Our patient presented with typical features of pyomyositis: fever, malaise, and a tender hard mass. Ultrasonography suggested either an abscess or a necrotic tumour, and the diagnosis was made by open biopsy. No causative organism was identified. He had none of the known risk factors. He was, however, positive for HIV antibodies, and associated immunosuppression was possibly a factor in the development of the muscle abscess, although at the time of writing he had not developed any further infections apart from oropharyngeal candidiasis. Pyomyositis has not been reported in association with HIV.

Pyomyositis is uncommon in Britain and is not usually recognised. Familiarity with its features should result in the diagnosis being made more readily. It may prove to be a well recognised feature of infection with HIV and require differentiation from sarcoma.

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Myocardial infarction due to amphetamine

We report on a patient with myocardial infarction probably resulting from self administration of intravenous amphetamine.

Case report

A 33 year old white building labourer was admitted with chest pain. He was a known drug addict, taking 500-750 mg of heroin intravenously each week and occasionally taking other substances. One hour before the onset of his pain he had injected himself with about 60 mg of amphetamine, having injected 40 mg of heroin several hours earlier. Two years previously he had been admitted with similar chest pain; at the time no history of drug abuse was elicited, but later he had admitted to taking amphetamine intravenously one hour before. He cleaned his needles in hot water and occasionally shared needles. He smoked about 20 cigarettes a day and drank alcohol occasionally. His mother had died of myocardial infarction at the age of 41.

On admission he was drowsy and in pain. There were no abnormal signs apart from venepuncture scars on his arms. Serial electrocardiograms showed the development of abnormal Q waves and typical ST-T segment changes due to an inferolateral myocardial infarct (figure). Peak serum enzyme concentrations were raised: aspartate aminotransferase 235 IU (normal 15-40 IU/l) and lactate dehydrogenase 708 IU/l (normal 115-235 IU/l). Blood glucose concentration measured at random was normal at 5·6 mmol/l. Results of serological tests for human immunodeficiency virus were negative. Hepatitis B surface antibody was present in low titre, but hepatitis B surface antigen and e antigens were absent. On his previous admission pericarditis had been diagnosed, but enzyme concentrations were not measured. Electrocardiograms at that time showed changes compatible with a non-Q wave anterolateral infarct.

He made an uneventful recovery from his presumed second infarct and had no withdrawal symptoms. On discharge from hospital seven days later he was not receiving any drugs. At follow up he denied smoking or taking drugs. Coronary arteriograms performed three months after the infarction were normal. A left ventricular angiogram was also normal apart from slightly diminished apical contraction. Blood lipid concentrations were normal, with a cholesterol concentration of 5·2 mmol/l.

