

Case Report

MONOCYTIC LEUKEMIA

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THE publication of detailed case reports may often be of value. A case of monocytic leukemia is reported here in detail, in the hope that it may throw some light on our knowledge of this condition.

REPORT OF CASE

The patient was a 36 year old, married white woman, who lived in Brussels. When first seen on August 8, 1946, her chief complaint was that of progressive weakness of several months' duration. The most interesting feature of the past history was a series of skin symptoms. In January, 1946, an itching erythema appeared on the inner aspect of both thighs, and, one month later, the forearms and neck became similarly affected. These manifestations disappeared about the middle of March. The patient stated that for about eight days at the beginning of July she had had some kind of eczema on the neck. A few days later, on July 18, numerous brownish-red, slightly itching papules had appeared on the trunk, and had persisted for about a week.

The patient was very pale, and her face was swollen. The spleen was not palpable; no lymph glands were felt; the liver was tender and felt 2 cm. below the costal margin in the mid-clavicular line. Blood laboratory examinations revealed the following: Hemoglobin 28 per cent = 4.37 Gm. per 100 cc.; red blood cell count, 222 million per cu. mm.; color index 0.6; total white blood cell count 50,500 per cu. mm. Examination of the stained smear (May-Grünwald, Giemsa) revealed the presence of numerous large cells with irregular nuclei. The differential count (based on 400 white cells) was as follows:

- 20.25% neutrophils (9.25% of them staff cells)
 - o % eosinophil
 - o % basophil
- 12.75% lymphocytes
- 56 % monocytic cells of abnormal morphology 65.5 leukemic cells
- 9.5 % paramyeloblasts
- 0.5 % neutrophil metamyelocytes
- 1 % neutrophil myelocytes
- 3 normoblasts were found per 400 leukocytes

Aspiration of the bone marrow by sternal puncture proved unusually difficult; finally, however, small lumps of whitish material were obtained, practically free from blood. The smear of the specimen was almost entirely made up of leukemic cells, which could be classified as pathologic promyelocytes or promyelocytoid paramyeloblasts. *Not one cell was seen in the sternal puncture preparation which was comparable with the monocytic type of cells found in the blood.*

The patient was seen again three weeks later and at that time her condition had deteriorated rapidly. Considerable edema of the face, extreme weakness and extensive ulcero-necrotic lesions of the mouth were noticed. The temperature was 39 C. (102.2 F.). A few brown macules, half a centimeter in diameter, remained from an extensive eruption of red spots which had appeared during the interval between the two examinations. The blood pressure was 120-40. Blood examination showed the following: Hemoglobin 11 per cent = 1.72 Gm. per 100 cc.; red blood cells 1.04 million per cu. mm.; and leukocytes 184,600 per cu. mm. The differential count was as follows:

- 3.25% neutrophils (1 staff cell)
 - o % eosinophil
 - o % basophil
- 4.25% lymphocytes
- 77.5 % monocytic cells of abnormal morphology 92 leukemic cells

14.5 % paramyeloblasts

0.5 % plasmacyte

2 normoblasts were found per 400 leukocytes.

The patient died on August 31.

DISCUSSION

The ulcero-necrotic lesions of the mouth were perhaps particularly significant. Forkner¹ stated that such lesions are more constant and extensive in monocytic leukemia than in other varieties of leukemia. The cutaneous manifestations are also worthy of note. Some of them were atypical and probably allergic in origin;

