

# Pyomyositis of the Thigh Due to *Prevotella melaninogenica*

M. Odeh, A. Oliven, I. Potasman, H. Solomon, I. Srugo

## Summary

Pyomyositis is an uncommon infection in temperate climates, however, it is being more frequently reported among patients with diabetes or malignancy, or those who are immunocompromised. It is predominantly caused by *Staphylococcus aureus*, and rarely by *Bacteroides* species. Pyomyositis due to *Prevotella melaninogenica* has not previously been reported. We describe an elderly patient with pyomyositis of the thigh due to *P. melaninogenica* which was successfully treated by surgical incision and drainage in combination with metronidazole therapy.

## Key Words

Pyomyositis · *Prevotella melaninogenica* · *Bacteroidaceae* · Thigh

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## Introduction

Pyomyositis is an acute bacterial infection of the skeletal muscles resulting in abscess formation. It is a common infection in the tropics but rare in temperate climates [1, 2], and is predominantly caused by *Staphylococcus aureus* [1]. Anaerobic bacteria may also cause myositis, often as a result of local trauma or ischemia, or via a contiguous focus of infection [3, 4]. However, myositis due to *Bacteroides* species is rare [3–5], and due to *Prevotella melaninogenica*, a distinct species of the genus *Prevotella*, family *Bacteroidaceae*, it has not previously been reported.

We describe an elderly patient with pyomyositis of the abductor muscles of the left thigh caused by *P. melaninogenica* which developed after a local trauma.

## Case Report

A 65-year-old woman staying at a nursing home, presented with a 3-day history of swelling and pain in the proximal part of the left thigh, associated with fever. She reported recent mild trauma to her left thigh and left gluteal region due to a fall a few days previously, and had a history of a small and dry decubitus ulcer in the medial area of the gluteal region for the past two months. Her other med-

ical history included chronic anemia because of bleeding from internal hemorrhoids, and schizophrenia for several years. Her medications on admission were iron supplements and moclobemide.

Physical examination revealed a body temperature of 38.2 °C, blood pressure of 120/80 mmHg, and heart rate of 96 beats/min. There was significant tenderness and swelling of the left upper thigh, and the skin was erythematous and warm, particularly over the greater trochanter. A small deep decubitus ulcer was observed in the medial part of the gluteal region with mild pus secretion. Other physical findings were irrelevant.

Laboratory tests revealed the following findings: hemoglobin was 9.2 g/dl, and WBC 12,700/mm<sup>3</sup> with 80% neutrophils and 10% band forms. Other routine biochemical blood tests were within the normal range except for mild hypoalbuminemia. Blood and urine cultures were negative, and chest radiograph was normal. Radiograph of the left thigh and pelvis revealed soft tissue swelling in the upper part of the left thigh. CT scan of the left hip and thigh revealed a large abscess with gas formation involving the abductor muscles of the left thigh around the greater trochanter, and extending to the left gluteus maximus muscle (Figure 1).

Incision and drainage yielded 100 ml of malodorous pus from an abscess involving groups of deep muscles in the upper left thigh and extending to the medial part of the left gluteus maximus muscle. With the aid of a sterile bent glass rod, an aliquot was plated onto 5% defibrinated sheep blood with gentamycin, and incubated at 35 °C for 48 h in a Coy anaerobic chamber containing 85% N<sub>2</sub>-10% H<sub>2</sub>-5% CO<sub>2</sub>. Specimen aliquots were also plated onto pre-reduced trypticase soy agar-bacitracin-vancomycin medium and incubated at 35 °C for 3 days in 5% CO<sub>2</sub>-95% air. Presumptive identification of the microbial isolates was performed according to established criteria and previously described rapid identification methods [6]. Cultures from the abscess fluid were positive for *P. melaninogenica* only and cultures from the deep site of the decubitus ulcer in the gluteal region were also positive for *P. melaninogenica*. The patient was treated with metronidazole intravenously for two weeks, and surgical cleaning of the wound, followed by oral metronidazole for an additional 2 weeks. No recurrence of pyomyositis was observed during a follow-up period of 8 months.

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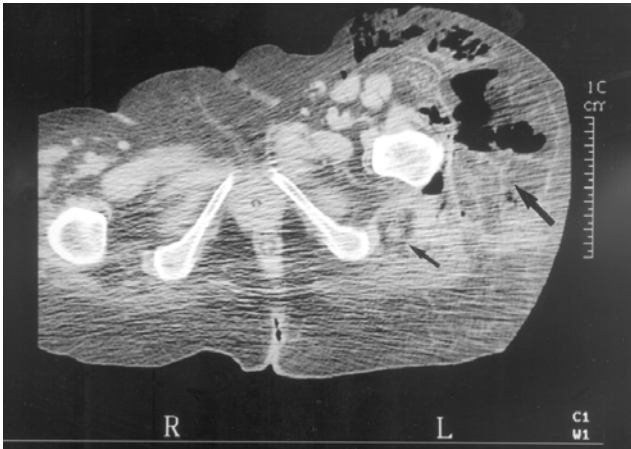


Figure 1  
**CT scan of the left hip and thigh showing a large abscess with gas formation involving the abductor muscles of the thigh around the greater trochanter (large arrow), which extends to the left gluteus maximus muscle (small arrow).**

### Discussion

Pyomyositis is an unusual condition in temperate regions [1, 2], however, it is being more frequently reported among patients with diabetes or malignancy, or those who are immunocompromised [7–9]. *S. aureus* is the most common pathogen [1, 7–9], and the thigh muscles, as in the present case, are the most common site involved [1, 2, 7, 8]. *Bacteroides* species may rarely cause pyomyositis [3–5], but pyomyositis due to *P. melaninogenica* has not previously been reported. A single case of pyomyositis due to polymicrobial infection, including *P. intermedia*, has recently been reported in a child [3].

