spasticity, paraparesis, brisk tendon reflexes, and a positive Babinski sign.

Patients may present with an acute enlargement of the head of the humerus. Remarkable subcutaneous oedema of the hands referred to as “main succenture” has been described. Interruption of the central autonomic pathways results in hypehydrosis.

Syringomyelia with resorption of the humeral head representing a neuroarthropathy of the central autonomic pathways results in hypehydrosis. Resorption of the head of the humerus with a well defined margin is a characteristic radiographic finding of syringomyelia.

Final diagnosis
Syringomyelia with resorption of the humeral head representing a neuroarthropathy

Abdominal pain in a diabetic myeloma patient with cirrhosis

Q1: What is the differential diagnosis?
Multiple myeloma (with low concentrations of uninvolved immunoglobulin concentrations), diabetes, cirrhosis, and hospitalisation constitute major risk factors for severe infections in this patient. Spontaneous bacterial peritonitis must always be considered for this kind of cirrhotic patient as well as the possibility of a urinary tract infection, because of the marked pyuria and multiple risk factors. Although these two conditions are the most probable, all other causes of lower abdominal pain—for example, intra-abdominal abscess, perforated viscus, mesenteric vascular accident, and diverticulitis—must be excluded, especially in an uncooperative patient.

Q2: What abnormalities are seen on the radiographs?
The x-ray film obtained after contrast enhanced computed tomography, while the patient was excreting contrast material, shows the borders of the urinary bladder and gas bubbles within its wall clearly as a radiolucent line (fig 1; see p 375). The extent of gas collection can be better appreciated in the computed tomogram (fig 2; see p 375). The source of this gas within the urinary tract may arise from infection, penetrating trauma, gastrointestinal fistulas or iatrogenic causes, such as diagnostic or surgical intervention.

Our patient gave no history of trauma, and no urinary instrumentation had been performed previously. Fistulous tracts, abcesses, and mesenteric occlusion can be excluded on computed tomography. The patient’s risk factors, marked pyuria, foul smelling urine, and predominant gas collection in the bladder wall make a urinary tract infection most likely.

The final diagnosis was emphysematous cystitis. This is a rare form of urinary tract infection in which fermentation of glucose by bacteria causes carbon dioxide production in the bladder wall, which is seen on a plain film as a radiolucent confined to the bladder wall. Gas bubbles collect in the submucosa and eventually rupture, resulting in gas within the bladder lumen. Computed tomography is a very sensitive tool for demonstrating the gas within the bladder wall and the extent and location of the gas collection.

Patients may complain of lower abdominal pain, dysuria, and pneumaturia or may have no symptoms. Likewise, severity of the illness ranges from an asymptomatic condition to life threatening cystitis.

Q3: What are the predisposing factors?
More than 50% of patients with emphysematous cystitis have diabetes mellitus. Patients with bladder outlet obstruction, neurogenic bladder, and recurrent urinary tract infections are at increased risk. Immunocompromised and debilitated patients are especially susceptible. Females are two times more likely to be affected than males.1 The condition most commonly results from infection with Escherichia coli but proteus, klebsiella, staphylococcus, streptococcus, nocardia, and clostridium have also been described in the literature.2 Long term broad spectrum antibiotic therapy and indwelling Foley catheters constitute another risk group for candida related emphysematous cystitis.

Q4: How would you treat this condition?
Early diagnosis, strict control of the blood glucose level in diabetic patients, immediate antibiotic therapy, and adequate continuous bladder drainage are the general treatment principles. Patients must be admitted to hospital for observation and proper intravenous antibiotic therapy. After successful elimination of infection, radiographic and clinical resolution usually occurs within a few days, because carbon dioxide is readily absorbed in human tissue.

It is important to differentiate emphysematous cystitis from emphysematous pyelonephritis, in which gas involves the renal parenchyma, since the latter has a mortality rate of about 40% and generally requires nephrectomy. In contrast surgical intervention is rarely needed in emphysematous cystitis except when an anatomical abnormality like an obstruction or stone is present.2

Final diagnosis
Emphysematous cystitis.

References

An eponymous reaction to a knife wound

Q1: Where is the anatomical site of injury and which spinal tracts have been damaged?
A left sided hemisection of the spinal cord at T8 plus bilateral posterior column loss. This is due to the knife track coming obliquely from the right, across both posterior columns of the spinal cord before hemisecting the left side of the cord (see figs 1 and 2). The left sided tracts transected include the corticospinal tract, dorsal column, and spinothalamic tract.

Figure 1 T2 weighted sagittal MRI image of the thoracic cord showing a mixed signal abnormality (arrowed) slightly to the left of the cord at D10, representing the knife track within the cord.

Figure 2 T2 weighted axial MRI image of the thoracic cord showing an area of high signal posteriorly and to the right of the cord, consistent with the track of the knife through the soft tissues (arrowhead). The lesion within the cord is seen again slightly to the left of the midline (arrowed).