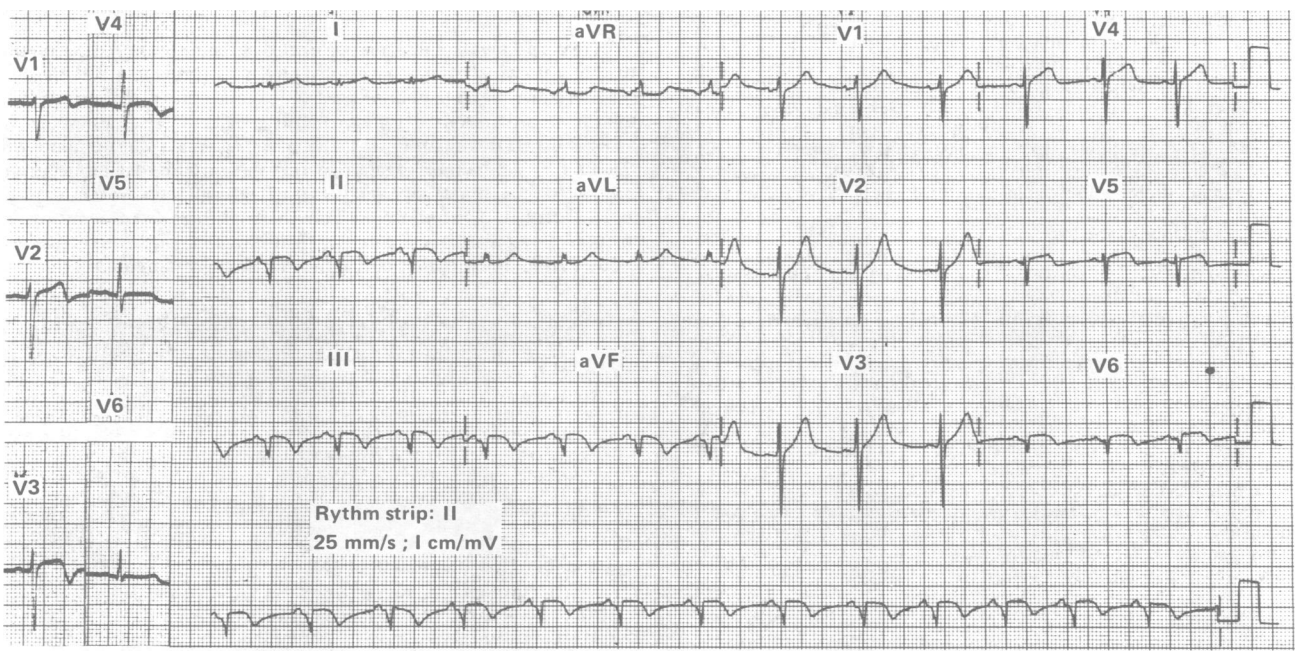
Comment

Amphetamine is a sympathomimetic drug which acts by releasing noradrenaline from sympathetic nerve endings. Catecholamines can cause myocardial damage by increasing myocardial oxygen demand or by causing platelet aggregation. In animals pretreatment with antiplatelet drugs may prevent catecholamine induced myocardial necrosis.[1] Noradrenaline usually causes dilatation, but in some people it may cause coronary artery spasm.[2] As far as we are aware acute myocardial ischaemia due to heroin has not been reported, although this drug is known to cause pulmonary oedema, arrhythmias, and hypoxia.

Congestive cardiomyopathy has been reported in a woman who used oral dextroamphetamine almost continuously for 12 years[3] and in four men who regularly used intravenous propylhexedrine, an amphetamine analogue.[4] In three of these cases coronary arteriograms were normal. There have been two reports of acute cardiomyopathy related to intravenous amphetamine abuse, and in both cases coronary arteriograms were normal.[1 5]

It is increasingly recognised that myocardial infarction may occur in patients with subsequently normal coronary arteriograms. The mechanism is uncertain, but lysis of thrombus and coronary artery spasm are common explanations.

Our patient had known risk factors for coronary artery disease: he smoked cigarettes and his mother had died of myocardial infarction at the age of 41. His coronary arteries appeared normal, however, and his two episodes of



Left. Chest leads of the electrocardiogram taken on admission two years previously. They show slight ST segment elevation in V2-3, with terminal T wave inversion in V1-3, T wave inversion in V4, and T wave flattened in V5. Right. Twelve lead electrocardiogram taken on recent admission showing abnormal Q waves in II, III, AVF, and V6, and ST segment elevation with T wave inversion in these leads.

chest pain, with definite myocardial infarction on the second occasion, occurred one hour after he had injected amphetamine. He had taken amphetamine intravenously on other occasions without chest pain, but this may reflect the varying strength of amphetamine available on the streets or variation in the coronary vascular response to noradrenaline release induced by amphetamine. Nevertheless, the association between amphetamine and myocardial infarction in our patient is unlikely to be coincidental.

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Life threatening haemorrhage from a mycotic renal pseudoaneurysm treated by segmental renal artery embolisation

Mycotic aneurysm due to septic embolism in bacterial endocarditis was described by Osler in 1885.[1] Today such aneurysms, although uncommon, still occur in association with bacterial endocarditis[2-4] and other causes of septicaemia.[3 5] We wish to report an unusual presentation of a mycotic renal pseudoaneurysm and a novel method of treatment.

