

## Case Report

# A Rare Case of Glossitis due to *Pasteurella multocida* after a Cat Scratch

**Negin Niknam, Thien Doan, and Elizabeth Revere**

*Hofstra Northwell School of Medicine, Hempstead, NY, USA*

Correspondence should be addressed to Negin Niknam; [negin.niknam93@gmail.com](mailto:negin.niknam93@gmail.com)

Received 27 July 2016; Revised 4 October 2016; Accepted 5 October 2016

Academic Editor: Larry M. Bush

Copyright © 2016 Negin Niknam et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Pasteurella* is one of the zoonotic pathogens that can cause variety of serious infections in animals and humans such as bacteremia, septic shock, endocarditis, meningitis, prosthetic and native valve infections, osteomyelitis, skin and soft tissue infections, abscesses, and even pneumonia with empyema. However, there have been few reports of upper respiratory involvements like tonsillitis and epiglottitis in humans. We present a case of recurrent *Pasteurella* glossitis after a cat scratch which has not been reported in humans.

## 1. Introduction

*Pasteurella* are small Gram-negative coccobacilli that are primarily animal pathogens. *Pasteurella multocida* is a component of the normal upper respiratory tract flora of fowl and mammals, especially felines. Other *Pasteurella* species can be found in the oral cavity of a variety of animals including dogs, cats, pigs, hamsters, and horses.

*Pasteurella* can cause a variety of diseases in animals, such as fowl cholera in domestic fowl, shipping fever in cattle, hemorrhagic septicemia in cattle and lambs, fibrinous pneumonia in cattle, snuffles in rabbits, and other focal infections [1]. However these organisms can cause several infections in humans, usually as a result of cat scratches or cat or dog bites or licks. There have been multiple cases of septic shock [2, 3], bacteremia [4], prosthetic valve endocarditis [5, 6], aortic endograft infection [7], primary shoulder involvement [8], total knee replacement infection [9], meningitis [10, 11], and even pneumonia [12, 13] or empyema [14]. It was also reported in deep sternal wound infection [15], peritonitis due to peritoneal dialysis [16, 17], endophthalmitis [18], chorioamnionitis from vaginal transmission [19], frontal osteomyelitis Pott's puffy tumor [20], infection in solid organ transplantation [21], lung and liver abscess [22], and even failed renal transplant [23]. However, there were rare cases of tonsillitis [24] or epiglottitis [25, 26] in humans. There has been one report of Ludwig's angina after a dog bite [27] but glossitis was mostly seen in animals [28].

## 2. Case Presentation

A 56-year-old male with a past medical history of hypertension, hyperlipidemia, gastroesophageal reflux disease, recurrent otitis media leading to hearing impairment, and tonsillectomy, presented to the Emergency Department with tongue swelling, dysphagia, drooling, and shortness of breath. He stated that about 5 days prior to presentation he experienced throat pain and went to his Ear, Nose, Throat (ENT) specialist, who felt his symptoms could be due to lymphadenitis. He was prescribed Clindamycin, which the patient had tolerated in the past. He continued to have worsening throat pain and difficulty swallowing and presented to the Emergency Department. In the Emergency Department a CT scan of his neck was performed and was unremarkable as well as direct laryngoscopy. He was discharged with Dexamethasone and Ketorolac. The next day he started to develop severe tongue pain and swelling to the point that he could not speak or move his tongue. He was evaluated by ENT specialist who noticed tongue edema tenderness and enlargement suggestive of glossitis with no posterior pharyngeal edema.

His laboratory work shown was remarkable for a white blood cell count: 14.1 K/uL, neutrophil count: 11.73 K/uL, hemoglobin: 15.2 g/dL, and platelets count: 177 K/uL.

A repeat CT scan of the neck with contrast showed asymmetric fatty reticulation along the left sublingual space without focal mass or rim-enhancing fluid collection and

no evidence of odontogenic abscess. Blood cultures were sent and the patient was admitted to the ICU for glossitis or possible Ludwig's angina. He was initially started on Dexamethasone and Clindamycin in view of his penicillin allergy which was remote and reported as a rash.

On the second day, blood cultures revealed Gram-negative rods. The antibiotics were switched from Clindamycin to Aztreonam and Metronidazole. The next day the Gram-negative organism was identified as *Pasteurella multocida*. On further investigation, the patient stated that he was scratched by his new cat two weeks prior on his right wrist, which resolved without complications. Aztreonam and Metronidazole were discontinued and the patient was started on Imipenem.

