EMERGENCY CASEBOOK

Back pain as the presenting symptom of generalised tetanus

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Back pain is a common presenting symptom in emergency departments and primary care across the UK. The extensive differential diagnosis includes mechanical, infective, thoracic, abdominal and vascular causes. This case report describes a patient who presented with lower back pain with a rare diagnosis, which is becoming more common in certain population groups, and emphasises the importance of clinical skills and insuring adequate tetanus prophylaxis.

A 47-year-old woman presented with sudden onset of severe back pain and spasms that had woken her up from sleep. She denied any history of trauma or prodromal illness before presentation and was requesting analgesia. The patient had a medical history of intravenous drug misuse and was on a methadone regimen. On examination, she was found to be experiencing opisthotonus that was associated with a transient tachycardia on electrocardiography. She had normal temperature, a heart rate of 103 beats/min and a blood pressure of 165/86 mm Hg. Percutaneous oxygen saturation (SpO₂) was 98% on air. Heart sounds were normal and the abdomen was soft. Sparse basal crepitations were heard on chest auscultation. The electrocardiogram and chest radiograph were normal.

Although the patient strongly denied taking drugs, recent track marks were found on her left hand and a needle was found in her pocket. She had an abscess on her right thigh. Her immunisation status for tetanus was uncertain. Other features suggestive of tetanus included risus sardonicus and trismus. The patient's next of kin stated that she had been unwell for several weeks, with frequent sweats that she had attributed to the drugs she had been injecting. Blood tests showed a raised white cell count of $17.2 \times 10^9/l$. Her urea and electrolytes, glucose, calcium, liver function tests, arterial blood gas and C reactive protein level were all normal. Blood was also taken for tetanus immunoglobulin levels and blood cultures. Once blood was taken, a single dose of adsorbed tetanus vaccine and 500 IU of human tetanus immunoglobulin were given intramuscularly at separate sites.

Peripheral or femoral access was not possible, so a left subclavian vein central line was inserted. Shortly after line insertion, the patient complained of severe spasms; runs of ventricular tachycardia were noted on electrocardiography, and she became sweaty and cyanosed. The chest wall became rigid and the oxygen saturation dropped to 80% on 10 l/min of oxygen by facemask. Rapid sequence intubation was performed using intravenous etomidate 20 mg and suxamethonium 100 mg, and she was transferred to the intensive care unit.

In the intensive care unit, she continued to have spasms on minimal stimulation, so she was started on continuous infusions of magnesium and atracurium; hypertensive episodes continued despite this and intravenous clonidine was started. The abscess on the patient's thigh was drained and the foul-smelling black liquid was sent for culture, which showed growth of *Clostridium tetani*. Intravenous metronidazole and benzylpenicillin were started. Her pre-immunoglobulin blood sample confirmed that she was not immune to tetanus infection.

By day 7 in the intensive care unit, a picture of developing multiorgan failure was apparent. Respiratory function had deteriorated, with high airway pressures and worsening gas exchange. Norepinephrine was used to maintain a mean arterial pressure of 70 mm Hg. Atrial ectopics suggested further cardiovascular instability and her renal function deteriorated. A renal ultrasound scan and transthoracic echocardiogram were performed and no abnormalities were found. She subsequently developed the acute respiratory distress syndrome and required haemofiltration. Unfortunately, the patient's condition continued to deteriorate despite aggressive intensive care support; treatment was withdrawn on day 40, the patient died shortly after.

DISCUSSION

The diagnosis of tetanus is based on clinical examination.¹ The most common presenting symptoms are trismus, opisthotonus, general spasms, neck stiffness, dysphagia, abdominal rigidity, risus sardonicus and shortness of breath.

The mortality in the case of tetanus is high, and some attempts have been made to identify poor prognostic indicators of the disease. These indicators are a short incubation period (about 7 days),² generalised tetanus,^{2,3} fever $>40^\circ\text{C}$,² a tachycardia >120 beats/min,² low socioeconomic status,³ extremes of age,³ duration of hospital stay³ and postoperative tetanus.² However, it is widely agreed that prevention is better than cure,^{1,3,4} and an established tetanus immunisation programme exists in the UK today.

Penicillin and metronidazole are effective and recommended as preferred antimicrobials.^{2,4} For the treatment of spasms, non-depolarising muscle relaxants⁴ are often required, and magnesium⁴ has been shown to be effective. Diazepam⁴ and baclofen⁴ have also been trialled and shown to be efficacious.

In conclusion, although a national immunisation programme exists in the UK since 1961, we are still seeing new cases of tetanus in our hospitals, especially among drug misusers.¹ For this reason, it is important that all healthcare professionals should be aware of the atypical as well as typical presentations of tetanus, especially of patients in high-risk groups.

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