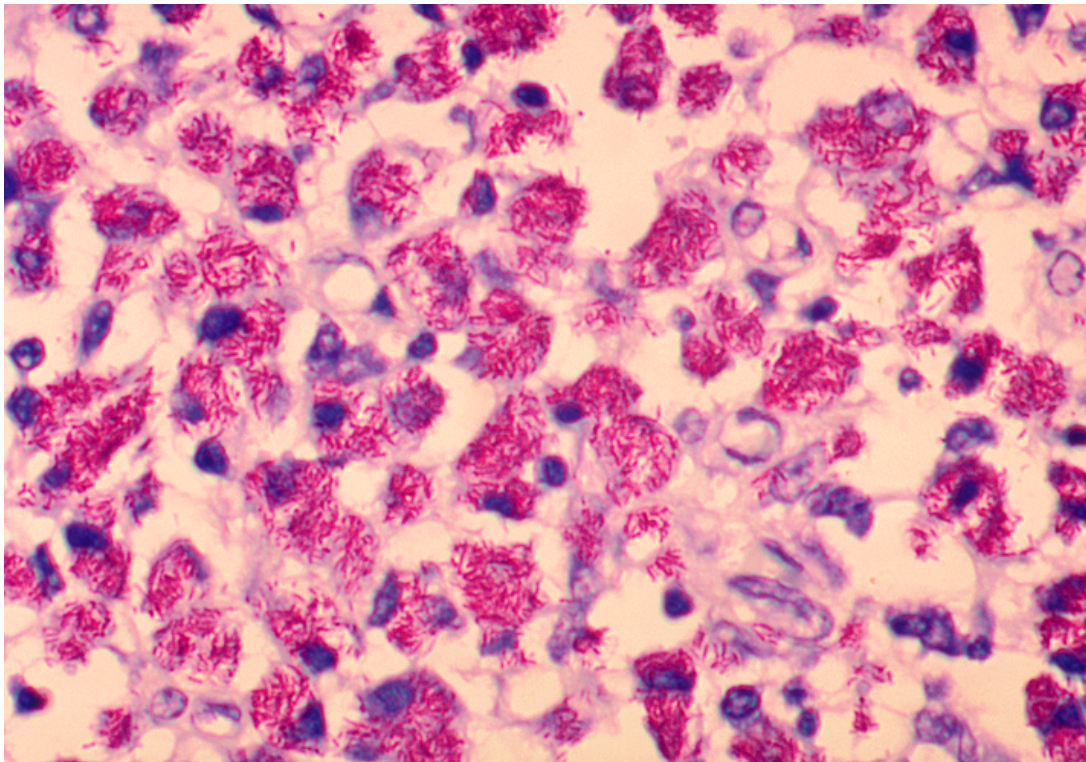


Cervical Lymphadenitis in Children — Symptoms and Treatment

[See online here](#)

Cervical lymphadenitis is a common condition in children that can be caused by staphylococcus, streptococcus, or other bacterial etiologies. Viral cervical lymphadenitis is also common but is usually less painful. Laboratory investigations are not needed to confirm the diagnosis but can provide supportive evidence about the primary focus of the infection. Treatment of bacterial cervical lymphadenitis is mainly antibiotic therapy with clindamycin or an anti-staph antibiotic.



Definition of Cervical Lymphadenitis in Children

Cervical lymphadenitis is defined as inflammation and enlargement of the **lymph nodes in the neck region following a bacterial or viral infection. It is often associated with lymphadenopathy.** Cervical lymphadenopathy is defined as an enlargement of a cervical lymph node to 1 cm in diameter or more. The lymphadenitis is closely associated with streptococcal pharyngitis and upper respiratory tract infection by viruses.

Epidemiology of Cervical Lymphadenitis in Children

Cervical lymphadenitis is a common condition in children of both sexes. Cervical lymphadenitis and cervical lymphadenopathy are usually a complication of another disease. **The most common etiologies are viral upper respiratory tract infections, bacterial throat infections, and malignancies.** Malignancies are not covered in this discussion as they usually result in cervical lymphadenopathy rather than cervical lymphadenitis, which denotes an inflammatory response.

Current data do not show any gender differences in the incidence of cervical lymphadenitis. The condition seems to be more commonly associated with bacterial throat infections due to *Streptococcus* species rather than viral upper respiratory tract infections.

Other possible risk factors for cervical lymphadenitis include [Kawasaki disease](#) or other inflammatory conditions.

