Tetanus in an unvaccinated child in the United Kingdom: case report

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Summary
Tetanus is a serious infectious disease that is associated with high morbidity and mortality. It is uncommon in developed countries like the United Kingdom due to widespread immunization. However, cases are still being reported in children who are not immunized. We report a case of an 8-year-old Asian boy who had missed his childhood vaccinations but had been living in the United Kingdom for 3 years. He presented with trismus and muscle spasms needing ventilation in Paediatric Intensive Care for 3 weeks. The case highlights the importance of vaccinating newly arrived children.

Introduction
Tetanus is a vaccine preventable disease and is more common in developing countries. Despite widespread availability of safe and effective vaccine against tetanus, a total of 175 cases have been reported in England and Wales during the period 1984–2000 and 11 per cent of these were in people eligible for routine childhood vaccination. It is very important that vaccination strategies are effectively implemented for eradication of this serious disease.

Case Report
An 8-year-old Asian boy presented to us with a 12 h history of fever, neck pain and difficulty in opening his mouth, which was getting progressively worse. He could not speak or swallow and could not move his neck due to pain. There was no history of recent trauma or open wounds. He did not have headache or photophobia.

He was born in Bangladesh. His family had moved to the United Kingdom 3 years previously. He had his first lot of immunization (diphtheria, tetanus, oral polio and Haemophilus influenzae B) 2 days prior to presentation along with his siblings aged 7 and 12. All of them had missed their childhood immunizations. The other siblings remained well. None of the other children immunized with the same batch of vaccine from that GP practice had shown any adverse affects.

On examination he was afebrile, alert and cooperative. He was lying very still with his neck retracted in an opisthotonic posture. He had severe trismus and could not speak or swallow. Any attempts to look inside the mouth increased the trismus.

He developed generalized muscle spasms with any movement. He could not sit up or walk. The rest of the examination was unremarkable.

His initial investigations revealed a normal full blood count, urea and electrolytes, calcium and magnesium. His C-reactive protein was <5 mg/l. A diagnosis of tetanus was made based on the clinical features in a child who was unprotected by immunizations. He was treated with tetanus immunoglobulin and intravenous antibiotics and transfused to a high-dependency unit in the nearby tertiary centre. In the high-dependency unit he was commenced on intravenous diazepam and muscle relaxants. He continued to have severe spasms and opisthotonic posturing in spite of increasing the strength of the diazepam infusion. He had a lumbar puncture, which ruled out meningitis. A cranial CT scan ruled out intracranial lesions. Three days later he had a respiratory arrest following prolonged spasms and was intubated and ventilated. He was ventilated for 3 weeks. Following extubation he needed intensive rehabilitation in the neurology ward. His medication was switched over to oral diazepam and baclofen, which was gradually weaned off over the next few weeks. He has made an uneventful recovery apart from developing subglottic stenosis secondary to prolonged intubation.

Discussion
Tetanus can be acquired at any point in an unprotected child’s life and is associated with a high likelihood of mortality. It is caused by Clostridium tetani, a spore-forming anaerobic Gram-positive organism.

Diagnosis is based on history and clinical features. The clinical presentation of non-neonatal tetanus includes trismus, risus sardonicus, neck retraction, difficulty in swallowing, dysphasia, spasms, hyper salivation and muscle rigidity. Our patient had most of these clinical features. The differential diagnosis...
includes drug reactions (phenothiazines), poisoning with strychnine, hypocalcaemic tetany and rarely hysteria.\textsuperscript{1–5} There was no evidence of any of these in our case. His clinical course progressed to a full blown clinical presentation of tetanus needing ventilation for 3 weeks. This ruled out the possibility of a reaction to tetanus toxoid. CSF analysis and cranial CT scan ruled out meningoencephalitis and space-occupying intracranial lesions.

Tetanus is recognized as a serious public health problem because of the high mortality associated with it and yet it can be totally prevented by immunization. Tetanus is comparatively a rare disease in England and Wales. A total of 175 cases of tetanus have been reported in England and Wales during the period 1984–2000.\textsuperscript{6} However 20 (11 per cent) of these were in people eligible for routine childhood vaccination.\textsuperscript{6} In areas like Greater Manchester where there is a large immigrant population, it is particularly important for general practitioners to be vigilant and ensure that all children registered in their practice are fully immunized.

Tetanus will continue to be a paediatric problem until vaccination strategies are effectively implemented and surveillance systems are improved. As the disease becomes rare more rigorous tetanus case surveillance is essential.

References