organism, and its spores are killed by exposure to temperatures greater than 121°C for 12 minutes (Cruickshank et al. 1973).

At the end of the autoclave cycle the bandages were unwrapped and the spore strips aseptically transferred to culture media and incubated for seven days. The growth of a culture indicates unsatisfactory sterilisation and is recorded as "failure".

Results. Figure 1 shows that a satisfactory sterilising temperature was rapidly reached at the autoclave exhaust port, but that the temperature between the layers of bandage rises very slowly, never reaches 134°C, and then decreases rapidly. Table I gives the results of the spore strip tests and shows that many bandages were unsterile.

There were significantly fewer failed spore strips in the short rolled bandages than in the long ones (p < 0.001, Fisher's exact test), but no significant difference between long and short folded bandages. Folded bandages had significantly fewer failures than the rolled bandages of the same length (long p < 0.001, short p < 0.01). The number of bandages with no failed strips was also significantly different for folded and for rolled bandages (long, p < 0.001 and short p < 0.01).

Discussion. This study has confirmed that Esmarch bandages, whether tightly rolled or loosely folded, may not be properly sterilised by normal autoclaving and that there is a significant difference between the rolled and folded group. The cause of failure is probably the thermal insulation properties of rubber; efforts to produce complete sterility would involve either a prolonged autoclave cycle, or the interleaving of the bandage with a loose thermoconductive material to allow heat penetration. Until such methods can be formulated, we recommend that the use of conventionally "sterilised" Esmarch bandages be abandoned.

Table I. Results of testing with spore strips in 40 bandages

<table>
<thead>
<tr>
<th>Bandages</th>
<th>Spore strips</th>
<th>Strips with bacterial growth</th>
<th>Bandages with no failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long rolled bandage</td>
<td>10</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>Short rolled bandage</td>
<td>10</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Long folded bandage</td>
<td>10</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>Short folded bandage</td>
<td>10</td>
<td>29</td>
<td>1</td>
</tr>
</tbody>
</table>

REFERENCES


AN ORTHOPAEDIC PRESENTATION OF AIDS: BRIEF REPORT

E. J. P. CRAWFURD, P. R. E. BAIRD

Case report. A 25-year-old Iranian woman presented with an 18-month history of pyrexia of unknown origin, and a five-month history of right tibial pain. A month earlier, while she was still in Iran, a biopsy had been taken from a lesion in the shaft of the right tibia. Cultures from this had shown no growth. The histology, which was difficult to interpret, suggested either an eosinophilic granuloma or possibly a low-grade fungal infection.

When she presented in England she had multiple sinuses over the right upper tibia with an overlying unhealed biopsy wound. Further abscesses were noted overlying the left shoulder and left eye (Figs 1 and 2).

The radiographs taken in Iran showed a small lytic lesion within the cortex of the midshaft of the right tibia (Fig. 3), but over the following month this had progressed to involve the medullary cavity (Fig. 4). Surprisingly, there was almost complete absence of any periosteal reaction such as might have been expected
with acute pyogenic osteomyelitis. Radiographs of the left shoulder only showed minor soft-tissue calcification. A bone scan showed increased isotope uptake in the skull, left clavicle, several vertebrae, and both tibiae.

Biopsies taken from the right tibia eventually grew *Mycobacterium kansasii*. Blood cultures grew *Salmonella blockley* and this bacteraemia persisted for over a month, despite appropriate antibiotic therapy. The tests for HIV antibody were positive.

It was then discovered that in 1983, while the patient was in the USA, she had sustained an abdominal stab wound, and had subsequently undergone an emergency splenectomy and had had a blood transfusion. It is inferred that this was when she had acquired the HIV infection, which two years later progressed to AIDS.

Treatment with trimethoprim, rifampicin, isoniazid and streptomycin was started and at first her general condition improved, although her blood cultures took over a month to become negative. However, she then developed an overwhelming opportunistic infection and died.

**Discussion.** The diagnosis in this patient was delayed because of the unusual radiological appearance and the difficulty in interpreting the biopsy specimens. These showed little evidence of infection as the usual inflammatory response was not present. An incorrect diagnosis of a neoplasm was therefore initially entertained. The histology showed skin with massive oedema undermined by a tract containing pus cells and lined by granular histiocytes which were packed with acid-fast bacilli. In the bone a similar non-specific mixed response was seen with extensive tissue destruction. The organisms *Salmonella blockley* and *Mycobacterium kansasii* are both rare pathogens in Britain. Infection with mycobacteria, however, is well recognised in AIDS patients (Wolinsky 1979; Polsky and Gold 1986).

This case of AIDS presented as an orthopaedic problem, which underlines the need for orthopaedic surgeons to be aware of an increasingly prevalent disease.

**REFERENCES**
