

## Swelling in the Right Lateral Neck

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**Online Case:** [www.dentalcare.com/en-us/professional-education/case-challenges/case-challenge-069](http://www.dentalcare.com/en-us/professional-education/case-challenges/case-challenge-069)



The following Case Challenge is provided in conjunction with the UT Health San Antonio School of Dentistry faculty.

A 14-year-old male presents with a painful swelling in the right lateral neck.

After you have finished reviewing the available diagnostic information, make the diagnosis.

## Diagnostic Information

### History of Present Illness

Jacob is a 14-year-old male who presents to your office for evaluation of a painful swelling in the right lateral neck. His medical history is unremarkable except for a tonsillectomy at age 4.

### Medical History

- Adverse drug effects: none
- Medications: Flonase (prn) for seasonal allergies
- Pertinent medical history: unremarkable
- Pertinent family history: paternal - alive, healthy; mother - alive, healthy
- Social history: lives on a dairy farm in west Texas; family has two dogs, three cats, four horses, and a cute hamster.

### Clinical Findings

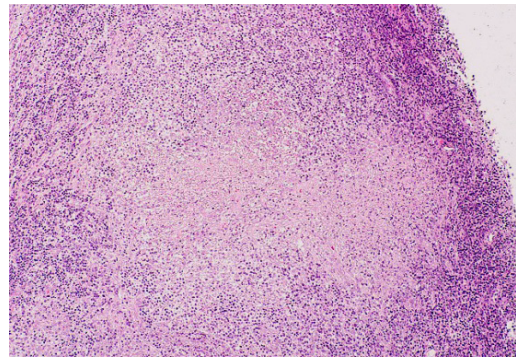
Extraoral examination reveals a diffuse swelling in the area of the right submandibular region. The swelling is firm but freely moveable and slightly painful to palpation. No cutaneous sinus tract was evident. The remainder of the extraoral examination and the intraoral examination were within normal limits. At the parent's insistence, an incisional biopsy was accomplished by an otolaryngologist.



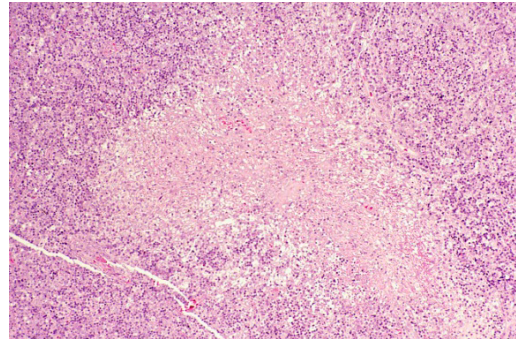
**Figure 1.** Swelling in the right lateral neck.

### Histopathologic Findings

Histopathologic examination reveals portions of a lymph node with marked cortical expansion and areas of stellate shaped necrosis surrounded by an infiltrate of histiocytes and lymphocytes (Figures 2-3). Serologic examination reveals antibodies to *Bartonella henselae*.



**Figure 2.** Low power image of stellate shaped necrosis with surrounding inflammatory infiltrate.



**Figure 3.** High power image of stellate shaped necrosis with surrounding inflammatory infiltrate.

## Select Diagnosis

### Can you make the diagnosis

A 14-year-old male presents with a painful swelling in the right lateral neck.



### Select the Correct Diagnosis

- A. Mumps
- B. Hodgkin disease
- C. Cat scratch disease
- D. Scrofula

## Mumps

**Choice A. Sorry, this is not the correct diagnosis.**

Mumps represents a contagious infectious disease caused by a paramyxovirus.<sup>1-2</sup> Due to routine MMR (measles, mumps, rubella) vaccination in children, the disease is rare. Occasional outbreaks have occurred in young adults, most likely due to lack or failure of vaccination. Mumps is predominantly spread by respiratory droplets or through saliva transfer and any exocrine gland may be affected, along with the ovaries and testes. Head and neck involvement presents as tenderness, swelling, and pain primarily in the parotid glands. The submandibular and sublingual glands may also be affected. Most cases are bilateral but unilateral involvement may occur. The initial infection produces prodromal symptoms of headaches, malaise, and fever. Diagnosis is made based on the clinical features along with laboratory confirmation of elevated IgM and/or IgG antibodies to the organism and/or viral culture of the saliva. Treatment is supportive and the prognosis is good.<sup>1-2</sup> The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

