

pathways from retinae to calcarine fissures were normal. But softening of the angular gyri and the parts adjacent, in which it is believed the higher visual centres lie, produced such marked disturbance of vision that it was a question much of the time whether the patient had any power of visual perception.

This case then shows that extreme disturbance of vision may be brought about by lesions in the higher cortical visual centres alone, to which we ophthalmologists have, as yet, given little attention.

PURPURA HEMORRHAGICA.

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THE report of this case is of interest, in addition to the interest aroused by rather rare cases, because of the close resemblance in clinical course of some cases of Werlhof's disease to cases of acute leukaemia which are not infrequently reported in the literature of to-day. This resemblance has not been commented upon by most writers on acute leukaemia, nor by the authors of books upon blood diseases, with the exception of Benzançon and Labbé,¹ who class purpura hemorrhagica among the pseudoleukæmic states.

J. S., aged sixteen years, nativity Ireland, was admitted to the Dispensary of Cornell University Medical College May 3, 1902. His complaint was weakness and inability to work following closely upon severe epistaxis, which occurred without warning and without apparent cause. For two years he had worked in the "filing department" of a neighboring brass foundry. The family history was satisfactory, including no "bleeders," and neither deaths nor sickness suggesting the less common diseases; he was one of six healthy children.

The history of the patient's early years, obtained from his mother, was that of a healthy, active boy who escaped the exanthematous and infectious diseases of infancy and childhood, apparently without a day's illness until two weeks before coming under observation. For one year the boy had smoked cigarettes and a pipe, but not to excess. There was no history and no evidence of venereal disease. Rarely a glass of beer was taken. The usual diet consisted of ham, eggs, potatoes, tea, toasted bread, with fresh meat and other vegetables at least twice a week, and under treatment

¹ *Traité d'hématologie*, 1904, p. 683.

the substitution of fresh meat and vegetables and fruit did not influence the course of the disease.

Twelve days before admission he stopped work on account of increasing weakness, which was first noticed the day following a severe "nose-bleed," fourteen days before admission. During the six days following the initial severe epistaxis slight bleeding continued "by spells" each day, and at this time the pallor was noted and the spitting of blood occurred for the first time. No soreness of the mouth was complained of and the parent and the boy thought the latter bleeding from the lung, although on admission the condition of the gums would have accounted for a moderate amount of "blood spitting." The urine was not noticed during this period of two weeks, and had been previously always "clear and yellow;" but twelve days before admission the stools were noted as black and sticky, and the same description was applied later to the stools, which were found to contain much blood and blood pigment.

At no time were there chills, rigor, headache, nausea, or vomiting to suggest the onset of an acute infection. There were loss of appetite and loss in weight.

Physical Examination. Fairly well nourished boy. Facies sickly, pale, a yellowish pallor, ears bloodless; dark-red, crusty particles about nares and corners of mouth. Conjunctivæ pale. The tongue was pale and covered with a black coating, which he stated was from his medicine (iron). The right tonsil was swollen; the left tonsil normal; no swelling of left or right cervical glands. The gums were soft, but only slightly swollen, and from them constantly oozed thin, watery blood. A few small blebs, $\frac{1}{2}$ mm. in size, were on the right eyelids. Temperature by mouth 101° .

Thorax. Thin and shallow, symmetrical; expansion fair.

Lungs percussed normally, and sounds were normal over right and left fronts and backs.

Heart. Maximum impulse in fifth space well inside nipple line; area normal. Over the point of maximum impulse and extending inward and upward toward the pulmonic region was heard a soft, systolic, blowing murmur, greatest intensity at the apex; a similar murmur in the second and third left spaces over the pulmonic area. The pulse was 120 to the minute, small and regular.

Abdomen. Soft, not tender; stomach area normal; spleen not palpable and area not enlarged by percussion; liver area normal, edge not palpable in right midclavicular line. No rose spots.

