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Panton Valentine leukocidin MSSA leading to multi-organ failure.

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Panton Valentin Leukocidin MSSA Leading to Multi-Organ Failure

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Abstract

We report a case of a 15 year old boy who developed multiple organ failure secondary to a sport injury leading to infection with a Panton Valentin Leukocidin (PVL) secreting Community Sensitive Staphylococcus Aureus (CA MSSA). Aggressive antibiotic therapy eventually led to recovery.

Case Report

A 15 year old immunocompetent boy presented with a 1 day history of confusion, fever, tachypnoea, nausea and vomiting having suffered malaise for the preceding week. He was hitherto an athletic male who was in the national squad for taekwondo.

At presentation his vital signs were: temperature 38°C, BP 80/40mmHg, pulse 140 and GCS 14/15. He was negative for both Kernigs and Brudzinkis sign but he was tender in the left groin. Laboratory investigations on admission revealed a lymphopaenia, mild coagulopathy and acute renal failure. He was treated with broad spectrum antimicrobials for meningococcal meningitis which was then outlived by lumbar puncture following a normal CT brain. He progressively deteriorated whereupon he was intubated and ventilated and transferred to ICU.

Further questioning of his parents revealed that he had complained of a discomfort in the left groin subsequent to a direct kick 2 months previously. This was attributed to a muscle strain. We subsequently noted an erythematous rash overlying the patient's left groin which prompted a surgical review along with a CT thorax, abdomen and pelvis. This revealed an extensive bilateral patchy pneumonia with septic pulmonary emboli, a 3 cm abscess on the left internal obturator muscle and thrombosis of the left common femoral and external iliac veins. An MRI of his thigh revealed soft tissue infection with contiguous osteomyelitis of the pelvis. Blood cultures confirmed PVL secreting MSSA. His antibiotic regime was then rationalised to flucloxacillin and rifampicin and he was anticoagulated with warfarin. He improved with antibiotics and was subsequently discharged well from the hospital. His treatment included 6 weeks of intravenous antibiotics followed by 6 weeks of oral antibiotics along with 6 months of anticoagulation with warfarin. He was well when reviewed in the clinic and a repeat MRI of his hip showed no active infection.

Discussion

Men who partake in contact sports are at the greatest risk of developing a sports related infection. The two most commonly transmitted pathogens are HSV and Staphylococcus Aureus. Athletes who encounter a competitor with a funicle are more likely to develop furunculosis than controls.² Staphylococcus aureus septicaemia is associated with increased morbidity and mortality even with the appropriate antibiotic treatment. In a 10 year review of children with staphylococcus aureus septicaemia, 55 of 58 patients were CA-MSSA. Musculoskeletal symptoms (79%) dominated the presentation and an aggressive search for foci and surgical drainage of infective foci was required in 50% of children.³ Deep seated infections were found more frequently in CA-MSSA isolates than CA-MRSA isolates (30% vs.

11%; P=0.01)⁴. PVL is a staphylococcus aureus leucotoxin. It causes leucocyte destruction and tissue necrosis and is produced by less than 5% of staphylococcus aureus strains.⁵ PVL gene-positive strains are more frequently isolated from immunocompetent patients than immunocompromised patients.⁶ In Ireland, 1.8% (25/1,389) MRSA isolates harboured PVL⁷ and there is no published data on MSSA positive PVL.

In summary, Staphylococcus aureus has protean manifestations which may be difficult to recognize and lead to disability and death. It is important to note that any body site can become secondarily infected during the course of staphylococcus aureus bacteraemia. Surgical drainage of infections whenever feasible and rationalised antibiotic regimen based on the results of susceptibility testing is advised.

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