## Hodgkin disease

**Choice B. Sorry, this is not the correct diagnosis.**

Hodgkin disease is a diffuse group of lymphoproliferative malignancies thought to be of B-cell origin and often associated with Epstein-Barr virus (EBV) infection. Hodgkin disease demonstrates a bimodal age distribution with cases occurring predominantly before 35 year of age or after 50 years of age. A male sex predilection is noted. This neoplasm may arise in any lymph node chain and is common in the head and neck area, typically in cervical lymph nodes.<sup>2,4</sup> The node enlargement is nontender and may be freely moveable or fixed to the underlying tissue. With time, and without treatment, Hodgkin disease spreads to adjacent lymph nodes. Patients may be asymptomatic or complain of fever, night sweats, weight loss, and pruritis. Multiple histopathologic subtypes are recognized but do not appear to have a bearing on prognosis. All subtypes are characterized by the presence of Reed-Sternberg cells – a binucleated or multinucleated cell with a prominent nucleolus (“owl-eye”).<sup>3</sup> An acute and chronic inflammatory infiltrate is noted around the Reed-Sternberg cells.<sup>2,3</sup> Treatment is dependent upon clinical staging and includes radiation therapy or radiation therapy combined with chemotherapy. The prognosis is dependent upon the clinical stage at the time of diagnosis.<sup>4</sup> The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

## Cat scratch disease

**Choice C. Congratulations! You are correct.**

Cat-scratch disease is an infectious disease caused by the bacterium, *Bartonella henselae*. The disease begins in the skin as a result of a scratch by a cat that harbors the organism in its claws. The initial skin manifestation presents as a papule or pustule along the scratch line. When the skin lesion heals and organisms drain to adjacent lymph nodes and regional lymphadenopathy develops. At this time the patient may also complain of pain and/or be febrile. In the head and neck area the lymphadenopathy often presents in the submandibular region as a result of a cat scratch on the face.<sup>2,5-6</sup> Histopathologic examination reveals an enlarged lymph node with central areas of stellate shaped necrosis. The areas of necrosis are surrounded by acute and chronic inflammatory cells including numerous histiocytes. Stellate necrosis is a characteristic histopathologic feature of cat scratch disease. Treatment for cat scratch disease is supportive and antibiotics may be indicated. Cat scratch disease will resolve in several months.<sup>2</sup>

## Scrofula

**Choice D. Sorry, this is not the correct diagnosis.**

Scrofula is an infectious disease caused by *Mycobacterium bovis*. The disease occurs from drinking contaminated or unpasteurized milk. Scrofula is rarely seen in developed countries. The disease presents as enlargement and tenderness of cervical lymph nodes and pharyngeal lymphoid tissue.<sup>2</sup> If the involved nodes undergo central necrosis, a sinus tract may form and connect to the overlying skin. Histopathological examination reveals a diffuse infiltrate of epithelioid histiocytes interspersed with multinucleated giant cells, and central caseous necrosis. Histochemical staining for acid-fast bacilli (AFB) is positive. The histopathologic findings are similar to those seen in tuberculosis caused by *Mycobacterium tuberculosis*. Treatment consists of multi-agent anti-tuberculous drugs and the prognosis is good.<sup>2,7</sup> The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

## References

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## About the Authors



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Anne Cale Jones graduated from the University of Alabama in 1981 with the Bachelor of Science degree (Magna Cum Laude) in Natural Sciences. She received a Doctor of Dental Surgery degree (Magna Cum Laude) from the Medical College of Virginia, Virginia Commonwealth University in 1986. Following a three-year residency program in Oral and Maxillofacial Pathology at Booth Memorial Medical Center in Queens, New York, Dr. Jones joined the faculty at the University of Florida, College of Dentistry. In 1998, she became a faculty member at The

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