Further laboratory work showed improving leukocytosis and repeat blood cultures were negative the next day. Echocardiogram was performed and showed normal valves and normal right ventricular size and function, but moderate to severe global left ventricular dysfunction. The patient was diagnosed with systolic heart failure. The patient's symptoms gradually resolved and he was discharged home with Ertapenem via PICC line for a total of 14 days. However, 10 days after discharge the patient presented again with a milder swelling of his tongue with no signs of sepsis or airway compromise. He was admitted again and blood cultures were sent which were negative. The white blood cell count and neck and chest X-rays were within normal limits. The course of Ertapenem was completed and he was discharged home. The patient did not report any further episodes of tongue or throat swelling.

### 3. Discussion

*P. multocida* can cause a range of infections in wild and domesticated animals as well as humans from a mild wound infection to severe sepsis and death. The diseases are usually different in animals, such as the glossitis that was reported only in animals.

Infections with *P. multocida* can be divided into three categories in humans:

- (i) Skin and soft tissue infections: following animal bites or scratches; bites and scratches can also result in abscesses, necrotizing soft tissue infections, septic arthritis, and osteomyelitis.
- (ii) Serious invasive infection often unrelated to animal bites, such as meningitis, intraabdominal infection, endocarditis, or ocular infection.
- (iii) Oral and respiratory infections, usually in the setting of chronic pulmonary disease.

*Pasteurella* respiratory infections are rare and have no distinctive characteristics. *P. multocida* may not be suspected as the infecting pathogen but should be considered as a serious pathogen in patients with cat exposure including bites, licks, and scratches.

Glossitis has been never reported in humans and is not well described in the literature. In our case diagnosis was made clinically.

### 4. Conclusion

Glossitis could be a rare presentation of *Pasteurella multocida*, which can be diagnosed clinically and treated the same as other *Pasteurella* infections.

### Competing Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

### References

- [1] P. N. Acha and B. Szyfres, *Zoonoses and Communicable Diseases Common to Man and Animals*, Pan American Health Organization, Washington, DC, USA, 2001.
- [2] A. C. Adler, C. Cestero, and R. B. Brown, "Septic shock from *Pasteurella multocida* following a cat bite: case report and review of literature," *Connecticut Medicine*, vol. 75, no. 10, pp. 603–605, 2011.
- [3] J. Orsini, R. Perez, A. Llosa, and N. Araguez, "Non-zoonotic *Pasteurella multocida* infection as a cause of septic shock in a patient with liver cirrhosis: a case report and review of the literature," *Journal of Global Infectious Diseases*, vol. 5, no. 4, pp. 176–178, 2013.
- [4] P. Courtin, E. Brugière, D. Torro, D. Magnin, P. Guinot, and J. L. Lemaître, "Pasteurella multocida septicemia. Apropos of a case," *Cahiers d'Anesthesiologie*, vol. 42, no. 5, pp. 609–611, 1994.
- [5] R. E. Nettles and D. J. Sexton, "Pasteurella multocida prosthetic valve endocarditis: case report and review," *Clinical Infectious Diseases*, vol. 25, no. 4, pp. 920–921, 1997.
- [6] F. Camou, O. Guisset, S. Pereyre et al., "Endocarditis due to *Pasteurella* sp. Two cases," *Médecine et Maladies Infectieuses*, vol. 35, no. 11, pp. 556–559, 2005.
- [7] E. J. Silberfein, P. H. Lin, R. L. Bush, W. Zhou, and A. B. Lumsden, "Aortic endograft infection due to *Pasteurella multocida* following a rabbit bite," *Journal of Vascular Surgery*, vol. 43, no. 2, pp. 393–395, 2006.
- [8] D. Y. Ding, A. Orengo, M. J. Alaia, and J. D. Zuckerman, "Pasteurella multocida infection in a primary shoulder arthroplasty after cat scratch: case report and review of literature," *Journal of Shoulder and Elbow Surgery*, vol. 24, no. 6, pp. e159–e163, 2015.
- [9] K. B. Ferguson, R. Bharadwaj, A. MacDonald, B. Syme, and A. M. Bal, "Pasteurella multocida infected total knee arthroplasty: a case report and review of the literature," *Annals of the Royal College of Surgeons of England*, vol. 96, no. 2, pp. e1–e4, 2014.
- [10] S. Kawashima, N. Matsukawa, Y. Ueki, M. Hattori, and K. Ojika, "Pasteurella multocida meningitis caused by kissing animals: a case report and review of the literature," *Journal of Neurology*, vol. 257, no. 4, pp. 653–654, 2010.
- [11] A. Kumar, H. R. Devlin, and H. Vellend, "Pasteurella multocida meningitis in an adult: case report and review," *Reviews of Infectious Diseases*, vol. 12, no. 3, pp. 440–448, 1990.
- [12] J. Ferreira, K. Treger, and K. Busey, "Pneumonia and disseminated bacteremia with *Pasteurella multocida* in the immune competent host: a case report and a review of the literature," *Respiratory Medicine Case Reports*, vol. 15, pp. 54–56, 2015.
- [13] Y. Oyama, K. Naoki, H. Kunikane et al., "Severe *Pasteurella multocida* pneumonia by close contact with a pet in chronic respiratory failure," *Nihon Naika Gakkai Zasshi*, vol. 96, no. 7, pp. 1467–1469, 2007.

