Correspondence

Tuberculosis complicated by ARDS

Dear Editor,

The incidence of tuberculosis (TB) is increasing. Due to the increase in immigration and the spread of high risk groups such as HIV-infected patients and atypical forms, uncommon complications are more frequent

A 49-year-old woman was referred from another hospital with fever and pancytopenia (white cell count [WCC] 2,800; platelet count 80,000; erythrocyte sedimentation rate [ESR] 25) and on amoxycillin. On examination, her temperature was 38.5°C, pulse 80 bpm, blood pressure 100/40mmHg and respiratory rate 46. She was pallor and jaundiced but had no lymphadenopathy. Coarse crepitations were heard over the right lung base.

A bone marrow aspirate revealed hypocellularity with dysplasic traits in leukocytes, platelets and red cells. Radiographs of the chest revealed alveolar opacities in the right upper lobe. Oxygen saturation was 84.3% on ambient air. Abdominal ultrasound showed a 15cm splenomegaly. Specimens of urine and blood were obtained for culture, antigen and antibody tests for agents such as cytomegalovirus (IgM) and hepatitis A and B virus. Serologic testing for HIV was refused. A tuberculin skin test was negative. Serum test for antinuclear antibodies, antineutrophilic cytoplasmic antibodies, antibodies against glomerular basement membrane and rheumatoid factor were negative. C3-C4 levels were normal. Ceftazidime, amikacin and erythromycin were commenced.

On the fourth hospital day, the temperature rose to 40°C. A CT scan of the thorax (see Figure 1) revealed pneumonia in right lung field, patchy opacities in left lung field and a right-sided pleural effusion. Respiratory failure with refractory hypotension developed. Haemodynamic measurements via pulmonary catheter were consistent with RDS. The pulmonary artery wedge pressure was 8mmHg and the systemic vascular resistance was 530dynes/cm.seg. Mechanical ventilation and intravenous isoniazid and rifampin were started but failed.

Autopsy revealed granulomas with central necrosis and caseation involving the lungs. Several tissues, such as heart, liver and kidney showed acid fast bacilli that were consistent with Mycobacterium tuberculosis and disseminated tuberculosis. The cultures from lungs, liver and kidneys were positives to M. tuberculosis with no resistance to antituberculosis drugs.

Tuberculosis, as a primary cause of respiratory failure requiring mechanical ventilation, is relatively uncommon. Respiratory decompensation often coincides with the development of adult respiratory disease syndrome (ARDS), which can be difficult to differentiate from a confluent pulmonary tuberculosis infection with septic shock. The pathogenesis of ARDS resulting from M. Tuberculosis infection and Gram-negative sepsis is alike. Lipopolysaccharide (LPS) is thought to play a key role in the triggering of acute lung injury in sepsis[1] and lipoarabinomannan (a tuberculosis cell wall component), acts similarly to LPS in that it activates macrophages to release cytokines.[2] Alveolar macrophages secrete cytokines such as tumour necrosis factor-alpha (TNF-α) and interleukin (IL)-1, -6, -8 and -10 which act locally to stimulate chemotaxis and activate neutrophils. IL-1 can also stimulate the production of extracellular matrix by fibroblasts.[3] Additionally M. Tuberculosis may make endothelial cells more susceptible to the toxic effects of TNF-α.

JC Arevalo-Lorido, JC Bureo-Dacal, J Romero-Requena, JL Ramos-Salado, P Bureo-Dacal

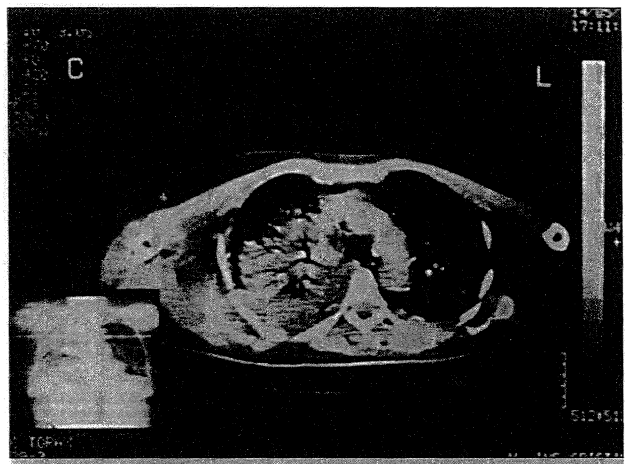

Figure 1

Internal Medicine Department, Universitary Hospital Infanta Cristina, Badajoz, Spain

