Acute epiglottitis due to *Pasteurella multocida* after contact with a feral cat

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ABSTRACT

Pasteurella multocida is a bipolar staining gram-negative coccobacillus that resides in the nasopharynx of many animals, most notably felines. It is a common cause of soft tissue infections following animal bites but has rarely been reported to cause epiglottitis. Here we describe a case of epiglottitis and bacteremia due to *P. multocida* following exposure to a feral cat. The patient required emergent cricothyrotomy due to airway compromise. He was successfully treated with 14 days of beta-lactam therapy and achieved a full recovery.

KEYWORDS Bacteremia; epiglottitis; *Pasteurella multocida*

Pasteurella species are well-known zoonotic pathogens that exist in the normal oral flora of domesticated and wild animals, with *Pasteurella multocida* being the most prevalent bacterial isolate found in cats.¹ Human infection typically occurs after bites, scratches, or contact with nasal secretions.¹ It typically causes skin and soft tissue infections, but bacteremia, pneumonia, endocarditis, central nervous system infections, and orthopedic infections have been reported.^{2–4} Rarely, it is a cause of epiglottitis. Here, we present the case of a middle-aged man with *P. multocida* epiglottitis after exposure to a feral cat.

CASE PRESENTATION

A 57-year-old white man with no known medical history was awakened from sleep with a sore throat that progressed within hours to neck pain, dyspnea, trouble swallowing, and difficulty handling his oral secretions. He reported a cat bite and scratches to his hands 2 days prior while feeding a feral cat. He lived alone with his dog in a rural area in Texas and worked a desk job. He smoked about one-half packs of cigarettes daily for the past 12 years and drank alcohol most days of the week.

On arrival the patient appeared acutely ill. He was febrile and dyspneic with a muffled voice. His temperature was 101.1°F; heart rate, 113 beats per minute; blood pressure, 180/115 mm Hg; and respiratory rate, 25 breaths per

minute. Scratches and erythema were visible on both hands and forearms. The skin over the neck and chest was flushed. Cervical lymphadenopathy was present. Lung auscultation revealed rhonchi in the left lower lobe. He had no stridor but developed worsening shortness of breath and difficulty swallowing. Racemic epinephrine and dexamethasone were administered due to concern for airway edema, but his respiratory distress progressed. Laryngoscopy was then performed. This revealed an erythematous and edematous epiglottis with leftward deviation, edema, and erythema of the supraglottic tissues with purulent drainage in the oropharynx. Endotracheal intubation was unsuccessful due to severe oropharyngeal edema. An emergent cricothyrotomy was performed.

His laboratory results were remarkable for an elevated white blood cell count of $21 \times 10^9/L$ with left shift. His HIV, hepatitis C, and diabetes screenings were negative. Computed tomography of the neck and chest revealed diffuse supraglottic soft tissue swelling with cervical lymphadenopathy, no abscess formation, and diffuse ground-glass opacities and interstitial thickening in the left lung (*Figure 1*). He was started empirically on piperacillin-tazobactam and doxycycline. Blood cultures returned with gram-negative rods. Transthoracic echocardiogram showed no valvular lesions. His airway edema improved dramatically and cricothyrotomy was removed on hospital day 2. Two sets of blood cultures collected at the time of presentation

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Received March 1, 2019; Revised May 30, 2019; Accepted June 3, 2019.

yielded *P. multocida*, and antibiotics were changed to intravenous ampicillin-sulbactam 1.5 g intravenously four times daily. He completed 14 days of antibiotic therapy with a full recovery.

Figure 1. Computed tomography of the neck, coronal view, showing lymphadenopathy (thick arrow) and supraglottic soft tissue edema (thin arrow).

DISCUSSION

P. multocida is a gram-negative coccobacillus that is the most common bacterial isolate from cat bites and scratches.⁵ As with other pathogens, epiglottitis due to *Pasteurella* presents as a rapidly progressive sore throat, dysphagia, and odynophagia requiring prompt direct evaluation of the airway. Droplet transmission of organisms is thought to contribute to respiratory tract disease in humans, and most cases occur in patients with underlying lung disease.² Our patient had no evidence of chronic lung disease but had been a smoker for many years. Alcohol use and chronic liver disease, with or without cirrhosis, have been implicated as a risk factor for *Pasteurella* infections.^{6,7} Our patient endorsed heavy alcohol use, although no evidence of cirrhosis was present by physical exam, laboratory tests, or imaging.

Only nine other cases of epiglottitis in the literature have been attributed to *P. multocida* (Table 1).^{2-4,6,8-12} To our knowledge, this represents the 10th case. Infection in all but one of the 10 cases was related to animal exposure—primarily cats, but dogs have been implicated as well. Our patient owned a dog, but his symptoms developed within 2 days after suffering bites and scratches from a feral cat. Whereas blood cultures in adult epiglottitis are positive in <10% of cases,¹³ 9 of the 10 reported cases of *Pasteurella* epiglottitis (including this report) had associated bacteremia, which is a much higher percentage than expected. Beta-lactams are the mainstay of

Table 1. Cases of *Pasteurella multocida* epiglottitis

Author	Relevant medical history	Airway management	Risk factors and exposures	Presenting symptoms	Positive cultures
Johnson and Rumans ⁴	ESRD on home hemodialysis	No intubation needed	Owned two cats	Sore throat, fever	Blood
Rydberg and White ¹¹	None	Endotracheal intubation	Owned a cat	Sore throat, dysphagia, fever	Blood, epiglottitis
Leung and Jassal ¹⁰	Former tobacco and alcohol use	Endotracheal intubation	Owned three cats and one dog	Throat pain, dysphagia, drooling, respiratory distress	Blood, epiglottitis
Wine et al ²	Daily alcohol use, coronary artery disease	No intubation needed	Housesat in a home with numerous cats	Sore throat, dysphagia	Blood, throat
Jenkins ³	Prior tonsillectomy	Tracheostomy	Worked in veterinary clinic and owned dog and cat	Sore throat, dysphagia, odynophagia, fevers	Blood
Glickman and Klein ⁹	Unknown	No intubation needed	Denied	Fever, drooling, neck pain, dysphagia	Blood
O'Connell et al ⁸	Unknown	Deceased	Owned many indoor cats	Sore throat	Throat
Harris and Osswald ⁶	Chronic lymphocytic leukemia	No intubation needed	Had casual interaction with neighbors' dogs	Sore throat, dysphagia	Blood
Moyko et al ¹²	None relevant	Nasotracheal intubation	Owned two dogs	Sore throat, dysphagia, odynophagia, chills	Blood
Sisco and Cahuayme-Zuniga (this study)	Chronic alcohol use, chronic tobacco use	Cricothyrotomy	Had bites/scratches from feral cat; owned one dog	Sore throat, dysphagia	Blood

ESRD indicates end-stage renal disease.

therapy, with reports of successful treatment using penicillin, amoxicillin, ampicillin-sulbactam, and ceftriaxone.⁶ Fluoroquinolones are also effective.¹⁴ Nine of the 10 reported cases of *Pasteurella* epiglottitis had a full recovery.

Although uncommon, *P. multocida* should be considered as a cause of epiglottitis in adults, particularly those with exposure to cats, as in our patient. Infection is more common in those with underlying pulmonary disease, and tobacco and alcohol use have been associated with *Pasteurella* infection. When recognized, outcomes are usually favorable, with all but one case reporting a complete recovery.

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