Case report

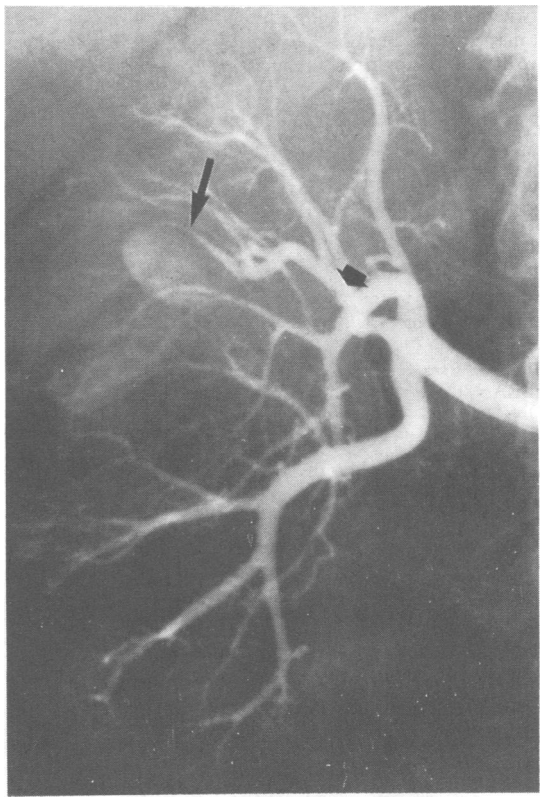
A 68 year old woman with longstanding seropositive rheumatoid arthritis treated with azathioprine 100 mg daily developed an abscess on the left buttock, which was incised and drained. Subsequently she experienced nine weeks of malaise followed by one week of increasing fever with rigors, sweating, and a worsening pain in the right loin. On admission to hospital she was feverish (38°C) and dehydrated. There were no murmurs or other signs of bacterial endocarditis, but there was considerable tenderness in the right loin with dullness and crepitations at the base of the right lung. The urine contained protein (>1000 mg/l) and large numbers of red cells and pus cells. Initial investigations showed that the haemoglobin concentration was 105 g/l, white cell count $31{\cdot}4\times10^9$/l (91% neutrophils), and serum creatinine concentration 198 μmol/l. A chest x ray film showed right basal collapse-consolidation. A renal abscess was diagnosed clinically, and after multiple cultures of blood and urine she was given cefuroxime intravenously.

Ultrasound examination of the liver, biliary system, and right kidney yielded normal findings, but a gallium scan showed increased uptake in the right renal area. A dimercaptosuccinic acid renal scan showed a "cold area" adjacent to the middle calices of the right kidney, which on intravenous urography was swollen and functioning poorly in its lower two thirds. *Pseudomonas aeruginosa* and lactose non-fermenting coliforms were isolated from urine cultures, and the antibiotic treatment was changed to gentamicin and amoxycillin with clavulanic acid (Augmentin). She became afebrile and pain free, and the neutrophilia resolved.

On the 19th day in hospital persistent macroscopic haematuria developed and the haemoglobin concentration fell to 67 g/l, necessitating blood transfusion. Renal angiography showed an avascular area within the middle third of the right kidney, which contained a bilocular pseudoaneurysm and small feeding artery (figure). A cannula was inserted and the artery occluded with absorbable gelatin sponge and a 3 mm Gianturco coil, with a satisfactory reduction of blood flow to the pseudoaneurysm. The haematuria resolved over the next five days, the antibiotic treatment was stopped, and the patient remained afebrile and was discharged home. She subsequently remained well.

Comment

This patient, who developed a cutaneous abscess while immunosuppressed, represented with a metastatic renal abscess. This probably eroded into an intrarenal artery, forming a pseudoaneurysm that communicated with the renal pelvis and caused life threatening haematuria. A computerised literature search yielded only four cases of mycotic intrarenal aneurysm. In two patients nephrectomy was needed after extrarenal rupture of the aneurysm.[2 5] The third patient, with culture negative endocarditis, developed persistent macroscopic haematuria requiring a partial nephrectomy,[3] and the fourth patient, with staphylococcal endocarditis, did not develop haematuria and responded to antibiotics alone.[4]



Right renal arteriogram showing slender feeding artery and pseudoaneurysm (long arrow). The Gianturco stainless steel coil was deposited proximally (short arrow head), occluding the feeding vessel.

In retrospect we should have performed percutaneous needle aspiration of the abscess, which might have prevented the subsequent complication. It was not done as the patient seemed to respond fully to intensive antibiotic treatment until the onset of the haematuria. Selective arterial embolisation is an established treatment for focal haemorrhage from, and tumours within, the kidneys and other organs. In our patient this technique promptly controlled the haemorrhage and preserved renal function without morbidity and surgery was unnecessary. Thus haemorrhage from a mycotic renal aneurysm or pseudoaneurysm is a further indication for selective arterial embolisation, the presence of the infection notwithstanding.

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