Unilateral suppurative cervical lymphadenitis is characterized by acute onset of 1 or more tender cervical lymph nodes and can lead to fever, cellulitis, abscess formation, and bacteremia. This form of lymphadenitis is usually caused by gram-positive bacteria. The present case details the treatment of a previously healthy 24-year-old man who presented with an acutely inflamed cervical lymph node. The patient did not respond to antibiotic monotherapy or combination antibiotics but recovered rapidly after methylprednisolone and osteopathic manipulative treatment were added to his care.

Management of Suppurative Cervical Lymphadenitis in a Healthy 24-Year-Old Man

Marlow Hernandez, MPH, OMS IV; Rayhanur Chowdhury, OMS IV; John Woods, MS, OMS IV; Jorge Cabrera, DO; and Patrick C. Hardigan, PhD

Cervical lymphadenitis is defined as 1 or more enlarged and tender lymph nodes of the neck and may be unilateral or bilateral. In general, both forms are self-limiting. Bilateral cervical lymphadenitis is usually caused by a viral upper respiratory infection; the unilateral form is typically caused by gram-positive bacteria. Acute lymphadenitis develops over days, whereas subacute or chronic lymphadenitis develops over weeks to months. Although the exact pathophysiology of unilateral lymphadenitis remains unclear, it is thought that pyogenic organisms such as *Staphylococcus aureus* and *Streptococcus pyogenes* cause acute reactions within the lymph node, manifested by a sudden onset of swelling, erythema, warmth, and tenderness. Recruitment of neutrophils to the lymph node may result in abscess formation.\(^1,2\)

In contrast to suppurative lymphadenitis, infections caused by *Mycobacteria*, fungi, and *Bartonella henselae* can become granulomatosus and develop over weeks to months.\(^3,7\) In these types of infections, lymph nodes can grow 3 to 6 cm in diameter and become erythematous, warm, and tender. Although systemic symptoms (eg, fever, tachycardia, malaise) may be present, they are milder than those seen with pyogenic infection. Nevertheless, one-third of infected nodes suppurate and become fluctuant.\(^8\)

Differential diagnosis for a unilateral neck mass may include the following: sialadenitis, infectious mononucleosis, Ludwig angina, sarcoidosis, tularemia, connective tissue disease, Kawasaki disease, PFAPA (periodic fever, aphthous stomatitis, pharyngitis, adenitis) syndrome, Kikuchi disease, toxoplasmosis, and medication effect.\(^9-20\) The best diagnostic test is a contrast-enhanced computed tomography (CT) scan.\(^2\)

The current standard of care for patients with acute cervical lymphadenitis is an orally administered, broad-spectrum antibiotic. Clindamycin or trimethoprim and sulfamethoxazole should be used to treat patients with suspected MRSA (methicillin-resistant *Staphylococcus aureus*). If periodontal disease is present, clindamycin or amoxicillin/clavulanate should be given for the management of possible *S aureus*, Group A *Streptococcus*, or oral anaerobic infection. Fine needle aspiration is recommended for patients who do not improve within 48 to 72 hours after being administered antibiotics. If symptoms progress despite appropriate antimicrobial therapy, incision and drainage is recommended.\(^2,8\)

**Report of Case**

A previously healthy 24-year-old man presented with a palpable 5-cm mass that was inferior to the angle of the right-sided mandible and that had been growing steadily for more than 1 week (Figure 1). The patient stated that the mass first appeared as a small, 3-mm nodule. From the start, the nodule was painful and produced discomfort when the patient opened his mouth, turned his head, or looked up. During the next week, the patient had fever, chills, pharyngeal erythema, headache, and general malaise. The symptoms worsened with exercise and with eating. The patient had a history of parotitis, but previous episodes had resolved within 2 to 3 days.

Physical examination was grossly normal, except for the 5-cm movable, nonerythematous neck mass and a small gingival tear on the right-sided second mandibular molar. Results of cranial radiographs showed a radiopaque area near the submandibular gland (Figure 2) and, based on these results, sialadenitis was diagnosed. Routine blood tests and pharyngeal swabs were also obtained, but the results were unremarkable.

