Hodgkin's disease: an unusual termination

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THE development of a terminal 'leukaemic' state in some patients with lymphosarcoma and myelomatosis is well known, but invasion of the peripheral blood by Reed-Sternberg cells in patients with Hodgkin's disease is unusual; the phenomenon has been described on only six previous occasions.

We have recently observed a patient with Hodgkin's disease in whom Reed-Sternberg cells and abnormal reticulum cells appeared in the peripheral blood stream; the results of studies of the cytogenetics and metabolism of these abnormal cells have been reported elsewhere (Sinks & Clein, 1966).

Case report

This female patient, aged 77 years, was well until April 1964 when she developed general malaise and lethargy. A few weeks later she discovered a tender swelling in the right axilla; she consulted her general practitioner who found enlarged lymph nodes in various sites. She was admitted to Addenbrooke's Hospital on 15 June 1964. On examination she was clinically anaemic and febrile (temperature 103°F). There were firm, discrete, enlarged lymph nodes around the neck, in both axillae and in the groins. The liver edge was palpable and the spleen was enlarged and firm, extending 3 cm below the left costal margin.

Investigations: haemoglobin (Hb) 11.7 g/100 ml; total leucocytes 4800/mm³ with a normal differential count. The platelet count was normal. Sternal marrow examination showed normoblastic erythropoiesis, normal myelopoiesis and a slight increase in the number of reticulum cells. One of the

enlarged cervical lymph nodes was removed; histological examination showed the changes of Hodgkin's disease. The architecture of the lymph node was destroyed and replaced by a pleomorphic infiltration of cells including lymphocytes, eosinophil leucocytes and reticulum cells, some of which had the 'mirror' nuclei of Reed-Sternberg cells.

The patient was given nitrogen mustard (total dose 20 mg) by intravenous infusions over 4 days and within a few days was considerably improved. She was discharged from hospital after 3 weeks, and remained well until mid-August; then she developed a fever and nocturnal sweating attacks. She was re-admitted to hospital on 21 August 1964; on this occasion she was found to be febrile (temperature 101°F) and moderately anaemic. The lymph nodes which had previously been enlarged were now smaller in size; the spleen had enlarged and extended 4 cm below the costal margin.

Investigations: Hb 10.3 g/100 ml; total leucocyte count 5600/mm³ of which 1% were Reed-Sternberg cells and 4% abnormal reticulum cells. No marrow was obtained on sternal puncture but a sample obtained from the iliac crest was normal, with no increase in reticulum cells.

The patient was given another course of nitrogen mustard (total dose 20 mg) by intravenous infusions over 4 days. There was rapid objective and subjective improvement. Although leucopenia developed (total leucocyte count 1100/mm³). Reed-Sternberg and abnormal reticulum cells were still present in the peripheral blood. She was given prednisone 60 mg/day and transfused with three bottles of packed red cells; the patient was discharged from the hospital after 2 weeks, feeling moderately improved.

She remained well until mid-October when she developed profound weakness, malaise and breathlessness. She was re-admitted to hospital on 21 October 1964. She was now confused, febrile (temperature 102°F) and anaemic. No enlarged

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lymph nodes could be found and the spleen was considerably smaller in size.

Investigations: Hb was 7.8 g/100 ml; the red cells were normochromic; there was some anisocytosis and polychromasia. The total leucocyte count was 33,000/mm³ of which 50% were reticulum cells. Blood culture was sterile. She was given a blood transfusion and tetracycline but died, in coma, after 48 hr.

Necropsy: The liver (weight 1890 g) and spleen (weight 795 g) were enlarged; both contained numerous grey nodules up to 0.5 cm in diameter. The mesenteric, para-aortic and mediastinal lymph nodes were enlarged, greyish-pink in colour and homogeneous. The marrow in one femur contained three grey nodules, each 2 cm in diameter, surrounded by a zone of hyperaemia. The remainder of the marrow and reticulo-endothelial system appeared normal. The peritoneal cavity contained 50 ml of clotted blood. On microscopic examination the growths of the liver were found to consist of Hodgkin's tissue, with a preponderance of small round cells. The marrow contained numerous foci of primitive reticulum cells, with many mitotic figures, and some Reed-Sternberg giant cells. The enlarged lymph nodes showed the changes of Hodgkin's disease with typical Reed-Sternberg cells; the appearances were very similar to those found in the lymph node removed from the neck in life.

Discussion

Six previous cases have been reported in which Reed-Sternberg cells have been found in the peripheral blood (Ludman & Spear, 1957; Varadi, 1960; Chrobak & Horacek, 1960; Keiser, 1960; Libansky, Bedmar & Buzek, 1962; Scheerer *et al.*, 1964). In these reports a distinction has not always been made between primitive reticulum cells and true giant cells, but from the published illustrations it seems probable that both have been present. Both types of cell may be found in the marrow rather more commonly (Varadi, 1960); and in other reticuloses terminal overflow from marrow to peripheral blood is not unusual (Hayhoe, 1960).

Varadi (1960) stated that he was unable to distinguish between this type of terminal event in Hodgkin's disease and the Schilling type of monocytic leukaemia; but a differentiation between them can be made because the cytochemical properties of the abnormal cells differ in the two conditions. Monoblasts have faintly positive Sudanophil dots close to one side of the nucleus

and may have a few periodic acid-Schiff (PAS) positive granules (Hayhoe, 1960); in our patient the circulating reticulum cells and Reed-Sternberg cells had a negative reaction with Sudan Black and PAS stains (Sinks & Clein, 1966). These differences in cytochemistry are of assistance in the differential diagnosis; although in the cases so far described the diagnosis of Hodgkin's disease had been made before any abnormal cells appeared in the peripheral blood.

In this case, as in the previous six recorded examples, the patient died shortly after the appearance of abnormal cells in the blood; this event presumably signified bone marrow invasion with Hodgkin's disease. Treatment with mustine produced a slightly longer survival than recorded previously and may be of some value; but the appearance of Reed-Sternberg cells in the peripheral blood of a patient with Hodgkin's disease remains an ominous sign.

Summary

Spread of Hodgkin's disease to the bone marrow and peripheral blood is described in an elderly patient. The rarity of this phenomenon and its ominous prognostic significance are discussed. The condition may be confused with monocytic leukaemia.

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