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PURPURA FULMINANS.

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A boy, aged 6 years, with no family history of purpura or bleeding, was admitted to the Grove Fever Hospital at 10.30 p.m. on January the 14th, 1910, certified as suffering from hæmorrhagic diphtheria. There had been a history of sore throat, headache, and vomiting ten days prior to admission.

No cultures of the throat had been taken, and no antitoxin had been given. Between 4.30 and 5 p.m. on the day of admission the mother had first noticed a large bruise on the right thigh.

On admission an extensive blackish-red ecchymosis was seen on the outer side of the right thigh, and there was a similar lesion on the right buttock. Apart from some indefinite desquamation on the trunk the rest of the skin was normal. The throat was clean, and showed no evidence of recent inflammation, but there were numerous carious teeth with pus exuding from the sockets. The right submaxillary lymph-glands were enlarged and tender. Temperature 100·4° F.

During the night and following day the ecchymosis rapidly spread so as to occupy the distribution represented in the photograph taken shortly before death, which occurred at 3.30 p.m. on January the 15th, less than twenty-four hours after the first appearance of purpura. Apart from a small area over the left elbow the lesions were confined to the lower limbs. They were very tender to the touch, and were accompanied by œdema of the feet and legs.

Death was preceded by extreme anæmia, vomiting, restlessness, and a subnormal temperature. The mind remained clear until the end. No hæmorrhages from any mucous membrane occurred. The vomit consisted of green fluid, and a stool passed a few hours before

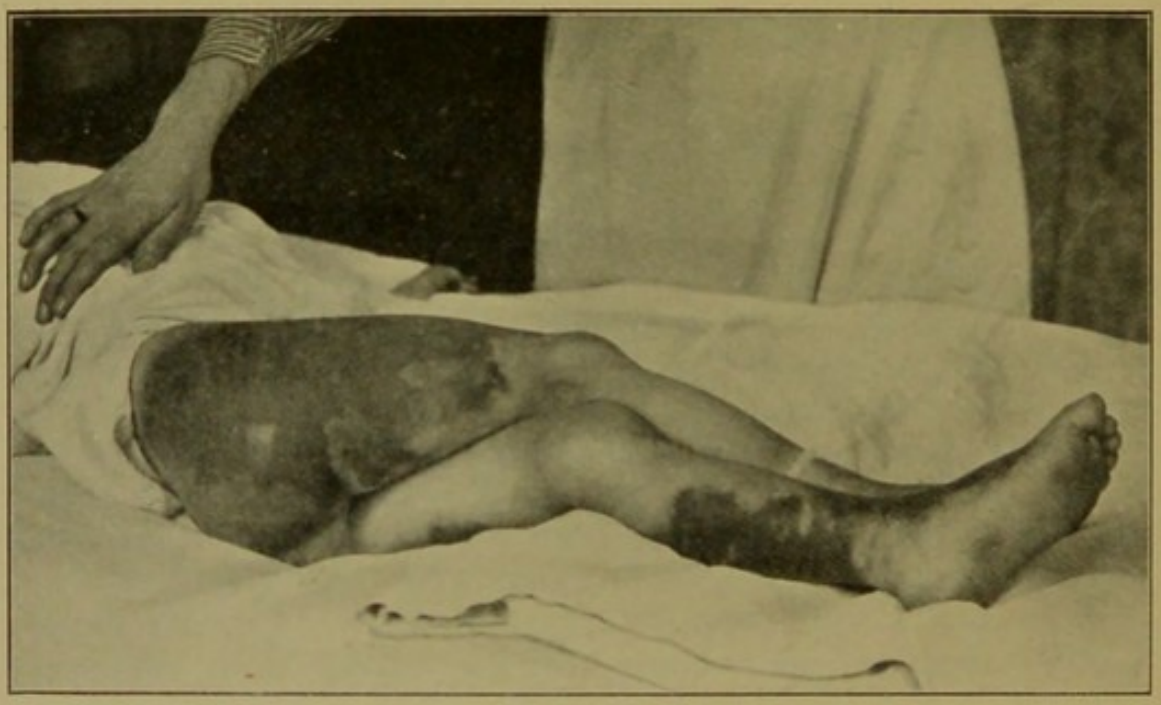
* Photograph shown at the Section for the Study of Disease in Children of the Royal Society of Medicine, January the 28th, 1910.

death was of normal colour and consistency. The urine contained a trace of albumin but no blood.

