Reed-Sternberg Cells in the Peripheral Blood

Report of Case of Hodgkin’s Disease

By Harold Ludman and Paul W. Spear

During the course of therapy of a case of Hodgkin’s disease the unusual observation of Reed-Sternberg cells in the peripheral blood was noted. The rarity of this finding, with no other similar observation described in medical literature, prompted the publication of this report.

Case Report

Mr. R.M., a 27 year old, white male was admitted to the hospital on September 27, 1955, with the presenting symptom of marked weakness of three weeks’ duration. Biopsy of a left inguinal node in September 1954 showed Hodgkin’s granuloma. The patient was treated successively with local x-ray, triethylene melamine, and irradiation for recurrent splanchnomegaly and mediastinal lymphadenopathy.

Physical examination revealed a well-developed, pale, emaciated white male in acute distress with tachycardia, a harsh, grade II systolic murmur, moderate hepatosplenomegaly, edema of the genitalia, pitting, pretibial and pedal edema and inguinal and axillary lymph node enlargement.

Laboratory investigation on admission revealed a hemoglobin of 5.4 Gm. per cent, red blood count of 2.1 million per cu.mm., white blood count of 3,400 per cu.mm., with a differential count of 2 per cent juvenile cells, 69 per cent neutrophils, 27 per cent lymphocytes, 1 per cent monocytes, and 1 per cent eosinophils. There was marked achromia and moderate anisocytosis and poikilocytosis of the red blood cells. Platelet count on admission was 21,500 per cu.mm. Volume of packed red blood cells was 21 per cent and the sedimentation rate was 18 mm. per hour. On October 24, 1955, examination of the peripheral blood smear revealed many reticulum-like cells. Bone marrow aspiration on November 2, 1955, demonstrated a hypocellular marrow with many abnormal reticulum-like cells.

X-rays of the G.I. tract demonstrated anterior displacement of the abdominal viscera by retroperitoneal tissues, presumably enlarged abdominal lymph nodes.

After a course of nitrogen mustard there was a brief clinical remission followed by a rapid downhill course and death on December 10, 1955.

Post-mortem examination showed great enlargement of liver, spleen and both thoracic and abdominal lymph nodes. These organs when examined microscopically were found to contain pleomorphic cellular infiltrates, fibrous tissue and giant cells with prominent nuclei and nucleoli. These cells, some binucleate and multinucleate, had the typical morphologic characteristics of Reed-Sternberg cells (see fig. 1). The bone marrow also contained areas of similar cellular infiltration. In addition, there were nonspecific inflammatory lesions widely scattered through the viscera.

Comments on the Abnormal Cells

Fortuitous examination of the patient’s peripheral blood on the fourth day of hospitalization revealed the presence of many abnormal, primitive, reticulum-like cells. Subsequent examination of the patient’s blood daily for the following...
two weeks, and at frequent intervals until the time of his demise failed to demonstrate again these abnormal cells.

The pathologic cells (see figs. 2, 3, 4) were large (9–40 μ) with irregular and indistinct contours and some pseudopod formation. The round to oval nuclei were also large (5–13 μ) with a thin but very distinct nuclear membrane. The
nuclear chromatin was heavy and coarse. Most cells were mononuclear, but a few binucleate cells were observed. Nucleoli were prominently seen, and several were usually discernible in each cell. Dyed with Wright’s stain, the cytoplasm and nucleoli appeared a pale sky blue and the chromatin network was more

Fig. 3.—Peripheral blood X 1225. Same field as in Fig. 2, under higher magnification. Two Reed-Sternberg cells seen near a neutrophile. Several nucleoli are evident within the nuclei of the pathologic cells.

Fig. 4.—Peripheral blood X 1440. One of the several binucleate Reed-Sternberg cells seen on the peripheral blood smear.
basophilic. These pathologic cells comprised approximately 10 per cent of the white blood cells on the peripheral smear, with some variation in the fields examined due to irregular distribution.

**Discussion**

In Reed's classic description of the morbid pathology of Hodgkin's disease\(^1\) she noted the presence of Reed-Sternberg cells within the blood and lymph vessels... "These giant cells usually lie free in the interstices of the tissue but are occasionally seen on the reticulum. They occur in great numbers in the large lymph sinuses of the gland and occasionally occur in blood vessels." Jeanselme and Marshal\(^2\) reported a case in which Reed-Sternberg cell emboli were frequently observed within blood vessels in biopsied and postmortem organs of a patient dying of Hodgkin's disease. In addition, these giant cells were described as being frequent in perivascular locations and on some sections, the Reed-Sternberg cells appeared to be passing through a vessel into the parenchyma via vascular discontinuity. Such observations might lead one to believe that Reed-Sternberg cells could be found in the blood stream. Bersach\(^3\) cites a case of cutaneous Hodgkin's disease with terminal blood stream metastases. The author assumes blood stream dissemination, when literally hundreds of new skin nodules developed overnight in a patient. The occurrence of terminal blood stream spread without any evidence of embolic cellular elements was interpreted by Bersach as consistent with the virus etiology of Hodgkin's disease. The present reported case does demonstrate the existence of embolic Reed-Sternberg cells. The significance of this finding, however, as supporting or contradicting any of the various hypotheses of the etiology of Hodgkin's disease, again, falls into the realm of speculation.

We feel that dissemination of Reed-Sternberg cells by the peripheral blood probably represents a disruption of Hodgkin's tissue through its confining boundaries, similar to that which is frequently observed in cases of lymphosarcoma. No further conclusions to date can accurately be based on this observation.

**Summary**

A case of Hodgkin's disease is presented, in which Reed-Sternberg cells were observed in the peripheral blood.

**Summario in Interlingua**

Es presente un caso de morbo de Hodgkin in que cellulas de Reed-Sternberg eseva observate in le sanguine peripheric.

**References**


Reed-Sternberg Cells in the Peripheral Blood: Report of Case of Hodgkin's Disease

HAROLD LUDMAN and PAUL W. SPEAR