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Recurrent clotted blood specimens: a sticky dilemma

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A 60-year-old male presented with shortness of breath on exertion over the past month, along with lethargy, reduced appetite and some weight loss. Past medical history included smouldering myeloma diagnosed 2 years previously (20% plasma cells on bone marrow aspirate and trephine biopsy, immunoglobulin G1 4 g/litre, under haematology follow up). Clinical examination was unremarkable, except for pallor. Bloods performed by the GP showed a new normocytic anaemia with haemoglobin level 9.6 g/dl (having been 13 g/dl 9 months earlier) (normal range 13–17 g/dl), a mild thrombocytopenia with platelets $117x10^9$/litre (normal range 150–$400x10^9$/litre) and normal clotting screen; a blood film showed marked red cell rouleaux. All attempts to obtain biochemistry results, including serum electrophoresis, resulted in recurrent clotted blood specimens (Figure 1), despite sending further samples in a lithium heparin bottle. Cryoglobulin levels were normal.

C Reactive Protein	CLOT	CLOT	CLOT		CLOT
Sodium	CLOT	CLOT	CLOT		CLOT
Potassium	CLOT	CLOT	CLOT		CLOT
Chloride	CLOT	CLOT	CLOT		CLOT
Urea	CLOT	CLOT	CLOT		CLOT
Creatinine (Enz.)	CLOT	CLOT	CLOT		CLOT
Calcium	CLOT	CLOT	CLOT		CLOT
Inorganic Phos.	CLOT	CLOT	CLOT		CLOT
Total Protein	CLOT	CLOT	CLOT		CLOT
Albumin	CLOT	CLOT	CLOT		CLOT
Total Bilirubin	CLOT	CLOT	CLOT		CLOT
ALP	CLOT	CLOT	CLOT		CLOT
ALT	CLOT	CLOT	CLOT		CLOT
GGT	CLOT	CLOT	CLOT		CLOT

Figure 1. Snapshot of recurrent clotted biochemistry specimens. ALP = alkaline phosphatase; ALT = alanine transaminase; GGT = gamma glutamyl transferase.

Eventually, with great difficulty and expertise, using an older methodology, the laboratories deduced that there had been a massive increase in his paraprotein level from 14 g/litre to 91 g/litre, indicating a progression to multiple myeloma. The significant hyperviscosity explained why all his biochemistry specimens were repeatedly clotting.

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