long survival, with evidence of response to therapy. Also, they always develop a myelomonocytic or myelocytic form of leukemia. However, our case is interesting in that it is the only one noted in the literature that had the IgD form of multiple myeloma. Both Karchmer et al.[2] and Rosner and Grunwald[3] have indicated a possible leukemogenic role for alkylating agents such as melphalan. Alexanian[4] has indicated that in patients being treated for multiple myeloma, once a 75% reduction in their immunoglobulin is achieved after 12 mo of therapy, there is no advantage in additional maintenance therapy. If the alkylating agents are leukemogenic in patients with multiple myeloma, then perhaps we should stop such therapy if we have achieved a response defined by a 75% reduction in immunoglobulin in at least 1 yr of therapy.

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Megathrombocytes and Sickle Cell Anemia

To the Editor:

In their recent paper, Freedman and Karpatkin have reported an elevated platelet count and megathrombocyte number in all eight patients with sickle cell anemia (SCA) they followed over a 6-mo period.[1] They suggest that the autoinfarcted spleen and, therefore, the lack of splenic sequestration would be responsible for the elevation of both platelet counts and megathrombocyte number. Since both values have been found to fall significantly during the occlusive crises, it is postulated that a hyperutilization of functionally active platelets is taking place during this event. From these observations and from similar findings made by others, they conclude that the platelets may be involved in the vascular pathology of this disorder.

These observations are in accord with our own findings in patients with SCA, although we have had a different objective and have used other techniques. Since SCA is the only chronic hemolytic anemia presenting a progressively atrophic spleen, we have examined comparatively the peripheral blood smears of 20 patients with SCA and smears made from blood obtained from patients with other types of chronic hemolytic anemias with large spleens; the buffy coat smears and those obtained from platelet-rich plasma were found to provide more information than the ordinary smears. Besides the findings concerning the red cell and granulocytic lines, not pertinent for the present discussion, the following findings were noted in the megakaryocyte-platelet system:

1. A significant number (100-400 per cu mm) of small, nonlobulated, circulating megakaryocytes was observed in every patient; the cytoplasm of some of these cells had a definite platelet-containing and -releasing appearance, and, as a last stage, many naked nuclei were observed. No attempt was made to relate this phenomenon with the clinical stages of the disease.

2. By tracing the source of these cells, the first recognizable megakaryocyte in the peripheral blood smear was found to be a lymphoid cell, the cytoplasm of which showed a definite platelet-like appearance.

3. Not only were many platelets larger than normal and hypergranulated (megathrombocytes), but in almost every microscopic field, huge fragments of megakaryocytic cytoplasm, some of them several times the size of a red cell, and many elongated forms were also present. There is no doubt that these structures, which presumably act as multiple platelet units, escape Coulter Counter registration.

The smears obtained from platelet-rich plasma showed in many instances trapped megakaryocytic nuclei surrounded by different

amounts of platelet-containing cytoplasm which allow their identification.

It has been speculated that the increased number of circulating megakaryocytes, along with other factors occurring in both postsurgery status and in patients with cancer, play a role in the development of the thrombophlebitic accidents in some of these conditions. It was also postulated that the circulating megakaryocytes, the number of which is known to be significantly increased in some patients with metastatic cancer, might have a role in the spreading of the disease.[2] From these observations, it may be concluded that a more detailed study of the interaction between the sickled cells and the various components of the megakaryocytic-platelet system shown above may bring a better understanding of the major clinical event in SCA, namely the occlusive crises, and possibly suggest a new therapeutic approach.

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Rh_0 and the Erythrocyte Membrane

To the Editor:

The nature of the membrane defect associated with Rh_0 erythrocytes is not apparent. We have compared (1) individual phospholipid fatty acid compositions and (2) physical properties, as assessed by viscometry and electron spin resonance, of control and Rh_0 membranes to determine if the functional abnormalities of Rh_0 erythrocytes are related to an abnormality of membrane structure.

Although the overall lipid fatty acid composition of Rh_0 membranes has been published,[1] the fatty acid composition of the individual phospholipids has not. Table 1 confirms the previous results for the overall membrane,[1] but indicates that the fatty acid composition of one phospholipid, phosphatidyl ethanolamine, differs from the controls by an increase of stearic acid (18:0) and a decrease of oleic (18:1) and linoleic (18:2) acids. It is not known if these differences are due solely to the diet of this Australian aborigine.[2,3]

The membrane lipid phase changes, measured by viscometry,[4] were alike, although in the case of Rh_0 an anomalous precipitation occurred at temperatures greater than 39°C (i.e., a temperature above the membrane's final lipid phase transition[5]).

A comparison of the motion of the two spin probes in Rh_0 and normal membranes at 27°C shows that the correlation time (τ_0),[6] which measures the tumbling of the probe within the bilayer and reflects the overall arrangement of the lipids and proteins in its environment, is the same for both membranes. Hence, a small conformation difference due to loss of the Rh antigen, if indeed it is absent, has not affected the overall arrangement within the plane of the membrane. Furthermore, this finding is compatible with the similarity of the lipid phase changes observed.

In contrast, the relative fluidity[6] (S_n) at a depth (normal to the plane of the membrane) of five carbon bonds is greater for the Rh_0 membranes (Table 2). The increased saturation of Rh_0 fatty acids (Table 1) should have decreased the fluidity. However, this difference may be due to the unusual packing of Rh_0 protein(s) normal to the plane of the membrane,[7] although it has not been determined which, if any, protein(s) exist, how its penetration into the bilayer differs, and whether such a difference leads to the anomalous precipitation above 39°C.

It is concluded that abnormal membranes are associated with the Rh_0 phenotype that are structurally different from normal membranes.

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