The patient was initially treated with 500 mg of cephalaxin, administered every 6 hours for 5 days. However, after...
5 days, the mass had continued to grow, so cephalixin was discontinued and the patient was started on 875 mg of amoxicillin/clavulanate, administered twice a day. Three days later, the patient reported no improvement in the right-sided lower neck pain, headaches, fever, or chills. Clindamycin (150 mg every 6 hours) was added for suspected anaerobes, but, within 48 hours, the patient had voluminous, foul-smelling diarrhea. At this point, clindamycin was stopped and the patient was given 500 mg of metronidazole 3 times per day for possible Clostridium difficile–associated diarrheal illness. The metronidazole reduced the diarrhea but did not eliminate it entirely. Three days later, the patient was started on trimethoprim and sulfamethoxazole (160 mg/800 mg 2 times per day). In all, 5 antibiotics were used during a period of 2 weeks, but the patient’s symptoms did not abate.

For the management of possible sialadenitis, the submandibular duct was cannulated to resolve any obstruction. In addition, a contrast-enhanced CT scan was ordered. Results of the CT scan showed a 3-cm mass adjacent to the right-sided submandibular gland, which appeared to be anodal with an area of necrosis. The CT findings were compatible with suppurative adenopathy with abscessed submandibular node (Figure 3). Test results showed no evidence of sialadenitis or sialolithiasis.

Given the patient’s level of discomfort, he was started on methylprednisolone (24 mg/d in 4-mg divided doses), which was tapered by 4 mg per day over the next 5 days. The patient was also continued on amoxicillin/clavulanate and trimethoprim and sulfamethoxazole. During the second day of steroid treatment, the patient underwent lymphatic osteopathic manipulative treatment (OMT). The thoracic duct was opened using myofascial release, and the lymph nodes were stimulated in a downward fashion along the chain using effleurage and pétrissage. Warm compresses were used during this procedure. Within 30 minutes of lymphatic OMT initiation, the patient’s visible inflammation had subsided by more than 70%. The improvements persisted into the next day.

The day after the initial OMT session, the patient was instructed to get 45 minutes of aerobic exercise and return for a second round of lymphatic OMT. By the third day, the mass had reduced in size by more than 90% and was no longer noticeable. During the next 2 weeks, the patient steadily improved until all of his symptoms had resolved.

**Comment**

We believe that the cause of the patient’s symptoms was a perfect storm of upper respiratory tract infection, salivary gland obstruction, stasis of lymphatic fluid, and bacterial infection (possibly anaerobic) through a gingival tear. Presumably, this tetrad led to contiguous spread of infection into adjacent tissues, resulting in lymphadenitis. Given the timing of the presentation and the normal laboratory values, etiolo-
gies such as malignancy and connective tissue disease can be excluded.

Because of this patient’s periodontal symptoms, the ideal first line antibiotic was amoxicillin/clavulanate potassium. However, antibiotic monotherapy was not successful in the present case. Resolution of symptoms was achieved by the use of a combination of broad-spectrum antibiotics, corticosteroids, and OMT. The effectiveness of OMT may be because of its substantial effect on lymphatic flow and immune defense, effects that are shared to an extent by aerobic exercise.

Conclusion
The authors recommend that previously healthy adults with unilateral, painful, and acutely enlarging cervical lymphadenitis be treated with combination therapy if the first line therapy fails. Given the impressive response to steroid treatment and OMT in combination with antibiotics described in the present case, we recommend that these treatment modalities be exhausted before neck mass aspiration or open incision and drainage are performed.

References

Figure 3. Horizontal (A and B) and coronal (C) computed tomography scans of a 3-cm mass adjacent to the right-sided submandibular gland in a 24-year-old man who presented with a palpable mass that was inferior to the angle of the right-sided mandible. The mass appeared to be anodal with an area of necrosis; the computed tomography findings were compatible with suppurative adenopathy with abscessed submandibular node.