Bacterial cervical lymphadenitis

- *Staph aureus*
- *Group A streptococcus*
- *Anaerobes*
- *Mycobacterium avium complex*
- *Bartonella henselae* (cat scratch disease)
- Rare:
 - [Tuberculosis](#)
 - Tularemia
 - Bubonic plague

Pathophysiology of Cervical Lymphadenitis in Children

Cervical lymph nodes are **responsible for the lymphatic drainage of the mastoid, other tissues of the neck, the parotid gland, the [larynx](#), the [trachea](#), and the [thyroid gland](#).** Therefore, it is understandable that an acute infectious process of any of these areas can result in cervical lymph node enlargement, which is usually painful with bacterial etiologies.

The pathological change responsible for lymph node enlargement is thought to be lymph node infiltration with inflammatory cells, histiocytes, and plasma cells. Direct invasion of the lymph nodes with bacterial pathogens can also be implicated in the pathology of the condition.

The most common etiology of cervical lymphadenopathy in children is a reactive process to a viral upper respiratory tract infection. **Rhinovirus, adenovirus, influenza viruses and parainfluenza viruses** have all been associated with reactive cervical lymphadenitis.

Bacterial lymphadenitis might happen in children and is usually caused by *Streptococcus* and *Staphylococcus aureus*. Patients with dental caries are at risk of developing anaerobic bacterial cervical lymphadenitis.

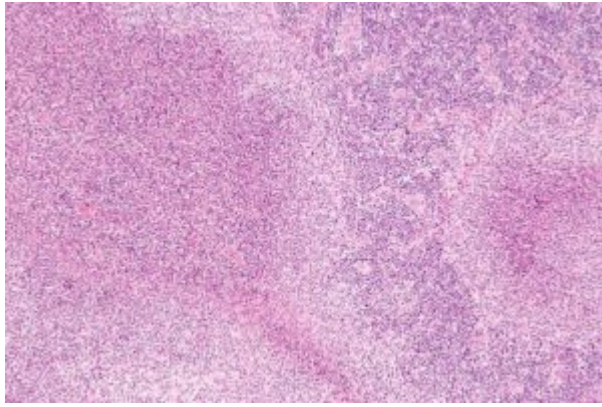


Image: "Intermediate magnification micrograph of cat scratch disease, also known as subacute regional lymphadenitis and cat scratch fever. H&E stain. It is caused by *Bartonella henselae*," by Nephron - Own work. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Group B Streptococcus can cause cervical lymphadenitis in infants while those who are not immunized against *Haemophilus influenzae* type B are at risk of developing cervical lymphadenitis due to this pathogen. Cat scratch disease, which is caused by *Bartonella henselae*, is another cause of cervical lymphadenitis in children.

Children infected with the protozoan [toxoplasmosis](#) can present with chronic cervical lymphadenitis. The affected lymph nodes are usually within the neck and head regions.

[Neuroblastoma](#), [leukemia](#), and lymphoma can cause cervical lymphadenopathy, not lymphadenitis. The cervical lymph nodes are enlarged similar to lymphadenitis, but they are usually not painful.

Is it cancer?

- Usually multiple nodes
- Firm and "rubbery"
- Matted, immobile
- Nontender
- History of weight loss, other signs of disease

Clinical Presentation of Cervical Lymphadenitis in Children

The child's age is very important in predicting the most likely organism to be involved with lymphadenitis. For example, neonates are more likely to have cervical lymphadenitis that is caused by *Staphylococcus aureus* and *group B streptococcus*.

On the other hand, children aged between one and four years, when they develop cervical lymphadenitis, should be evaluated for possible *group A Streptococcus* or *Staphylococcus aureus*. Older children with cervical lymphadenitis are more likely to have toxoplasmosis or cat scratch disease. **Older children with dental caries or other dental problems might have anaerobic lymphadenitis.**

The presence of a [fever](#), [cough](#) and throat pain are suggestive of a viral or a bacterial upper respiratory tract infection. Patients might describe a recent medical history of acute tonsillitis before the onset of cervical lymphadenitis.

Physical examination of the cervical lymph nodes usually reveals painful, tender, small masses that can have skin erythema over them. The lymph nodes should be mobile, a sign suggestive of benign rather than malignant disease.

The anterior cervical lymph nodes are more likely to be involved with infectious etiologies of lymphadenitis, while posterior and supraclavicular lymphadenopathy is more likely to be associated with malignant disease.