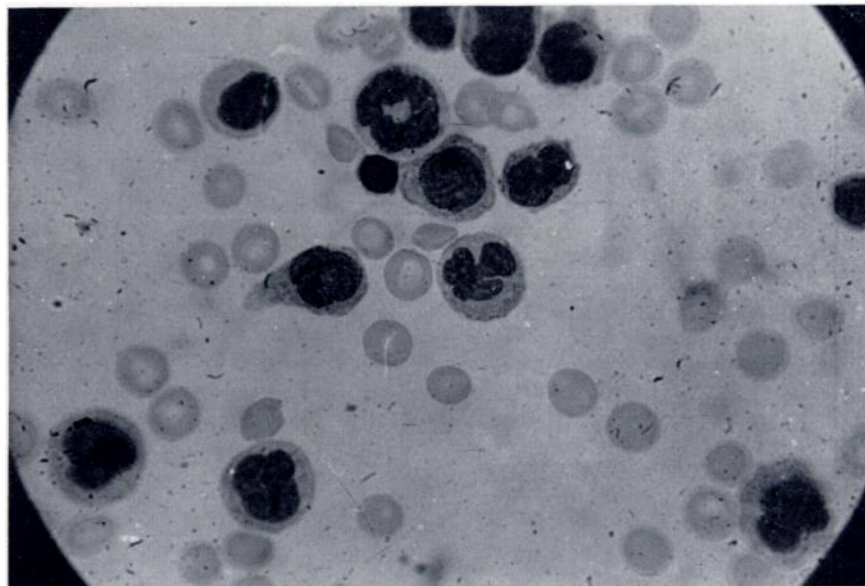


FIG. 1. BLOOD SMEAR

while others, consisting of brown or red maculo-papulae, were more or less characteristic of the reticulo-endothelioses.

There seems to be no possible doubt as to the diagnosis of leukemia. However, opinions could differ as to the exact classification. A diagnosis of monocytic leukemia was substantiated by the high percentage of abnormal monocytic cells in the circulating blood. These cells are extremely polymorphous and can be divided into two main groups, although such divisions are always somewhat arbitrary. (1) The majority were large cells containing irregular nuclei without nucleoli; the pale blue protoplasm being entirely filled with a great number of very small azurophil granules, which are characteristic of the monocyte. (2) Other cells, very similar to the previous ones, had younger nuclei, containing nucleoli; and the fine azurophil granulation occupied only part of the protoplasm, sometimes being confined to the perinuclear zone. It is on the basis of these criteria that Osgood² distinguishes monocytes and "promonocytes." In the first differential count, in a

total of 56 monocytic cells, 50 belong to the first group and 6 to the second; in the second differential count, on a total of 77.5 monocytic cells, 46.5 belong to the

