- 11 Van der Werf F, Arnold AER. Intravenous tissue plasminogen activator and size of infarct, left ventricular function, and survival in acute myocardial infarction. *BMJ* 1988;297:1374-9.
- 12 The International Study Group. In-hospital mortality and clinical course of 20891 patients with suspected acute myocardial infarction randomised between alteplase and streptokinase with or without heparin. *Lancet* 1990;339:753-70.
- 13 ISIS-3 (Third International Study of Infarct Survival) Collaborative Group. ISIS-3: a randomised comparison of streptokinase vs tissue plasminogen activator vs anistreplase and of aspirin plus heparin vs aspirin alone among 41299 cases of suspected acute myocardial infarction. *Lancet* 1993;339:753-70.
- 14 Collins R, Peto R, Baigent C, *et al.* Aspirin, heparin and fibrinolytic therapy in suspected acute myocardial infarction. *N Engl J Med* 1997;336:847-60.
- 15 Thrombolytic therapy in thrombosis: a National Institutes of Health consensus development conference. *Ann Intern Med* 1980;93:141-4.
- 16 Sekyema YF, Baltazar RF. Is thrombolytic therapy safe during active menstruation? *J Emerg Med* 1995;13:345-8.
- 17 Conti CR. Is menstruation a contraindication to thrombolytic therapy? *Clin Cardiol* 1992;15:625-6.
- 18 Cross SJ, Lee HS, Rawles JM, *et al.* Safety of thrombolysis in associated cardiopulmonary resuscitation. *BMJ* 1991;303:1242.
- 19 Tenaglia AN, Califf RM, Candela RJ, *et al.* Thrombolytic therapy in patients requiring cardiopulmonary resuscitation. *Am J Cardiol* 1991;68:1015-9.
- 20 Higgs ER, Parfitt VJ, Harney BA, *et al.* Use of thrombolysis for acute myocardial infarction in the presence of diabetic retinopathy in the UK, and associated ocular haemorrhagic complications. *Diabet Med* 1995;12:426-8.

EMERGENCY CASEBOOK

Waldenström macroglobulinaemia presenting as bleeding diathesis with paradoxical coagulation of blood samples

A 79 year old man, who had been well all his life, presented to our accident and emergency department with episodic epistaxis and bleeding gums of two days' duration. On examination there were splinter haemorrhages in every finger. Petechiae were present in the hands and over the shins. Cardiac murmurs consistent with aortic sclerosis and mitral regurgitation were present. The patient was afebrile. Blood taken by different doctors on three occasions, collected in EDTA and citrate, consistently clotted on reaching the laboratory. On the fourth occasion, blood taken and maintained at body temperature allowed analysis. The following results were obtained: haemoglobin 98 g/l, mean corpuscular volume 99 fl, white cell count $5.7 \times 10^9/l$, platelet count $127 \times 10^9/l$, erythrocyte sedimentation rate 120 mm/hour, prothrombin time 23 seconds, activated partial thromboplastin time 49 seconds, thrombin time 10 seconds, globulin 56 g/l, albumin 36 g/l, and bilirubin 29 $\mu\text{mol/l}$. A provisional diagnosis was made of a lymphoproliferative disorder with possible cold agglutinins. This was confirmed the next day on bone marrow examination as Waldenström's macroglobulinaemia. The bone marrow showed a diffuse increase in lymphoplasmacytoid cells. Immunophenotyping confirmed a monoclonal proliferation of IgM (K) cells with a paraprotein concentration of 37 g/l. Abdominal ultrasound confirmed a normal sized liver and spleen. The patient was started on chlorambucil and remains well on regular follow up.

ted blood as there is no separation of serum and clot (fig 1). This process only occurs at temperatures below 37°C and can be reversed by warming the blood. Although the phenomena of cryoglobins causing cold agglutination of blood at temperatures below 37°C is well documented, an extensive search of literature has not revealed this phenomena as the first presentation of Waldenström's macroglobulinaemia in an emergency department.

M HARBORD*, S IVANOVA, N AKHTAR*, Y GUPTA, **Department of Medicine and Haematology and Department of Accident and Emergency, King George Hospital, Barley Lane, Goodmayes, Essex IG3 8YB.* Correspondence to: Mr Gupta, Consultant in Accident and Emergency.