usage of domperidone. It must now be added to the long list of causes of drug-induced gynaecomastia.

J.P. Keating
M. Rees
Department of Surgery,
Basingstoke District Hospital,
Aldermaston Road,
Basingstoke, Hampshire, UK.

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Recurrence of a reactive arthritis following streptokinase therapy

Sir,

We write to report a case of a delayed reaction to streptokinase therapy, probably an immune-complex vasculitis now increasingly associated with the drug, in contrast to the immediate allergic reaction commonly seen.^{1–3} Similar vasculitic reactions have been reported with anisoylated plasminogen streptokinase activator complex.⁴

A nulliparous woman of 46 was admitted as an emergency with a diagnosis of myocardial infarction. She gave a history of hypertension for which she had been treated for 8 years with diltiazem, captopril and frusemide. She was treated with streptokinase 1.5 million units intravenously over 1 h. On the 5th in-patient day, she developed a widespread macular rash, predominantly over the limbs; no purpuric element appeared. Simultaneously, she felt considerable pain in the knees, shoulders and elbows, which were hot and stiff symmetrically but with no effusions. She was not febrile, there was no pericardial rub, and dipstick testing of the urine was normal. The arthritis and rash settled spontaneously over two days on ibuprofen. She recovered and was discharged on the 10th day. At the time of the arthritis, blood film showed a leucocyte count of $14 \times 10^9/l$, ESR 54 mm/h. Antinuclear factor was negative and rheumatoid factor (RAPA) borderline at 1/80. C3 and C4 186 and 14 mg/100 ml (elevated and normal, respectively). IgG 19.9, IgA 3.9 (both elevated) and IgM 1.1 g/l. Urine protein excretion 0.26 g/24 h.

She subsequently revealed that she had experienced the same reaction, with arthritis affecting the elbows and knees, and a rash, in 1980 when she had had an episode of pneumonia for which she had received parenteral antibiotics. At that time, no pathogen had been identified, but she had taken penicillin subsequently with no ill effect.

This patient's problem is interesting because of the previous reaction to a pneumonia, and we may surmise that this was again a reaction to a streptococcal compon-

ent antigen, although we have no proof that this was so. The reaction would then appear to be a form of reactive arthritis, and this suggests that investigation of future patients should include studies of synovial fluid (if accessible), anti-streptokinase antibodies and lymphocyte and neutrophil responses to streptococcal antigens.

M.P. Kelly*
C. Bielawska
Whittington Hospital,
Highgate Hill,
London N19 5NF, UK.

*Correspondence and present address:
Manze District Hospital,
P.O. Box 660029, Manze, Zambia.

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Spontaneous pneumomediastinum following myocardial infarction

Sir,

Spontaneous pneumomediastinum is a rare condition that may simulate the features of myocardial infarction in the absence of actual ischaemic heart disease. We report a case of asymptomatic spontaneous pneumomediastinum that followed acute myocardial infarction.

A 52 year old woman presented with a 2-h history of severe retrosternal chest pain associated with dyspnoea and nausea but no vomiting. Clinical examination was unremarkable but the electrocardiogram showed acute anteroseptal myocardial infarction. She was given intravenous streptokinase infusion. A chest radiograph at admission revealed free air within the mediastinum but no evidence of pneumothorax. The patient had no further chest pain or other complications. Acute myocardial infarction was confirmed by elevated serial enzymes. The radiographic appearance resolved over the following week.

Spontaneous pneumomediastinum is caused by non-traumatic rupture of marginal pulmonary alveoli allowing air to travel along interstitial and vascular routes.¹ It occurs in situations where there is a sudden increase in intra-alveolar pressure such as severe coughing, straining or Valsalva manoeuvres, and has been associated with acute asthma,² violent exercise³ and childbirth.⁴ This is the first reported case of pneumomediastinum following myocardial infarction and the pathogenesis is uncertain. We do not believe that the concurrence of these condi-

tions was mere coincidence, however. While the patient gave no history of severe vomiting or coughing and cardiopulmonary resuscitation had not been performed, it is entirely credible that the pain of her myocardial infarction led to a Valsalva manoeuvre that produced spontaneous pneumomediastinum.

