An outbreak of methicillin resistant Staphylococcus aureus infection in a rugby football team

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Abstract

Outbreaks of infection caused by methicillin resistant Staphylococcus aureus are common in hospitals and nursing homes, but until now none have been reported in the community. This is a report of an outbreak involving five members of a rugby football team.

(Keywords: Staphylococcus aureus; methicillin; rugby football; skin)

Outbreaks of cutaneous infection among participants of physical contact sports—for example, rugby football—are well recognised and documented in the medical literature. Most reported outbreaks have been caused by herpes simplex, Staphylococcus aureus, or Streptococcus pyogenes, and are variously described as “scrum pox”, “herpes rugbiumor”, or “scrum strep”. Complications of such infections include herpes simplex keratitis and post-streptococcal nephritis (“scrum kidney”), and further spread of infection to other close contacts may occur. Although there have been many reported outbreaks of infection caused by methicillin resistant Staphylococcus aureus (MRSA) in hospitals and nursing homes, we are unaware of any published accounts of outbreaks in the community. We describe here an MRSA outbreak involving five members of a rugby football team.

Description of the outbreak and control measures

In December 1996, five members of a rugby football team presented to the club doctor with cutaneous infections that had not responded to β-lactam antibiotics prescribed by their general practitioners. All affected individuals were forwards who had last played together in a match against a touring team from the South Pacific. Over the following ten day period, they developed large abscesses (some up to several centimetres in diameter) at various sites including upper arms, back, neck, and face. As the players were resident over a large geographical area, they all initially consulted their own general practitioners and were prescribed either fluocoxacillin or co-fluampicil. No bacterial cultures of the lesions were obtained. The club doctor recognised that an outbreak of infection was in progress and made arrangements to take bacteriological swabs from the lesions and carriage sites (nose, axillae, and groins) of the five affected players. In addition, after consultation with the local consultant in communicable disease control and hospital microbiology laboratory, other team squad members were screened for staphylococcal carriage. Samples from six partly used containers of petroleum jelly from the club changing room were also cultured for MRSA.

Cultures from the lesions of the five affected players grew S aureus which was resistant to penicillin and methicillin but sensitive to erythromycin, gentamicin, mupirocin, ciprofloxacin, tetracycline, and fusidic acid. Only one of the five players was found to be carrying this strain at another body site (nose). All isolates were submitted to the Staphylococcus Reference Unit of the Central Public Health Laboratory, Colindale. The five methicillin resistant isolates were found to have an indistinguishable phage typing pattern—that is, 29/52/52A/80/95/42E/54/77/84/81. Methicillin resistance was confirmed by detection of the meca gene by polymerase chain reaction (PCR) assay. Thus the outbreak strain had an easily recognisable pattern of typing, indicating that it belonged to phage group I + III. Strains of this phage group occur in the community as well as in hospitals and may acquire antibiotic resistance. However, it should be noted that this strain of MRSA is not one of the epidemic strains now seen in many hospitals in the United Kingdom. None of the other 15 squad members was found to be carrying the outbreak strain, although seven were found to be carrying methicillin sensitive strains, which could be distinguished by phage typing from MRSA. MRSA was not isolated from any of the six containers of petroleum jelly tested. No cases of infection were reported among family members or other close contacts of the patients.

The five players with MRSA infection subsequently responded well to treatment with either erythromycin or clarithromycin. The individual with nasal carriage also received mupirocin nasal ointment. Infected players were excluded from further matches and training sessions until deemed fit to resume. Other outbreak control measures including disinfection of training equipment and banning the use of communal containers of emollients such as petroleum jelly (used to lubricate head, shoulders, and limbs before matches) were instituted.

Comments

We believe this to be the first reported community outbreak of MRSA infection outside the healthcare setting. The features are consistent with previous descriptions involving rugby football teams in that it was forward players who were affected, suggesting that transmis-
sion takes place during periods of prolonged close physical contact rather than from shared equipment or facilities. It is possible that the causal strain of MRSA was introduced by one of the opposition players from the touring team, but we were unable to investigate this hypothesis. However, enquiries to subsequent opponents of this team produced no evidence of similar outbreaks and there were no reported infections in other rugby teams using the same changing facilities and clubhouse as the affected team.

In addition to excluding players with infected lesions from matches and training sessions, other suggested measures to prevent outbreaks of infection in rugby teams include the routine inspection of players for skin lesions before matches and the application of antiseptic preparations to abraded skin after matches. Recently, a vaccine was used to control an outbreak of herpes simplex infection involving the members of a rugby team and their sociosexual contacts.

Doctors looking after participants in close contact sports such as rugby football should be aware that outbreaks of infection can occur and should consider the possibility of unusual or antibiotic resistant pathogens in this situation. Despite the recent comment by the Chief Medical Officer that MRSA poses no particular risk in the community, this outbreak highlights the potential of at least some strains of MRSA to behave in the same way as methicillin sensitive strains—that is, to spread among and infect fit and healthy young adults under favourable conditions.

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