Hemorrhagic Eruption. Scattered over the upper thorax, hack and front, and the neck were a few small, irregular spots suggesting bruised areas, varying in color from a purple to a yellow color. No petechiæ, and no fresh cutaneous hemorrhages. Over the sacrum was a large (10 x 13 cm. = 4 x 5 inches) purple-red purpuric spot which had appeared twenty-four hours previously, tender on pressure, but no tumor and no induration. Over the external

surfaces of both thighs just above the knees, over the legs just below the knees, and over the lower portion of the legs were scattered numerous, irregular, purpuric spots of a greenish-yellow color, varying in size from 1 to 4 cm. in largest diameter. No history of injury. No oedema about ankles.

Rectal examination was negative. No hemorrhoids and no evidence of infection about anus or in lower rectum.

Genitalia. Puerile; otherwise normal.

Glands. No glandular enlargement.

Blood Examination, May 3, 1902. Coagulation time seven to nine minutes (Wright). Hæmoglobin, 33 per cent. (von Fleischl); red blood corpuscles, 1,916,000; white blood corpuscles, 3000.

Malaria. Parasites not found.

Red cells fresh and stained appeared normal, excepting moderate polychromatophilia; no erythroblasts. Differential (400 cells): polynuclears, 50.3 per cent.; lymphocytes, 38.3 per cent.; large mononuclears, 11.3 per cent.

Urine. Clear; light yellow; 1012; albumin, 0; glucose, 0; red cells, 0.

May 6, 1902. To-day the boy is pale, anæmic, facies typhoidal. Tongue slightly furred, edges coated, tremulous. Temperature, 102.8°; pulse small, regular, rapid, 150 to minute. Right tonsil no longer swollen, and not red. Cervical glands not swollen. Gums not spongy. The patient's mother stated there had been "no bleeding during the three days since first visit, but yesterday the bowels moved every half-hour and the movements were black and watery," and the patient complained of pains in the abdomen.

8th. The patient's mother visited the dispensary and reported that "his throat was sore," and that there was some swelling on left side of neck; the pulse quiet and slow and regular; the stools natural; the urine clear and yellow. The "black and blue" spots were still present.

The parents would not permit entrance to a hospital, even though unable to keep the boy in bed. The swelling on "left side of neck" proved to be on both sides, due to the heaving-full pulsation of cervical vessels so often seen in severe anæmia.

13th. The purpuric spots had disappeared. Color pale lemon yellow, similar to that of pernicious anæmia in adults. Gums pale, firm, and no longer bleeding. Temperature, 100°; pulse, 96, soft, fair, volume regular. Has spat up a small amount of bloody sputum, but no dark stools and no dark urine during the last few days. Throat no longer sore. No enlarged glands in neck.

17th. He visited the dispensary. The pallor was marked, the eyelids purple, conjunctivæ pearly. Tongue and throat clear and normal. Temperature, 100°; pulse soft, regular, not dicrotic, 140 to minute. Heart showed no enlargement. Apex in fifth

space well inside nipple line, 8 cm. from midsternum. Systolic murmur over apex and base.

No definite spots over trunk or limbs, but a peculiar bluish, mottled appearance over upper thorax and shoulders in front. No glandular enlargement. No enlargement of spleen.

Blood Examination. Coagulation time three and a half minutes (Wright). Fresh blood: red cells pale. Plates practically absent. Hæmoglobin, 20 per cent. (von Fleischl); red blood corpuscles, 1,300,000; index, 0.76; white blood corpuscles, 4000.

Red cells: slight poikilocytosis; anisocytosis absent; polychromatophilia slight; erythroblasts not found. Differential (500): polynuclears, 22 per cent.; lymphocytes, 66.5 per cent.; large mononuclears, 11.5 per cent.

Serum Reaction. Widal's negative 1 to 60 in three hours.

19th. Urine Examination. Pale yellow; clear; acid; specific gravity, 1010; albumin, 0; sugar, 0; casts, 0; red cells, 0. Spectroscopic examination: No blood derivatives.