Most patients with spontaneous pneumomediastinum complain of dyspnoea and chest pain while a quarter are asymptomatic. The chest pain is usually of acute onset and can closely mimic myocardial infarction. Furthermore, electrocardiographic abnormalities including ST segment elevation have been reported in patients with spontaneous pneumomediastinum without other evidence of ischaemic heart disease.⁵ Although raised cardiac enzymes subsequently confirmed myocardial infarction in this patient the concurrence of spontaneous pneumomediastinum highlights the importance of correct clinical interpretation of acute chest pain in such a case.

David H. Roberts
Vipul N. Roy
David R. Ramsdale
Cardiothoracic Centre,
Broadgreen Hospital,
Thomas Drive,
Liverpool L14 3LB, UK.

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Non-sustained ventricular tachycardia following clonidine withdrawal

Sir,

Abrupt discontinuation of various antihypertensive agents including clonidine, guanethidine, alpha methyl-dopa and propranolol may lead to a constellation of symptoms resembling pheochromocytoma crisis due to a rebound hyperadrenergic state.¹ We recently encountered a case of sudden clonidine withdrawal presenting with the distinctly unusual manifestation of a recurrent non-sustained ventricular tachycardia (VT).

A 46 year old male presented in the emergency room with a history of repeated spells of palpitations and dizziness for 9 h prior to entry. The patient was a known hypertensive for the last 3 years and was on 0.6 mg of clonidine in divided doses for the last 8 months. He had stopped clonidine about 24 h prior to the onset of symptoms. There was no previous history of ischaemic

heart disease or cardiac arrhythmia, and a treadmill test and echocardiogram done earlier were normal. The patient was seen by another doctor 3 h prior to admission; he was found to have a blood pressure of 180/120 mmHg and was prescribed 10 mg nifedipine orally. On examination, pulse rate was 130 per min with 15–20 ectopics per min and blood pressure was 130/90 mmHg. Initial electrocardiogram revealed multifocal ventricular ectopics and short runs of VT. There was no evidence of myocardial ischaemia on electrocardiogram. The patient was treated initially with 75 mg lignocaine bolus, repeated after 10 min with no effect. Administration of lignocaine infusion produced no significant reduction in ventricular ectopics. Lignocaine was discontinued and 200 mg of labetalol administered orally. A significant reduction in the frequency of ventricular premature contractions was observed within the next hour. An additional dose of 100 mg of labetalol was then given. Two hours after oral labetalol, ectopic activity had totally disappeared and the patient was subsequently free of symptoms. A treadmill test and Holter studies done after 3 weeks did not reveal any abnormality.

Various case reports and prospective trials of abrupt antihypertensive drug withdrawal have been reviewed elsewhere.¹ Clonidine discontinuation syndrome is usually seen within 24–48 h after abrupt cessation of the drug. It is characterized by nervousness, restlessness, anxiety, palpitations, diaphoresis, insomnia, tremors, tachycardia and rebound hypertension. Exacerbation of angina, acute myocardial infarction, hypertensive encephalopathy and sudden deaths have also been reported. Twenty-four to 72 h after withdrawal of clonidine, there is an increase in plasma noradrenaline and urinary catecholamine levels.² The subjective symptoms are observed to be more frequent in patients on higher doses of the drug (> 1 mg/day), in patients on chronic therapy with other antihypertensive drugs² and in withdrawal after prolonged clonidine therapy.³ Goldberg⁴ studied discontinuation syndrome in 9 hypertensive patients on clonidine in a prospective trial. Five out of 9 subjects showed withdrawal symptoms and manifestations of atrial ectopic activity. One patient showed ventricular premature contractions and non-sustained VT.

A hyperadrenergic state of any aetiology may lead to ventricular arrhythmia in patients with ischaemic heart disease or mitral valve prolapse syndrome, and also in individuals with a normal heart.⁵ VT in this patient was possibly due to the hyperadrenergic state observed with abrupt clonidine withdrawal. A failure of lignocaine and prompt control of VT with labetalol further consolidates this observation.

Prasoon Jain
Anoop Misra
Department of Medicine,
All India Institute of Medical Sciences,
New Delhi 110029,
India.

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