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epinephrine and collagen induced aggregation remained unaffected. However, ristocetin induced aggregation was reduced to a level comparable to the patient's pretreatment findings at concentrations of 0·15 ml but not at concentrations of 0·05 ml and 0·01 ml (Fig. 2(4)).

Discussion

Only three patients have been reported with an IgA pyroglobulin.[7–9] In contrast to our patient all had multiple myeloma, two of whom had the hyperviscosity syndrome. This is the first report of an IgA pyroglobulin in association with a lymphoma. An interesting feature of our patient was her purpura. As her coagulation screen, platelet count and factor assays were normal, it was felt this may have been due to abnormal platelet aggregation. The patient had absent second phase aggregation with adrenalin and markedly decreased aggregation with ristocetin. The abnormality of platelet aggregation induced by adrenalin may occur in normal individuals,[10] and the fact that it persisted after treatment suggests that it is probably a normal variant. In contrast, the ristocetin induced aggregation was probably directly related to her illness as it was reversed with treatment. We propose that it was related to the presence of the IgA pyroglobulin. This is suggested by the studies in which her IgA fraction was isolated and added to normal platelets, producing impaired ristocetin induced aggregation.

The bleeding tendency associated with paraproteinaemia is complex. Abnormalities of the coagulation,[11] or fibrinolytic[12] systems may be involved but defects of platelet function,[13–15] and hyperviscosity,[8] may be more important. In particular, defects of ristocetin induced aggregation may play a significant role by coating the surface of both platelets and connective tissue and thereby blocking their interactions.[12] Similar defects of ristocetin induced aggregation occur in rural Nigerians where it is postulated their increased IgM and other macroglobulin production caused by parasitaemia may be important.[16] In addition, macromolecules such as dextran are known to inhibit ristocetin induced platelet aggregation.[17] The role of hyperviscosity in this patient's bleeding disorder is difficult to assess. Although the serum viscosity at times rose to very high levels (6·06 N mPa s), bleeding did not occur. Instead, this seemed to be related to the activity of her illness, and her pyroglobulin levels. We therefore suggest that her circulating IgA κ pyroglobulin blocked the platelet vessel wall interactions in a manner similar to lack of von Willebrand factor, perhaps by coating one or both surfaces and thereby producing defective ristocetin induced platelet aggregation.

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Notices

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The British Digestive Foundation (Scottish Appeal) exists to promote research into the alimentary tract and its diseases. The Awards Advisory Group of the Scottish Appeal invites applications from workers in Scottish Institutions who wish support for research work related to any aspects of normal or disordered structure and function of the alimentary tract. A wide variety of forms of support will be considered ranging from that required for apparatus or reagents to Fellowships. There is no requirement that applicants be medically qualified.

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