Blood-examination by Dr. McCririck.—Hæmoglobin, 50 per cent.; red cells, 1,780,000; colour index, 1·4; numerous microcytes; no poikilocytes nor normoblasts; white cells, 57,600.

Differential count (1000 cells counted): Polymorphonuclears, 63·4 per cent.; small lymphocytes, 26·8 per cent.; large mononuclears, 2·5 per cent.; eosinophiles, 1·0 per cent.; myelocytes, one of which was eosinophilic, 6·3 per cent.; mast cells, 0.

The blood-platelets were not increased.



The serum was markedly hæmolytic to normal human corpuscles in twelve hours in 1 in 50 dilution.

Streptococco-opsonic index 2·31.

At the autopsy the blood was found to be remarkably fluid and to show no tendency whatever to clot.

The present case exactly corresponds to Henoch's description of purpura fulminans in the extreme rapidity of the ecchymosis formation, the entire absence of hæmorrhages from the mucous membranes, or in the internal organs, and in its rapidly fatal course. As in Henoch's cases, nothing was to be found at the autopsy beyond marked anæmia of all the organs, including the brain and suprarenals, hæmorrhage into which had been noted in some cases of purpura. Microscopical sections of the liver and kidneys were

made by Dr. McCririck and examined by Dr. H. D. Rolleston, who could find practically no morbid change in them.

Elliott, of Chicago, has recently collected fifty-six cases of purpura fulminans, including a personal case, but of these eighteen had hæmorrhages from the mucous membranes, and nine of the twenty on whom an autopsy was performed showed hæmorrhages in the viscera. Four recovered, so that comparatively few, like the present case, merit the title of purpura fulminans as Henoch described it.

The average duration of the fifty-two fatal cases was fifty-two and a half hours after the first occurrence of purpura, the shortest being five hours and the longest ten days. Nineteen, like our own case, died within twenty-four hours.

Had the boy survived longer he would probably have developed gangrene or hæmorrhagic bullæ in the lesions, as occurred in several of the cases recorded. Sixteen of the cases published followed scarlet fever. In addition to eleven mentioned by Elliott are those of Bertling, Biss, Cullen, Miller, and Rice-Oxley.

As in one of Henoch's cases, the pre-existence of scarlet fever in our case was possible, but not certain. In favour of scarlet fever were the suggestive history, the desquamation, the submaxillary adenitis, which often occurs in convalescence from scarlet fever and was noted in several of the cases, and the isolation from the heart-blood of a streptococcus, which, according to Dr. McCririck, presented the following characters of the *Streptococcus scarlatinæ* described by Mervyn Gordon: well-formed chains, much acid formation, and marked curdling of litmus milk, and no turbidity in broth or gelatin at 37° C.

In any case it is highly probable that the condition of oral sepsis contributed to the development of purpura.

The diagnosis of hæmorrhagic diphtheria may be unhesitatingly rejected. In the first place the throat cultures showed no diphtheria bacilli. Secondly, apart from the very rare cases of purpura occurring in convalescence, skin hæmorrhages in diphtheria always occur during the acute stages of a severe attack, and are associated with other signs of malignancy, such as extensive membrane, faucial and palatal œdema, disproportionate adenopathy and fœtor, none of which were present in this case. Lastly, the distribution and size of the skin lesions were quite unlike those seen in hæmorrhagic diphtheria, in which they are almost invariably small and discrete.

The possibility of the case being one of hæmorrhagic smallpox, which Henoch mentions only to dismiss, may also be set aside. The

boy had four good vaccination cicatrices, and the character of the onset, attendant symptoms, and distribution of the lesions, as well as the absence of exposure to infection, entirely negatived such a diagnosis.

References.

(1) Bertling.—'Journ. Amer. Med. Assoc.,' ii, 1909, p. 383.
(2) Biss.—'Lancet,' ii, 1902, p. 286.
(3) Cullen.—'Brit. Med. Journ.,' i, 1903, p. 197.
(4) Elliott.—'Arch. of Intern. Med.,' vol. iii, 1909, p. 193.
(5) Henoch.—'Berl. klin. Wochenschr.,' 1887, p. 8; and 'Vorles. über Kinderkrank.,' 10te Aufl., 1899, p. 849.
(6) Miller.—'Lancet,' i, 1905, p. 929.
(7) Rice-Oxley.—*Ibid.*, ii, 1900, p. 485.
(8) Rolleston, J. D.—'Metrop. Asylums Board Reports,' 1908, "Hæmorrhagic Diphtheria."

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