

## Letters to the Editor

### Toxic shock syndrome associated with pyomyositis

Sir,

Toxic shock syndrome and pyomyositis is a rare association. Only two cases have been reported previously. I describe herein another case in a previously healthy male patient.

A 23 year old Sri Lankan male presented with 4 days history of fever and chills, upper abdominal pain radiating to the back and right shoulder, associated with nausea and vomiting, and pain in both upper and lower limbs. Physical examination revealed his temperature was 38.3°C, blood pressure 110/80 mmHg and respiratory rate 20/minute. Abdominal examination revealed tenderness in the right upper quadrant with guarding, and the liver palpable four fingers below right costal margin. Laboratory investigations revealed haemoglobin 15.9 g/dl, white blood cell count  $15.3 \times 10^9/l$ , total bilirubin 65  $\mu\text{mol/l}$ , serum alkaline phosphatase 107 U/l, serum alanine aminotransferase 228 IU/l, serum aspartate aminotransferase 241 IU/l. Blood urea nitrogen, serum electrolytes, and chest radiograph were normal and anti-HIV antibody test was negative.

Next day he became drowsy, confused and hypotensive with blood pressure 85/65 mmHg; and a generalized erythematous rash. He was given normal saline and the previous antibiotics were changed to imipenem/cilastatin 500 mg every 6 hours intravenously. His blood culture grew *Staphylococcus aureus* and the serum creatine kinase was 4,179 IU/l. On the sixth hospital day he developed fluctuant swelling in the right gluteal region from which *Staphylococcus aureus* pus was aspirated. Diagnosis of pyomyositis complicated by toxic shock syndrome was made, imipenem/cilastatin was discontinued and he was started on intravenous cloxacillin. Echocardiogram was normal. Magnetic resonance imaging (MRI) of the abdomen and both thighs showed multiple small liver abscesses located in the right liver lobe, multiple abscesses in both thighs and right gluteal region. Aspiration of limb abscesses yielded pus that was sterile on culture. On the tenth hospital day desquamation of the skin was noticed involving mainly palms and soles; after which the patient had slow but progressive improvement.

Toxic shock syndrome (TSS) was first described by James Todd and his colleagues in 1978.<sup>1</sup> It is characterized by high fever, hypotension, mental confusion, diarrhoea, renal failure, erythroderma and delayed desquamation. *Staphylococcus aureus* has been identified as the causative agent, through liberation of toxins, among these the most important one is toxic shock syndrome toxin I (TSS T<sub>I</sub>). Other toxins include staphylococcal enterotoxin B and C<sub>1</sub>.<sup>2</sup> Menstrual TSS has been linked to the use of highly absorbent tampons and accounts for two-thirds of cases.<sup>2</sup> Pyomyositis is a purulent infection of skeletal muscles. Most cases occur in the tropics. Predisposing factors include local trauma, thiamine deficiency, parasitic infestation and retroviral infection.<sup>3</sup> More than 95% of cases are caused by *Staphylococcus aureus*; other rare causes include *Streptococcus*, Gram-negative bacteria and fungi. The large muscles of the lower

extremities are usually involved and abscesses are multiple in 15–50% of cases.

Non-menstrual TSS has been reported in association with a wide variety of clinical conditions associated with staphylococcal infection including surgical and postpartum wound infection, deep abscesses, lymphadenitis, burns, furuncles, abrasion, insect bites, sinusitis, bursitis, arthritis, barrier contraceptive usage and influenza respiratory tract-related infections. Only two cases of TSS associated with pyomyositis have been previously reported.<sup>4,5</sup> The present patient meets the Centre for Disease Control (CDC) case definition for TSS, in that he had fever, hypotension, erythroderma with delayed desquamation, vomiting, mental confusion, myalgia, elevated creatine kinase, total bilirubin and transaminases; he therefore had all four major criteria and four minor criteria.

In conclusion, the diagnosis of pyomyositis may be difficult in the early stages of the disease; however, the disease has to be considered especially in patients coming from tropical areas. This case was unusual because it was complicated by toxic shock syndrome, and multiple liver abscesses. Diagnosis is greatly facilitated by the available imaging studies of ultrasound, CT scan and MRI. Surgical drainage combined with anti-staphylococcal antibiotics usually results in full recovery.

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### Staphylococcal pneumonia associated with 'tropical pyomyositis'

Sir,

Tropical pyomyositis is a subacute purulent infection of the skeletal muscles without penetrating trauma or spread from a contiguous septic focus. A small number of abscesses as a part of a widespread staphylococcal

septicaemia is unusual.<sup>1</sup> We report a patient in whom staphylococcal pneumonia resulted in multiple abscesses of the skeletal muscles.

