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TWO CASES OF FERROUS SULPHATE POISONING

BY

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After reading Dr. Gilbert Forbes's (1947) paper on poisoning with a preparation of iron, copper, and manganese I am prompted to record two further cases. It would seem that the condition may not be rare, and it is certainly one demanding increased precautions to prevent it.

Case 1

A 16-months-old girl was admitted to the Dundee Royal Infirmary on May 3, 1944. About 10.30 a.m. on that date she obtained a packet of 40 tablets, each containing ferrous sulphate excis. gr. 3 (0.2 g.) copper sulphate gr. 1/25 (2.6 mg.), and manganese sulphate gr. 1/25. She swallowed all but one of these, and vomited almost at once, bringing up one tablet. Her mother gave her salt and water to drink, when about 12 more tablets were vomited. She thus retained about 26 of them. The child then became hot and drowsy and kept coughing and vomiting. The vomit contained mouthfuls of dark blood-stained materials.

She was admitted to hospital at 11.50 a.m. On examination she was rather pale, and was coughing and vomiting. The vomit was blood-stained. There was no rash or marked drowsiness. The temperature was 96° F. (35.6° C.), pulse 140, and respirations 24. The pulse was of slightly diminished volume. Her tongue was somewhat furred; the fauces were healthy. The abdomen was slightly distended. There was neither tenderness nor resistance on palpation. Nothing abnormal was noted in the central nervous system. Gastric lavage with a sodium bicarbonate solution was carried out, and brownish material was obtained. Some normal saline was left in the stomach. "Nepenthe" 1/2 min. (0.03 ml.) was given at once, and 2½ gr. (0.16 g.) of bismuth carbonate was given four-hourly.

In the evening she was breathing heavily, but was otherwise comfortable. There was no cyanosis during the night. No vomiting occurred, but one loose stool containing mucus and dark blood was passed. The temperature rose suddenly to 101.2° F. (38.4° C.) at 7.30 a.m. on the second day; her breathing became very difficult and she became cyanosed; she struggled, seemed to choke on inspiration, and died immediately.

Post-mortem Report (Dr. G. H. Smith).—A well-nourished female infant, rather cyanosed. Thorax: Heart and pericardium normal; both lungs show areas of patchy collapse and rather oedematous mucopurulent material in bronchi and trachea; no oedema of glottis. Abdomen: No free fluid in peritoneal cavity and no evidence of perforation. Stomach: Somewhat dilated. There is a large amount of brownish-black fluid present. The gastric mucosa is the seat of intense inflammatory change and there is a marked degree of necrosis and sloughing limited to the crests of the longitudinal rugae. Necrotic material from the stomach gives an intense iron reaction, the appearances being consistent with those due to corrosive poisoning. Numerous haemorrhagic points are apparent. Microscopical section shows necrosis of mucous membrane extending down to muscle. Intestines: Apart from a few patches of congestion in the upper jejunum, the intestines are healthy and the only contents present are black semi-fluid material resembling altered blood. Those contents are confined to the lower bowel, chiefly the pelvic colon. Liver: There is passive congestion. Neither hepatitis nor necrosis is present. Gall-bladder and pancreas: Healthy. Spleen: Healthy but congested. Kidneys and suprarenals: Healthy apart from venous engorgement. Ureter and bladder: Normal. Head: Brain and meninges healthy.

Case 2

A boy aged 2 years swallowed about 10 tablets similar to those mentioned above, about 9.30 a.m. on March 4, 1947. Approximately half an hour later he began to vomit green bile-

stained fluid. Two tablets were returned whole. There was no haematemesis. His colour became waxy, but had improved before admission to hospital the same day at 2.5 p.m. He was very thirsty. A stool passed later in the day was dark and gave the guaiac reaction for blood.

On admission he was rather flushed, listless, and drowsy, his pulse was regular and of good volume. There was neither tenderness nor abnormal resistance over his abdomen. Treatment consisted of mist. magnesium hydroxide and bismuth, along with glucose and saline, later changed to milk and subsequently to milk diet. By March 6 the vomiting had ceased, and on the 9th the stool was normal, with no blood. On the 13th the child was very well, but the stool was dark and the guaiac test positive. He had had no meat since admission. On the 16th the stool was again dark, and on the 18th he was well and there was no melaena.

Comment

Ferrous sulphate poisoning is a serious risk in view of the widespread use of this type of tablet. It is important that they should be kept in a place where children cannot obtain them, and that their potential toxicity should be realized by the profession.

The first patient died after consuming about 26 tablets. The second survived after retaining about eight. BAL, which was referred to in an annotation (*Journal*, March 22, 1947, p. 386), was not available for the former case in 1944 and was not required in the latter one.

An old name for ferrous sulphate is green vitriol.

It is important to realize that these cases and the two quoted by Forbes have all resulted from gross overdosage.

REFERENCE

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Medical Memoranda

Chronic Lymphatic Leukaemia in Man of 84

The following case, in which the leucocytes outnumbered the erythrocytes, seems worth recording on account of the advanced age of the patient.