References

1. Venet C, Zeni F, Viallon A et al. Endotoxemia in patients with severe sepsis or septic shock. *Int Care Med* 2000; 26: 538-44.
2. Zhang Y, Doerfler M, Lee TC, Guillemin B, Rom WN. Mechanism of stimulation of interleukin-1-b and tumor necrosis factor a by Mycobacterium tuberculosis components. *J Clin Invest 1993*; 91: 2076-83.
3. Ware LB, Matthay MA. The acute respiratory distress syndrome. *New Engl J Med* 2000; 342: 1334-49.

Inferior dislocation of the patella: an unusual cause of a locked knee

Dear Editor,

Inferior dislocation of the patella is unusual without trauma and without rupture of the quadriceps or patellar tendons.

A 75-year-old female presented with an acutely locked knee, having developed sudden onset of pain in her right knee while boarding a bus. On examination, the right knee was locked in 40° flexion and attempted movement caused pain. The patella was low lying and there was no evidence of an extensor mechanism rupture. Plain radiographs (see Figure 1) and magnetic resonance imaging (MRI) scan confirmed an inferior dislocation of the patella with intact quadriceps and patellar tendons. Under general anaesthetic, downward pressure was applied to the superior pole of the right patella while extending the knee. This manoeuvre reduced the patellar dislocation and resulted in full range of movement of the knee. The patient made an uneventful recovery.

Patellar dislocation usually occurs due to a twisting injury or a direct blow to the knee. Lateral dislocation is the most common type, but there are reports of intra-articular, superior[2] and inferior[3] patellar dislocations. Joshi[3] described the rare inferior dislocation of the patella in which a patient sustained a twisting injury to the knee and the patella displaced out of the groove. The mechanism of dislocation is believed to be that of a superior pole osteophyte engaging in the intercondylar notch. In our case, this occurred without trauma and resulted in the knee being locked in 40° flexion. Our method of reduction also differed from Joshi's in that downward pressure on the patella was needed to reduce the superior pole osteophyte.

Patello-femoral degeneration may predispose to the uncommon inferior dislocation of the patella.

TA McCarthy, B Quinn, JM Pegum
Department of Trauma Orthopaedics, AMNCH, Tallaght, Dublin 24, Ireland.

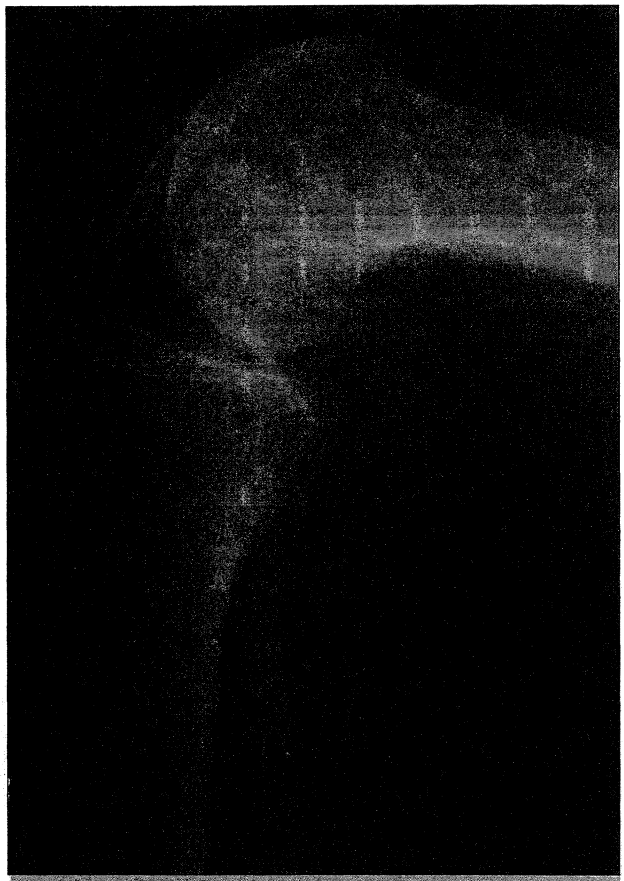

Figure 1. Lateral X-ray right knee on presentation showing inferior patellar dislocation.