A 25 year old male was admitted with the chief complaints of high-grade fever, cough and expectoration of mucopurulent sputum of 10 days duration. Five days prior to admission, the patient complained of a painful swelling on the left side of the chest extending toward the left shoulder.

Examination revealed a toxic, dehydrated, diaphoretic, moderately built and nourished patient with a pulse rate of 132 beats/minute, respiratory rate of 40/minute regular and a blood pressure of 90/60 mmHg. The temperature was 102.4°F. Chest examination revealed bilateral coarse crepitations, more on the left side. There was a hot, tender, brawny, rubbery hard, pitting swelling on the left side of the chest anteriorly extending to the tip of the left shoulder. The movements of the left arm were markedly restricted and painful.

Investigations showed a total leucocyte count of  $16 \times 10^9/l$  with 74% neutrophils showing toxic granules. ESR was 45 mm in the first hour. Blood sugar, urea, serum electrolytes and creatinine were normal. The chest X-ray displayed bilateral fluffy opacities occupying the whole of the lung fields without the presence of effusion or pneumatocele. Blood culture was repeatedly sterile. Sputum culture showed a growth of *Staphylococcus aureus*.

The patient was given cefazolin and gentamicin along with supportive treatment. During his stay in the hospital, the patient developed abscesses on the medial aspect of the right thigh extending anteriorly and on volar surface of both forearms. These abscesses were drained and revealed intramuscular collection of pus which grew *Staphylococcus aureus*. The patient showed a steady recovery.

'Tropical pyomyositis' is frequently seen in the tropics. In 90% of the cases, *Staphylococcus aureus* is the incriminating organism.<sup>2</sup> The aetiology of this condition is still unknown. Various predisposing factors have been described.<sup>1</sup> Defect in host immunity may have a role in the pathogenesis. Pneumonitis with abscess or pleural thickening is seen in 5% of cases of tropical pyomyositis.<sup>1</sup> However, staphylococcal pneumonia and septicaemia causing metastatic abscess is unusual.<sup>3</sup> As far back as 1930, Sayers<sup>4</sup> described pulmonary complications in six out of 26 cases of tropical pyomyositis of whom one had lobar pneumonia. Taylor *et al.*<sup>5</sup> found at autopsy that 50% of the 19 cases had macroscopic evidence of bronchopneumonia. All these cases had presented with symptoms and signs related to the musculoskeletal system. Our case presented with respiratory complaints following which he developed multiple abscesses. From the literature that we could go through, we did not come across any report of bronchopneumonia causing pyogenic muscle abscess.

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## Hyponatraemia and dopaminergic agents

Sir,

A case of symptomatic hyponatraemia following commencement of L-dopa/carbidopa therapy, given inadvertently for a drug-induced akinetic-rigid syndrome, is reported.

A 73 year old woman was referred with a year's history of progressive slowing of her mobility and mentation. Examination revealed a paucity of facial expression, shuffling gait, truncal and limb rigidity, bradykinesia, synkinesia, but no tremor. Haematological and biochemical indices were normal (sodium 136 mmol/l), as was a computed tomographic (CT) head scan. A diagnosis of Parkinson's disease was made, and the patient was commenced on L-dopa/carbidopa (100 mg/10 mg three times a day; Sinemet). Four days later she was admitted having become unsteady on her feet and fallen twice without loss of consciousness. In addition to her previous neurological signs, gait and limb ataxia were now observed. Blood tests revealed a sodium of 115 mmol/l and a plasma osmolality of 239 mosmol/kg. L-dopa/carbidopa was stopped, and a moderate fluid restriction enforced (1.5 l/day), on which regimen her sodium corrected over the next few days and the ataxia disappeared. Chest radiograph was normal.

Further questioning of her family revealed that she had been taking the thioxanthene neuroleptic flupenthixol (0.5 mg/day) for several years for depression. This too was stopped, with improvement in her akinesia and rigidity. A subcutaneous apomorphine challenge test was negative.

Lammers & Roos recently reported symptomatic hyponatraemia complicating therapy with the dopaminergic agents L-dopa/carbidopa and amantadine hydrochloride in a patient with Parkinson's disease, the probable pathophysiological mechanism being inappropriate secretion of anti-diuretic hormone (ADH).<sup>1</sup> In animals there is anatomical and electrophysiological evidence for a dopaminergic input to magnocellular ADH-secreting neurons in the hypothalamic supraoptic and paraventricular nuclei; dopamine has been shown to facilitate ADH release, whereas dopaminergic antagonists induce a diuresis, in normally hydrated goats.<sup>2</sup> In man, apomorphine, a mixed D1 D2 dopaminergic agonist, produces an increase in plasma ADH levels in some subjects, concurrent with a sensation of nausea, effects blocked by pretreatment with the dopaminergic antagonists halo-