Ear, nose and throat examination is indicated to exclude possible tonsillitis, an upper respiratory tract infection or a middle ear infection. Patients might also have skin infections in the neck or head region, which could explain the presence of cervical lymphadenitis.

Diagnostic Workup for Cervical Lymphadenitis in Children

Children presenting with painful and acute cervical lymphadenitis rarely need any further workup. If a complete blood count is ordered, **leukocytosis might be observed**.

Patients with viral etiologies of cervical lymphadenitis, especially those with mononucleosis, can have lymphocytosis. Erythrocyte sedimentation rate might also be checked in patients with lymphadenitis, and it is usually elevated. C-reactive protein, another inflammatory and acute phase reactant, is usually elevated in cases of bacterial lymphadenitis.

Patients with suspected streptococcal throat infection might benefit from a rapid streptococcal antigen test. These tests can detect certain streptococcal antigens but sometimes are not sensitive enough. The gold standard is to perform a throat swab culture for the identification of *Streptococcus*.

Patients with suspected cat-scratch disease should undergo **serologic testing to detect specific antibodies against the causative organism *B henselae***. Patients with toxoplasmosis can present with chronic cervical lymphadenitis without any other symptoms. Serology testing might also be useful in this group of patients.

Patients with bacterial cervical lymphadenitis might need to undergo **advanced testing procedures to identify the infecting organism and its antibiotic-sensitivity profile**. Fine-needle aspiration of the affected lymph node, followed by culturing of the aspirate, is both reliable and feasible. When this procedure is used, it is advisable to perform specific cultures for gram-positive and negative organisms in addition to anaerobic bacteria.

Sometimes, the decision to order certain culture types can be dependent on the results of a gram-stain test of the lymph node aspirate. If the gram-stain test result is positive for bacteria, then bacterial cultures are indicated. When gram-stain test results are negative, it might be needed to perform fungal cultures in addition to bacterial routine cultures.

- Ultrasound
- CT of the neck
- MRI of the neck

Treatment of Cervical Lymphadenitis in Children

The decision to treat cervical lymphadenitis is largely dependent on the patient's age and the ability to identify a primary focus for the infection. When the primary focus of the infection cannot be identified, [broad-spectrum antibiotics](#) against *Staphylococcus aureus* and *Streptococcus* are indicated. Cloxacillin and clindamycin are two good options with good coverage against these two common causative organisms of bacterial lymphadenitis.

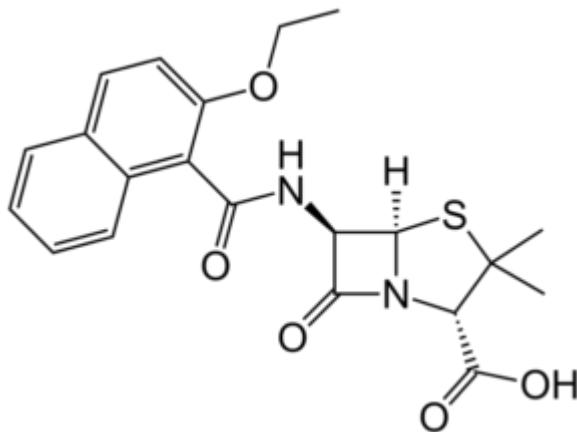


Image: "Structural diagram of nafcillin," by Fvasconcellos - Own work. License: Public Domain

Children who have cervical lymphadenitis most likely due to anaerobic bacteria caused by the presence of dental caries should receive clindamycin. Children to whom oral antibiotics are toxic and make them very ill might need to be treated with intravenous nafcillin, an anti-staph.

Children with acute bacterial cervical lymphadenitis usually complain of pain.

Acetaminophen is a good option for analgesic relief.

Patients who do not respond to empirical antibiotic therapy might develop a cervical lymph node abscess. The patient can develop a high-grade fever, and the affected lymph node might become fluctuant and very tender to touch. Incision and drainage of the affected lymph node are indicated in that case.

Empirical antibiotic selection	
• Start oral: amoxicillin/ clavulanate	
If admission needed	
• Ampicillin/ Sulbactam • Clindamycin	
⇒ For MAC	⇒ For Bartonella
• Surgical excision	• Supportive therapy • Azithromycin used, but often not effective

References

[Childhood cervical lymphadenopathy](#) via nih.gov

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