References

1. Murakami Y. Intra-articular dislocation of the patella. A case report. *Clinical Orthop.* 1982; 171: 137.
2. Hanspal RS. Superior dislocation of the patella. *Injury* 1985; 16: 487-8.
3. Joshi RP. Inferior dislocation of the patella. *Injury* 1997; 28 (5-6): 389-90.

Biliary sepsis in a patient on anti-TNFα therapy

Dear Editor,

A 54-year-old American tourist presented to the accident and emergency department with a two hour history of nausea, vomiting and colicky right upper quadrant pain radiating to her back. She described a brief episode of right upper quadrant pain four days earlier. Abdominal ultrasound in another hospital showed a normal gallbladder containing biliary sludge with a common bile duct (CBD) diameter of 14mm. She had a long history of rheumatoid arthritis but no features of Sjögren's syndrome. She used Enbrel® (etanercept) 25mg twice weekly for the past year in addition to verapamil and hormone replacement therapy. At this presentation, she was apyrexial with localised right upper quadrant tenderness. Murphy's sign was positive. Full blood count, renal profile and serum amylase were normal. Liver function tests were elevated: bilirubin 25mmol/l (0-20), alkaline phosphatase 298U/l (35-130), AST 170U/l (5-40), ALT 107U/l (5-40).

Two hours later, she developed a pyrexia of 39.5°C. Blood cultures were taken and intravenous fluids and antibiotics commenced. Despite this, three hours later her temperature increased to 41.2°C with associated tachycardia (140 bpm), hypotension (86/54mmHg) and disorientation. Her white cell count remained normal although her platelet count dropped to 84. Abdominal ultrasound showed minimal thickening of the gallbladder wall with a normal CBD. Abdominal CT confirmed pericystic fluid and focal pneumobilia with a thickened gallbladder but no stones (see Figure 1). Clostridia and streptococci were isolated from peripheral blood cultures.

Intraoperative laparoscopic cholangiogram showed CBD dilatation with distal bile duct obstruction. Open cholecystectomy with CBD exploration revealed a distended, oedematous gallbladder and a large CBD sludge cast. A T-tube was inserted and cholangiogram on day 10 was normal. Postoperatively her pyrexia settled slowly and she was discharged 13 days after admission.

Etanercept, a tumour necrosis factor-α (TNFα) p75 receptor analogue, is increasingly used as a second line agent in rheumatoid arthritis.[1] TNFα is a proinflammatory pyrogenic cytokine that modulates the cellular immune response by activating T-cells and promoting endothelial cell adhesiveness. The effect of TNFα antagonism on the clinical course of sepsis is complex. Previous randomised clinical trials of TNFα p55 receptor therapy (lanercept) showed improved outcome following treatment of critically ill patients with severe sepsis.[2] Although no difference in the incidence of infection was reported in placebo-controlled etanercept trials,[1,2] it is not recommended for use in patients with acute or chronic infections. Twenty-four serious and six fatal infections have been reported in etanercept users, although most patients had other risk factors for infection such as poorly controlled diabetes.[3] Immunosuppressed patients are more likely to have unusual biliary pathogens[4] but shock remains a rare presentation of acute cholangitis.[5]

Our patient exhibited a rapidly progressive illness with an unusual causative organism despite any other known cause of immunosuppression. Putative effects on biliary sepsis are particularly relevant to the newly established role of anti-TNFα therapy in Crohn's disease due the increased prevalence of

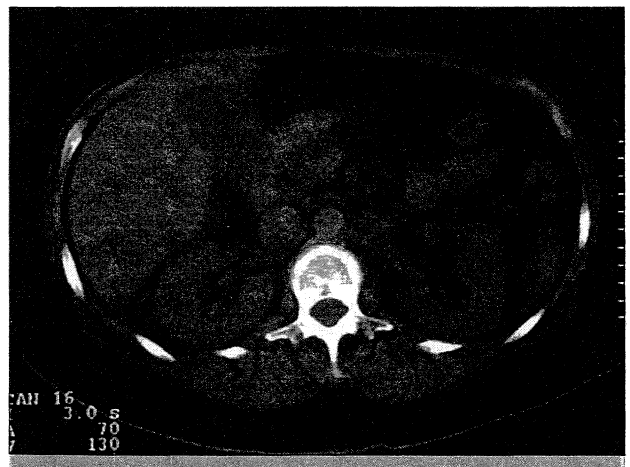

Figure 1. CT image showing enhanced gallbladder with pericystic oedema and pneumobilia (arrow).