

## Multifocal myositis in an apparently healthy adult

Tuesday, 01 May 2007

A 64-year old female presented with fever, diffuse muscle pains and extensive areas of erythema and edema over her thighs and arms. She reported that these skin lesions developed over a few days. In addition the patient noticed generalized edema.

On examination, she looked acutely ill. She could barely walk with the support of two of her family members. Generalized edema was evident. The patient weighed 100 kg (her usual weight was 75 kg). Her blood pressure was normal but she was tachycardic (104 beats per minute) and tachypneic (20 respirations per minute) with oxygen saturation level on air of 95%. Her temperature was 39.0°C. Areas of erythema were noted over her right and left thigh (Figure) and her arms extending to the anterior chest wall and breasts. These painful skin lesions were accompanied by warmth and tenderness. An area of fluctuance could be felt in her right thigh. On auscultation of the chest there were decreased breath sounds bilaterally. The rest of the physical examination was normal.

A hematocrit of 23.7% (hemoglobin 7.6gr/dl) accompanied by leukocytosis (19650/mm<sup>3</sup> with 87.4% neutrophils with a shift to left) and mild thrombocytosis (501000/mm<sup>3</sup>) were present. C-reactive protein levels were increased at 26.71 mg/dl (normal up to 0.5) and erythrocyte sedimentation rate was 130 mm/1st hour (normal 0-20). There was a striking increase in creatine phosphokinase with serum levels of 6763 IU/l [upper limit of normal (ULN)=215 IU/l] accompanied by an increase in lactic dehydrogenase serum levels (LDH: 302 IU/l, ULN=190) and serum transaminases levels [AST: 230 IU/l (ULN=37) and ALT: 129 IU/l (ULN=65)]. Urine dipstick was positive for hemoglobin (++) . A significant hypoalbuminemia was present [1.7 gr/dl (normal >3.5)]. On urine microscopy there were 4-5 leukocytes per high power optical field, while there were no erythrocytes. Her electrocardiogram was normal. Chest X-rays revealed moderate bilateral pleural effusions.

What is the diagnosis?

A 64-year old female presented with fever, diffuse muscle pains and extensive areas of erythema and edema over her thighs and arms. She reported that these skin lesions developed over a few days. In addition the patient noticed generalized edema.

On examination, she looked acutely ill. She could barely walk with the support of two of her family members. Generalized edema was evident. The patient weighed 100 kg (her usual weight was 75 kg). Her blood pressure was normal but she was tachycardic (104 beats per minute) and tachypneic (20 respirations per minute) with oxygen saturation level on air of 95%. Her temperature was 39.0°C. Areas of erythema were noted over her right and left thigh (Figure) and her arms extending to the anterior chest wall and breasts. These painful skin lesions were accompanied by warmth and tenderness. An area of fluctuance could be felt in her right thigh. On auscultation of the chest there were decreased breath sounds bilaterally. The rest of the physical examination was normal.

A hematocrit of 23.7% (hemoglobin 7.6gr/dl) accompanied by leukocytosis (19650/mm<sup>3</sup> with 87.4% neutrophils with a shift to left) and mild thrombocytosis (501000/mm<sup>3</sup>) were present. C-reactive protein levels were increased at 26.71 mg/dl (normal up to 0.5) and erythrocyte sedimentation rate was 130 mm/1st hour (normal 0-20). There was a striking increase in creatine phosphokinase with serum levels of 6763 IU/l [upper limit of normal (ULN)=215 IU/l] accompanied by an increase in lactic dehydrogenase serum levels (LDH: 302 IU/l, ULN=190) and serum transaminases levels [AST: 230 IU/l (ULN=37) and ALT: 129 IU/l (ULN=65)]. Urine dipstick was positive for hemoglobin (++) . A significant hypoalbuminemia was present [1.7 gr/dl (normal >3.5)]. On urine microscopy there were 4-5 leukocytes per high power optical field, while there were no erythrocytes. Her electrocardiogram was normal. Chest X-rays revealed moderate bilateral pleural effusions.

What is the diagnosis?

Diagnosis

The area of the fluctuance in the right thigh was incised and pus was drained and sent for culture. Due to the severity of the disease empirical therapy with intravenous piperacillin-tazobactam 4-0.5 g every 6 hours and vancomycin 1 g every 12 hours was commenced. Culture of the pus grew *Pseudomonas aeruginosa* susceptible to the commenced beta

lactam-lactamase inhibitor. Blood and urine cultures were sterile.

A skin-muscle biopsy of the right thigh and the left arm was performed. A moderate degree of striated muscle degeneration was disclosed with the presence of infiltration of inflammatory cells consistent with myositis.

#### Differential diagnosis

Serology for *Leptospira interrogans*, *Bartonella henselae*, *Borellia burgdorferi*, and *Legionella pneumophila* was negative. An autoimmune screen including anti-ds DNA and anti-Jo1 was negative.

The patient improved gradually and was discharged after three weeks of hospitalization. All abnormal laboratory indices returned to normal. At follow-up (8 months after her discharge) she is doing extremely well.

#### Teaching points

- Pyomyositis is an infection of the skeletal muscles that usually afflicts immunocompromised patients; nevertheless immunocompetent patients are not spared. It is usually due to *Staphylococcus aureus* in about 90% of cases.<sup>1</sup> Other pathogens that may cause pyomyositis are various coagulase-negative *Staphylococcus* species, various streptococcal species, Gram-negative bacteria, as well as anaerobic bacteria and fungi. The disease may affect practically all skeletal muscles of the body, including muscles in the extremities and the trunk.<sup>2</sup>

- Pyomyositis due to *P. aeruginosa* is rare.<sup>3</sup> The skin overlying the involved muscle is not invariably afflicted. Additionally, isolated *P. aeruginosa* infection of intact skin may take several forms: the green nail syndrome, the webbed space syndrome, cutaneous folliculitis, and ecthyma gangrenosum.<sup>4</sup> As far as we know large diameter erythematous patches overlying several areas of inflammatory myositis as was the case in our patient has not been described. Though antibiotic treatment may suffice in the occasional patient, incision and drainage is a mainstay in management.<sup>3</sup>

#### References

1. Crum NF. Bacterial pyomyositis in the United States. *Am J Med.* 2004;117:420-8.
2. Gomez-Reino JJ, Aznar JJ, Pablos JL, Diaz-Gonzalez F, Laffon A. Nontropical pyomyositis in adults. *Seminars in Arthritis and Rheumatism* 1994 ;23:396-405.
3. Korten V, Gurbuz O, Firatli T, Bayik M, Akoglu T. Subcutaneous nodules caused by *Pseudomonas aeruginosa*: healing without incision and drainage. *J Chemother.* 1992;4(4):225-7.
4. Agger WA, Mardan A. *Pseudomonas aeruginosa* infections of intact skin. *Clin Infect Dis.* 1995;20(2):302-8.

#### Acknowledgments

1. The case was prepared for our website by Drs. Peter Rafailidis and Anastasios Kapaskelis.
2. The case report was submitted for consideration for publication.