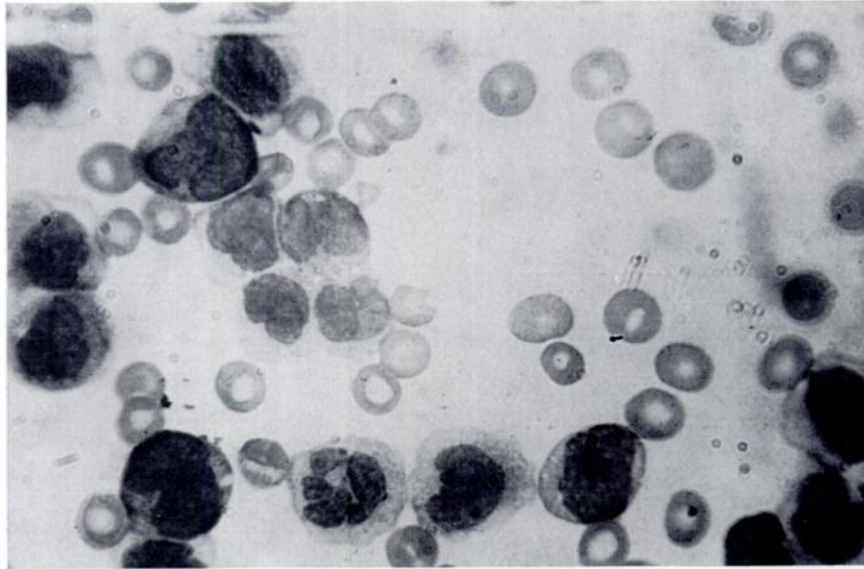


FIG. 2. BLOOD SMEAR

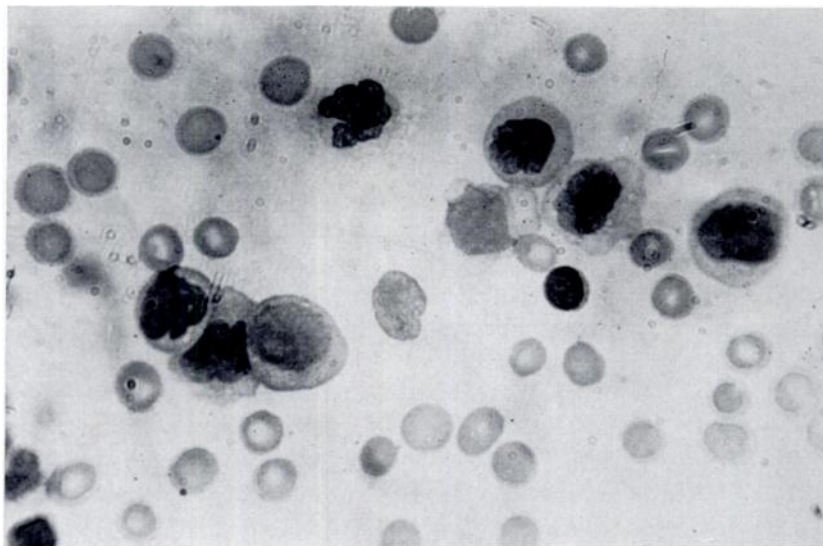


FIG. 3. BLOOD SMEAR

first group and 31 to the second, which shows an increase of the more immature cells.

However, as mentioned before, there was a marked discrepancy between the

blood smear and the marrow smear. Considering only the marrow smears one would have no hesitation in making a diagnosis of myeloid leukemia. The case could then be interpreted in two different ways. (1) If one believes that the monocytic cells of the blood are derived from the leukemic cells in the marrow, the case could be

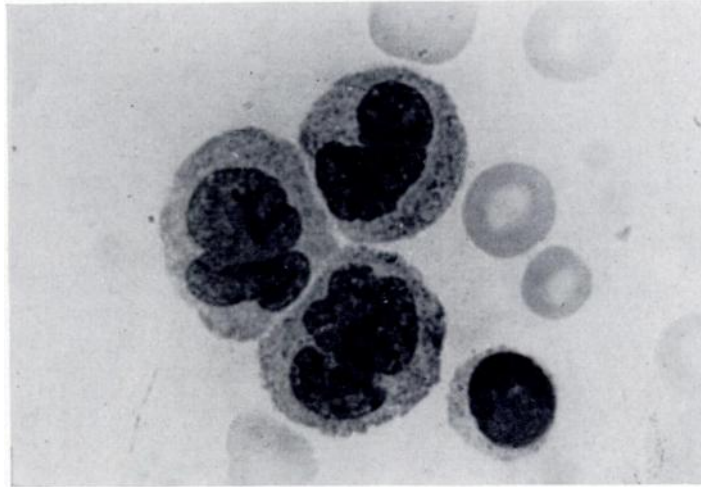


FIG. 4. BLOOD SMEAR

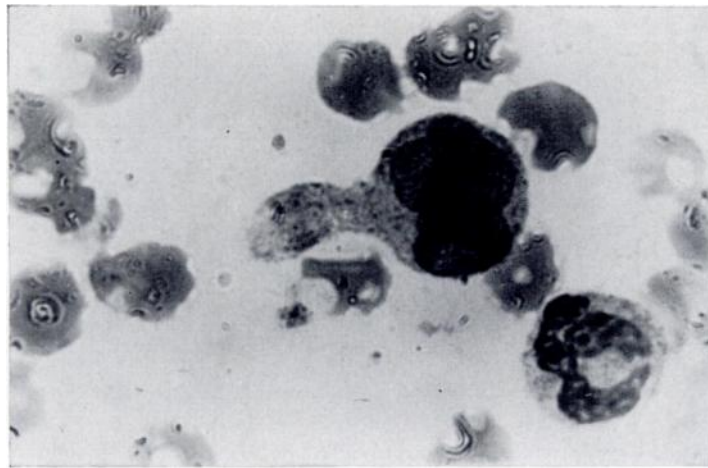


FIG. 5. MONOCYTIC CELL WITH PSEUDOPODE
(Note granules extending within the pseudopode)

termed *paramyeloblastic leukemia*. (2) When one assumes the monocytic cells of the blood are *not* derived from the leukemic cells in the marrow, but express a reaction of the reticulo-endothelial system elsewhere in a patient with myeloid leukemia which Oberling³ has called "reticuloses associées." Oberling has given instances of this association.

In our opinion, it would be an overextension of the concept of the "paramyelo-blast" to consider, as such, the monocytic cells in the peripheral blood of our case.