CASE REPORT

A man aged 84 was admitted to Chase Farm Hospital at mid-day on July 14, 1945, with the preliminary diagnosis of pernicious anaemia. He was not fit for interrogation, but his daughter stated that he had been yellowish in appearance and breathless on exertion for "years." On examination he was well covered, with a pale skin having a lemon-yellow tint. His tongue was smooth. Rales were heard throughout both lungs, and there was a soft systolic murmur at the apex. The liver was palpable three fingerbreadths and the spleen two fingerbreadths below the costal margin. Reflexes: knee jerks ++, ++; ankle jerks, present and equal; plantar response, ↑, ↑. Lymph nodes were not palpable in the neck or axillae. At 3.15 p.m. he was given 2 ml. of "neohepatex" intravenously and 4 ml. of "anahaemin" intramuscularly. He died at 4 p.m.

A blood count showed: erythrocytes, 680,000 per c.mm.; leucocytes, 745,000 per c.mm.; reticulocytes, 19.6%; thrombocytes, 270,000 per c.mm. Because of the high bilirubinaemia it was found impossible to estimate the haemoglobin by Haldane's method. It was unfortunate, therefore, that difficulty in entering the vein of the moribund patient caused subsequent clotting of the blood in the Wintrobe collecting-tube. The blood clot did not show normal retraction after three days. The differential blood count (2,000 leucocytes) showed 97.75% of unusually small lymphocytes. Macropolycytes, macrocytic erythrocytes, numerous normoblasts, and cells with Howell-Jolly bodies were seen. The van den Bergh reaction was: direct, immediate positive; quantitative estimation, 36 mg., or 72 units, per 100 ml. The plasma protein was 7.7%; plasma albumin, 4.4%; albumin-globulin ratio, 1.3; plasma uric acid, 10 mg. per 100 ml.; plasma cholesterol, 250 mg. per 100 ml.

A post-mortem examination was carried out by Dr. J. G. Greenfield on July 16. There was general oedema of the lungs and consolidation in the right lower lobe. The heart muscle had thrush's breast appearance. The liver was pale brown, streaked grey in the portal spaces, but was not enlarged. The gall-bladder contained calculi and could not be emptied by pressure. The spleen weighed

1½ lb. (680 g.) and was of firm consistency; the cut surface showed enlarged Malpighian bodies. The lymph nodes were moderately enlarged in the mediastinum, abdomen, and groins.

COMMENTARY

The case was remarkable for the following reasons: the age of the patient; the leucocytes exceeded the erythrocytes; a reticulocyte count of 19.6%; the unusual degree of bilirubinaemia; the high plasma uric acid; and the possibility of coexisting pernicious anaemia. Panton and Valentine (1929) found that the average age incidence in 25 cases of chronic lymphatic leukaemia was 55 years, but the age of the oldest patient was not recorded. Biggs (1936) reported a case of lymphatic leukaemia in a man aged 83. Émile-Weil *et al.* (1938) described a series of cases of lymphatic leukaemia in patients aged from 64 to 81 years, the man aged 81 being the oldest leukaemic patient that they had seen. Although the leucocytes rarely outnumber the erythrocytes, high counts have occurred in other aged leukaemic patients. In Biggs's case they numbered 245,000 per c.mm., and I found 418,000 per c.mm. in a woman aged 75. Émile-Weil's cases, however, were all crypto-leukaemias or subleukaemic forms, the highest count being 15,000 per c.mm.

The blood for the reticulocyte enumeration was taken 20 minutes after the injections of liver extract. It is, however, difficult to believe that the high reticulocyte count resulted from the injections; moreover, Roth (1943) has reported a leukaemia with 18% of reticulocytes. It is of interest to note that the patient's colour never suggested the high degree of bilirubinaemia present. The raised plasma uric acid was possibly associated with the numerous nucleated red cells or the increased fragility of the lymphocytes, as shown by the smear cells. The signs of subacute combined degeneration of the cord suggested possible coexisting pernicious anaemia, but the data are not complete enough for a satisfactory diagnosis. Wintrobe (1942) considers that there have been only four acceptable cases in which the two diseases have existed simultaneously.

I wish to thank Dr. P. Hamill, under whom the patient was admitted, for permission to publish the case.

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Trichobezoar

The following case is placed on record owing to the large size of the hairball and because of the few symptoms it caused.

CASE HISTORY

A girl aged 18 was admitted to the Clayton Hospital, Wakefield, on April 5, 1946. She had been in good health until 10 days previously, when she started complaining of left-sided abdominal pain, "knife-like" in character and associated with anorexia.

On examination a large tumour could be felt extending across the upper abdomen, the shape of a dilated stomach. An x-ray examination of the stomach and duodenum was carried out, and Dr. Rose reported as follows: "This seems to be a very rare and interesting case of a huge hairball (trichobezoar) forming almost a cast of the lumen of the stomach."

At operation on April 12, Mr. E. R. Flint removed the hairball. The patient developed an acute dilatation of the stomach on April 14; this responded to treatment, and she was discharged from hospital on May 8. The hairball measured 17 in. (43 cm.) along the greater curvature, 15 in. (38 cm.) along the lesser curvature, and 8½ in. (21.5 cm.) in the largest diameter. The girl admitted to eating her hair as a child, mainly just before she went to sleep, but stated that she had not done so since she was 12 years of age.

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