- [14] T. Unoki, I. Nakamura, T. Mori, T. Kamei, M. Kunihiro, and N. Ueda, "An autopsied case of *Pasteurella multocida* empyema with review of the literature," *Kansenshogaku Zasshi*, vol. 58, no. 7, pp. 703–708, 1984.
- [15] R. Baillot, P. Voisine, L. M. Côté, and Y. Longtin, "Deep sternal wound infection due to *Pasteurella multocida*: the first case report and review of literature," *Infection*, vol. 39, no. 6, pp. 575–578, 2011.
- [16] P. G. Poliquin, P. Lagacé-Wiens, M. Verrelli, D. W. Allen, and J. M. Embil, "*Pasteurella* species peritoneal dialysis-associated peritonitis: household pets as a risk factor," *Canadian Journal of Infectious Diseases and Medical Microbiology*, vol. 26, no. 1, pp. 52–55, 2015.
- [17] P. M. Sol, N. C. van de Kar, and M. F. Schreuder, "Cat induced *Pasteurella multocida* peritonitis in peritoneal dialysis: a case report and review of the literature," *International Journal of Hygiene and Environmental Health*, vol. 216, no. 2, pp. 211–213, 2013.
- [18] N. P. L. D. Burgener, E. Baglivo, S. Harbarth, C. Sahabo, D. Pittet, and A. B. Safran, "*Pasteurella multocida* endophthalmitis: case report and review of the literature," *Klinische Monatsblätter für Augenheilkunde*, vol. 222, no. 3, pp. 231–233, 2005.
- [19] G. P. Wong, N. Cimolai, J. E. Dimmick, and T. R. Martin, "*Pasteurella multocida* chorioamnionitis from vaginal transmission," *Acta Obstetrica et Gynecologica Scandinavica*, vol. 71, no. 5, pp. 384–387, 1992.
- [20] R. Skomro and K. L. McClean, "Frontal osteomyelitis (Pott's puffy tumour) associated with *Pasteurella multocida*—a case report and review of the literature," *Canadian Journal of Infectious Diseases*, vol. 9, no. 2, pp. 115–121, 1998.
- [21] E. S. Christenson, H. M. Ahmed, and C. M. Durand, "*Pasteurella multocida* infection in solid organ transplantation," *The Lancet Infectious Diseases*, vol. 15, no. 2, pp. 235–240, 2015.
- [22] P. Goussard, R. P. Gie, F. Steyn, G. J. Rossouw, and S. Kling, "*Pasteurella multocida* lung and liver abscess in an immunocompetent child," *Pediatric Pulmonology*, vol. 41, no. 3, pp. 275–278, 2006.
- [23] R. R. Mayo and D. Lipschutz, "An interesting case of failed renal transplant complicated by a lymphocele infected with *Pasteurella multocida* and a review of the literature," *American Journal of Nephrology*, vol. 16, no. 4, pp. 361–366, 1996.
- [24] G. D. Ramdeen, R. J. Smith, E. A. Smith, and L. M. Baddour, "*Pasteurella multocida* tonsillitis: case report and review," *Clinical Infectious Diseases*, vol. 20, no. 4, pp. 1055–1057, 1995.
- [25] N. Wine, Y. Lim, and J. Fierer, "*Pasteurella multocida* epiglottitis," *Archives of Otolaryngology—Head and Neck Surgery*, vol. 123, no. 7, pp. 759–761, 1997.
- [26] P. J. Harris and M. B. Osswald, "*Pasteurella multocida* epiglottitis: a review and report of a new case with associated chronic lymphocytic leukemia," *Ear, Nose and Throat Journal*, vol. 89, no. 12, article E4, 2010.
- [27] M. S. Dryden and D. Dalgliesh, "*Pasteurella multocida* from a dog causing Ludwig's angina," *The Lancet*, vol. 347, no. 8994, p. 123, 1996.
- [28] J. Arnbjerg, "*Pasteurella multocida* from canine and feline teeth, with a case report of glossitis calcinosa in a dog caused by *P. multocida*," *Nordisk Veterinaermedicin*, vol. 30, no. 7-8, pp. 324–332, 1978.