*P. melaninogenica* is a part of the indigenous oral flora, and may cause periodontal disease and disseminated infection arising from the oral cavity [10]. This microorganism has been reported, usually in combination with other anaerobic and aerobic bacteria, to be involved in various infections, including brain abscesses, pleuropulmonary infections, such as community-acquired aspiration pneumonia, necrotizing pneumonia, lung abscess, and empyema, endocarditis, intra-abdominal infections, wound infections after intestinal or gynecologic surgery, dog and human bite infections, necrotizing fasciitis, infections complicating decubitus and diabetic ulcers, cutaneous abscesses below the waist, and others [11].

Infectious myositis when caused by anaerobic organisms is usually polymicrobial. In the present case the pyomyositis was unusual in that it was caused by only one anaerobic organism, and unique in that it was due to *P. melaninogenica*. Pyomyositis due to anaerobic bacteria often develops as the result of local trauma or ischemia, or via a contiguous focus of infection [12], as in the present case. The most common sites of infection are the large muscle groups [1]. Definitive diagnosis is made by aspiration of the abscess, although CT scanning and magnetic resonance

imaging may demonstrate intramuscular collections [13]. Appropriate antibiotic therapy and surgical incision and drainage are both recommended for treatment. However, the diagnosis is often delayed because most physicians in temperate climates are not familiar with the disease. Our patient was successfully treated with surgical drainage and debridement, in combination with metronidazole therapy. No recurrence of the disease was observed for a 12-month follow-up period.

In conclusion, pyomyositis is being more frequently reported in temperate climates. A high index of suspicion is needed for early diagnosis of this uncommon clinical syndrome, since a delay in diagnosis may be accompanied by increased morbidity and mortality. Furthermore, *P. melaninogenica* should be added to the group of infectious agents which may cause pyomyositis.

### References

- Chiedozi LC: Pyomyositis: review of 205 cases in 112 patients. *Am J Surg* 1979; 137: 255–259.
- Hall RL, Callaghan JJ, Moloney Martinez ES, Harrelson JM: Pyomyositis in a temperate climate: presentation, diagnosis, and treatment. *J Bone Joint Surg* 1990; 72: 1240–1244.
- Brook I: Pyomyositis in children, caused by anaerobic bacteria. *J Pediatr Surg* 1996; 31: 394–396.
- Katagiri K, Shibuya H, Takayaso S: *Bacteroides fragilis* pyomyositis in a patient with multiple myeloma. *J Dermatol* 1996; 23: 129–132.
- Shokouh-Amiri MH, Hansen CP, Moesgaard F, Bulow S: Psoas abscess complicating Crohn's disease. *Acta Chir Scand* 1989; 155: 409–412.
- King A, Phillips I: Evaluation of rapid ID 32 A System for the identification of the *Bacteroides fragilis* group. *Clin Microbiol Infect* 1996; 2: 115–122.
- Skoutelis A, Andonopoulos A, Panagiotopoulos E, Bassaris H: Non-tropical pyomyositis in adults: report of four cases and literature review. *Eur J Clin Microbiol Infect Dis* 1993; 12: 769–772.
- Widrow CA, Kellie SM, Saltzman BR, Mathur-Wagh U: Pyomyositis in patients with human immunodeficiency virus: an unusual form of disseminated bacterial infection. *Am J Med* 1991; 91: 129–136.
- Schwartzman WA, Lambertus MW, Kennedy CA, Goetz MB: Staphylococcal pyomyositis in patients infected by the human immunodeficiency virus. *Am J Med* 1991; 90: 595–600.
- Kasper DL: Infections due to mixed anaerobic organisms. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper DL, Hauser SL, Longo DL (eds): *Harrison's principles of internal medicine*, 14th ed. McGraw-Hill, New York, 1998, pp 991–997.
- Lorber B: *Bacteroides*, *Prevotella*, and *Fusobacterium* species (and other medically important anaerobic gram-negative bacilli). In: Mandell GL, Bennett JE, Dolin R (eds): *Principles and practice of infectious diseases*, 4th edn. Churchill Livingstone, 1995, pp 2195–2204.
- Gorbach SL, Bartlett JG: Anaerobic infections [first of three parts]. *N Engl J Med* 1974; 290: 1177–1183.
- Yousefzadeh DK, Schumann EM, Mulligan GM, Bosworth DE, Young CS, Pringle KC: The role of imaging modalities in diagnosis and management of pyomyositis. *Skeletal Radiol* 1982; 8: 285–289.