CASE DESCRIPTION

An adult female diagnosed with granulomatosis with polyangiitis was admitted for treatment with immunosuppressive medication. When a stored lithium-heparin tube was retrieved for additional testing, the plasma was found to contain a precipitate that dissolved upon heating to 37°C. Cryoprecipitate testing on fresh serum and plasma collected in prewarmed tubes with prewarmed needles was performed. Visual precipitates and immunofixation results are shown in Fig. 1.

Fig. 1. Results of cryoprecipitate testing and immunofixation electrophoresis (IFE). (A), Cryoprecipitate testing in serum, citrate plasma and lithium-heparin plasma; (B), IFE on washed precipitate in lithium-heparin plasma performed with routine immunoglobulin antisera and fibrinogen antisera (Fib). IFE on the smaller precipitate in citrate plasma showed a faint band reacting with Fib (not shown). T lane shows plasma protein electrophoresis.

QUESTIONS

1. What are the potential causes of precipitate formation in plasma?
2. How do you interpret the results obtained in this patient?
3. What is the clinical relevance of the observed findings?
Cryoprecipitation in plasma, but not serum, is consistent with cryofibrinogenemia (1, 2). The heparin plasma cryoprecipitate mainly consisted of fibrinogen and fibronectin. Part of the cryofibrinogen observed in this patient was caused by a heparin-precipitable fraction as the citrate plasma cryoprecipitate was significantly smaller (3–5). Cryofibrinogenemia may be primary or secondary to autoimmunity, infection, or malignancy (1, 2). Its association with skin-lesions and systemic thrombosis is strongest when observed in citrate plasma as this distinguishes cryofibrinogenemia from heparin-induced precipitation (1–5).

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References