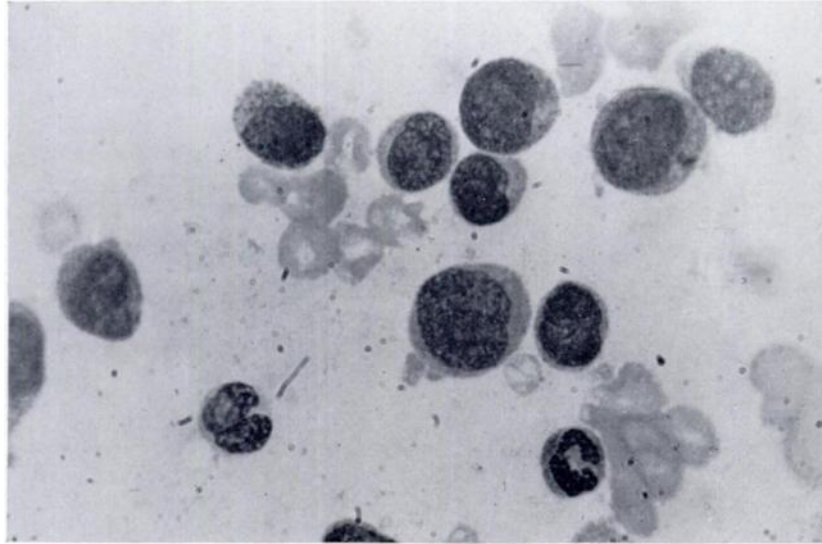


FIG. 6. MARROW SMEAR

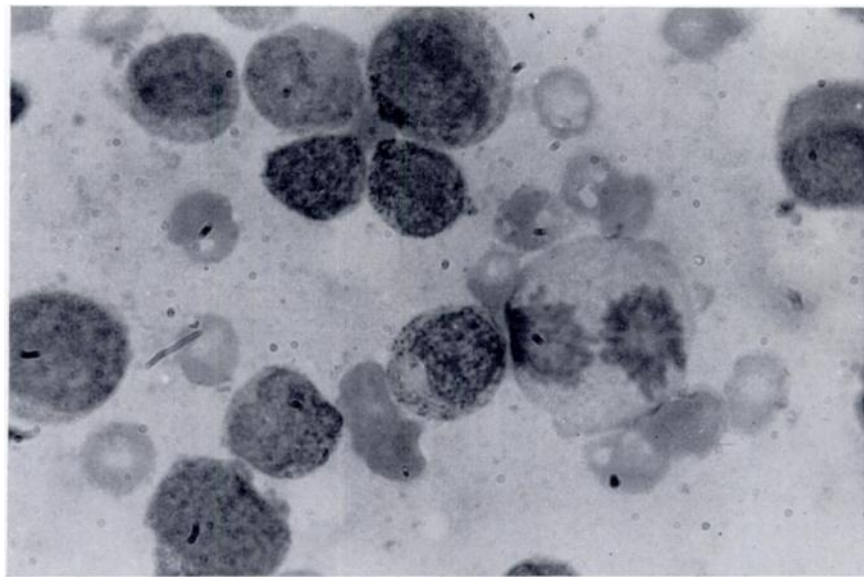


FIG. 7. MARROW SMEAR

On the other hand, their morphology seems too definitely abnormal to regard them simply as a result of a simple reaction of the reticulo-endothelial system. Despite the lack of monocytes in the bone marrow, it was felt that there was strong evi-

dence for a diagnosis of monocytic leukemia, which can be defined further, according to the currently prevailing classification, as belonging to the Naegeli type (characterized by leukemic proliferation in the bone marrow) as opposed to the Schilling type (or leukemic reticulosis) characterized by proliferation of the reticulo endothelial system elsewhere than in the bone marrow.

Author's note

It is interesting that the patient's brother died in 1942 at about the same age (35) of a mediastinal tumor. Unfortunately, no answer was received to our inquiries concerning the nature of this tumor, which might well have been a localized growth of reticulum cells.

REFERENCES

- ¹ FORKNER, CLAUDE E.: *Leukemia and Allied Disorders*. New York, Macmillan, 1938.
- ² OSGOOD, EDWIN E.: *Atlas of Hematology*. San Francisco, Stacey.
- ³ OBERLING, CH., AND GUERIN, M.: *Lew reticuloses et reticulo-endothelioses*. *Sang* 8: 892, 1934.