On May 27, 1902, death occurred. Two days preceding death large purpuric spots appeared over the dorsum of the left foot and about the ankles; the feet and ankles and legs became oedematous, and there was a thin, bloody discharge from the mouth and nose.

The case was treated unsatisfactorily, in that hospital care was not permitted and the patient could not be confined to bed at home. Tincture of iron chloride, iron tonics, arsenic, together with regulation of diet, constituted the treatment. Adrenalin was given for two days from May 6th, and apparently affected the melæna favorably, while later the same drug failed to affect the bleeding from gums and bowel. The slight sore throat was not complained of until after the first inspection, May 3d, although at that time the right tonsil was slightly swollen and red. Under local treatment the tonsil became normal within five days. Careful inquiry in regard to previous diet and surroundings eliminated the possibility of scurvy.

The acute condition, the swelling of the right tonsil, the high percentage of lymphocytes in the peripheral circulation, suggested the possibility of acute leukæmia with an intercurrent infection from the right tonsil, giving rise to well-marked leukopenia. Other sources of infection, such as otitis media, hemorrhoids, pyorrhœa alveolaris, were carefully looked for and not found.

The decrease in leukocytes in leukæmia from 100,000 to 30,000 to 4000, or even lower in some of Cabot's cases, has occurred, so far as I am aware, only in cases with a severe intercurrent infection, such as pneumonia, empyema, septicæmia.

The evident absence of tonsillitis before admission, the sore throat occurring a few days later; the absence of pallor at any period preceding the first severe epistaxis; absence of glandular and splenic enlargement; the persistent bleeding from bowel, gums,

and nose; the purpuric eruption from the onset of the condition, suggests Werlhof's disease rather than acute leukæmia.

From the character of the lymphocytes found in the two blood examinations leukæmia seems excluded. Specimens from three cases of undoubted acute leukæmia examined in the laboratory show the large lymphocytes with "azur-granules" (erythrophilic, but not acidophilic)—Türk's lymphoid marrow cell¹—in high percentage, and this type of cell was not found in this case, the mononuclear cells being of the lymphocyte and large mononuclear types found in normal blood.

A post-mortem examination was not permitted.

TWO CASES OF CHRONIC SPLENIC ANÆMIA (TWIN SISTERS); ONE WITH ACHYLIA GASTRICA.²

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THE term splenic anæmia was first used by Griesinger to describe a condition characterized by a severe anæmia associated with chronic enlargement of the spleen. Since Gretscl reported the first case in 1866, an extensive literature has accumulated. An analysis of the cases leads to the conclusion that various diseases have been reported under this name. Some are undoubted cases of pernicious anæmia; others of pseudoleukæmia. In some it would be difficult to exclude malaria, syphilis, and tuberculosis. Banti was the first to make this a primary disease of the spleen. He believes that the enlargement of that organ precedes the anæmia, and that in the later stages the liver becomes cirrhotic; there is jaundice and ascites, eventually leading to death. But whether Banti's disease is a true splenic anæmia, or a cirrhosis of the liver beginning in the spleen, or whether the infantile pseudoleukæmia of von Jaksch belongs in this category, or whether primitive or primary splenomegaly, splenic pseudoleukæmia, Gaucher's endothelioma of the spleen, splenic cachexia, etc., and splenic anæmia are the same thing, or different stages of the same thing, are still mooted questions.

The term splenic anæmia is objectionable, as it assumes a causal relation between the splenic tumor and the anæmia. Objections,

¹ Cells resembling Türk's lymphoid marrow-cells, excepting the "azur-granulation" which Türk states he has not observed in these cells, although he suggests the possibility of the occurrence of such granules in the basophilic protoplasm of an "old" lymphoid marrow-cell. Türk, *Vorlesungen über klinische Hämatologie*, 1904, p. 356.

² Read at the annual meeting of the New York State Medical Society, January 31, 1905.