Symmetrical peripheral gangrene complicating *Klebsiella pneumoniae* sepsis associated with antiphospholipid antibodies

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We have encountered a rare case of symmetrical peripheral gangrene complicating *Klebsiella pneumoniae* sepsis associated with antiphospholipid antibodies.

**CASE REPORT**

A 72 year old woman was admitted to our hospital with fever and symmetrical gangrene of both fingers and toes. She had been well until she began to suffer from fever and pain in the abdomen 3 days before admission. She then attended a local hospital and underwent an abdominal computed tomography scan that showed a liver abscess. Culture of blood and ultrasonography guided aspirates disclosed *Klebsiella pneumoniae*. The day before admission she had deep-bluish discoloration of both fingers and toes, and she was transferred to our hospital.

On admission, most of her fingers and toes already showed gangrenous changes (fig 1A), but the pulse in the bilateral radial, ulnar, and dorsalis pedis arteries was intact. Antithrombin III, protein C and S activities were depressed. IgG anticardiolipin antibody was highly positive, while IgM was negative (table 1). β2-Glycoprotein I antibody was also positive. However, there was no evidence of lupus erythematosus by the criteria of the American College of Rheumatology. Computed tomography guided drainage of the liver abscess and culture of the aspirates subsequently disclosed *K pneumoniae*. Third generation cephalosporin plus metronidazole were given. We initially considered fasciotomy, or even amputation, but the bilaterally intact arterial pulse and the fact that the gangrene was confined to the distal ends of the extremities made us hesitate to intervene surgically. Eventually, we decided to use an anticoagulant, in combination with vasodilators. Tissue plasminogen activator 5 mg/h was given for 16 hours. At the same time we began infusion of prostacyclin (eoprostefene) 2 ng/kg/min for 6 hours a day for 7 days. After 2 days of the tissue plasminogen activator schedule, low dose heparin was given over 5 days, followed by sodium warfarin 2.5 mg/day until the international normalised ratio of 2.0–2.9 was reached. Low dose aspirin 325 mg and nifedipine 30 mg a day were also given. After the anticoagulant and vasodilator treatment had begun, none of the gangrenous lesions progressed any further, and the affected fingers and toes gradually began to regain warmth and colour. About six weeks later, most of the fingers and toes had returned to normal, and four necrotic distal toes of the right foot had been successfully amputated without further complication (fig 1B). As of May 2003, the patient is completely recovered, and now receiving rehabilitation treatment.

**Figure 1** (A) Gangrene on fingers and toes on admission. (B) After anticoagulant and vasodilator treatment the fingers and most of the toes are back to normal, although the necrotic distal toes of the right foot have been amputated.
An unusual case of ankle arthropathy

S Abraham, A Cope

Table 1 Laboratory parameters of the antiphospholipid syndrome

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<th>On admission</th>
<th>6 Weeks later</th>
<th>Convalescent</th>
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<tbody>
<tr>
<td>IgG anticardiolipin antibody</td>
<td>87</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>IgM anticardiolipin antibody</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>β2-Glycoprotein I antibody</td>
<td>31.0</td>
<td>11.0</td>
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*Normal range of anticardiolipin antibody: 0–20; †normal range of β2-glycoprotein antibody: <10 U/ml.

DISCUSSION

Because K pneumoniae was isolated from the blood, we concluded that hypercoagulability complicating K pneumoniae sepsis was the main cause of the clinical feature. We also recognised anticardiolipin and β2-glycoprotein antibodies, suggesting that an immunological mechanism, such as catastrophic antiphospholipid syndrome, rather than an infection, might have played a role.1,9 IgG anticardiolipin antibody was still positive after 6 weeks8,7 but became negative after convalescence (2 months later; table 1). On the basis of these findings, we postulate that both the positive anticardiolipin antibody and the K pneumoniae sepsis may be closely correlated with the gangrenous process. Although Amital et al reported that amputation could induce remission of the systemic illness,8 some reports have recommended that non-surgical management is preferable if there is an intact pulse in the affected limb.9 The lesson we learnt from this case is that anticoagulant8 and/or vasodilator treatment, rather than surgical intervention, should be initiated as soon as possible for a septic patient with apparently symmetric gangrenous extremities.

Only sporadic reports of this rare disease entity have appeared until now, but there has been no report of a case complicating K pneumoniae sepsis. To our knowledge, this is the first report of catastrophic antiphospholipid syndrome following K pneumoniae sepsis.

REFERENCES


An unusual case of ankle arthropathy

S Abraham, A Cope

CASE REPORT

A 65 year old white woman presented with a 5 year history of pain and intermittent swelling of the left ankle. There had been no preceding trauma to the ankle and the symptoms were initially gradual in onset with aching and stiffness but then evolved into a continuous pain, particularly nocturnally. Her previous medical history included a right total hip replacement aged 53, menopause aged 53, and essential hypertension. There was no family history of rheumatological illness and her mother died of a myocardial infarction aged 56 years.

Examination disclosed evidence of osteoarthritis in her hands and an unusual symmetrical bony swelling of her 1st and 2nd metacarpophalangeal joints. Her left ankle was swollen and warm to the touch (fig 1). Investigations disclosed normal inflammatory markers and autoantibody screen, a mildly raised aspartate aminotransferase 35 U/l (normal 31 U/l) and alanine aminotransferase 42 U/l (normal 30 U/l), and a normal serum glucose. Radiographs of the ankle disclosed changes compatible with moderate to severe osteoarthritis, and those of the hands showed bilateral significant joint space narrowing, hooked osteophytes and sclerosis of the 2nd and 3rd metacarpophalangeal joints bilaterally, and chondrocalcinosis in the triangular ligament of the wrist. Her transferrin saturation index and ferritin were markedly raised at 98% (normal 20–40) and 4340 μg/l (normal 12–200), respectively. Genotyping was

Figure 1 Left ankle demonstrating a palpable bony swelling.