NON-FATAL CASE OF CURLING'S ULCER IN A CHILD

BY

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The following report describes a case of Curling's ulcer, presenting in a child within 72 hours of injury, persisting for six weeks with recurrent severe haemorrhage, and finally subsiding after healing of the burned areas.

Case History

A girl aged 4 was transferred to the Wythenshawe Hospital on March 23, 1953, with a history that thirteen days previously her nightdress had caught alight as she attempted to rescue her doll from the fire. She sustained 25% body surface burns—16% were deep and 9% involved superficial and partial-thickness skin loss. She was admitted to the Royal Albert Edward Infirmary, Wigan, one and a quarter hours later and treated for shock with a transfusion of 1½ pints (850 ml.) of dextran, followed by 1 pint (570 ml.) of blood and 1 pint of N/5 saline over the next 24 hours. In addition, 2 pints (1,140 ml.) of fluid was given orally, making a total fluid intake of 5½ pints (3.1 litres) in the first day. Urine output appeared satisfactory, and on recovery from shock the burns were treated by exposure. A course of systemic penicillin was begun on admission and streptomycin was started two days later.

On the third day the child collapsed, but responded with further intravenous fluid. The following day melaena stools were noticed and Curling's ulcer was diagnosed. The melaena continued in a mild form over the next few days. On the ninth day a frank haematemesis followed by melaena occurred, but with a further blood transfusion the child again recovered from shock. The melaena, however, continued, and by the eleventh day her haemoglobin had fallen to 54%. After a further pint (570 ml.) of blood this rose to 84%, and in the absence of further severe haemorrhage her transfer to Wythenshawe Hospital was arranged, for subsequent grafting of the burns.

The child arrived at Wythenshawe Hospital on March 23, pale and anxious, and her haemoglobin was found to be 42%, indicating that further haemorrhage had just recently occurred. One pint (570 ml.) of blood was given over the next six hours with considerable improvement in her condition. Penicillin and vitamin K were continued intramuscularly and milk drinks were given hourly. "Nepenthe," 4 minims (0.24 ml.), and alternately phenobarbitone, ½ gr. (32 mg.), were given six-hourly as sedatives.

Early the next morning the child cried out with abdominal pain, and after vomiting several clots of blood she passed a large melaena stool. On examination epigastric tenderness and mild distension were present, but there were no signs of perforation. She became very shocked, and a second pint of blood was begun. Some improvement followed, but the next day (March 25) further haematemesis and melaena occurred, necessitating a transfusion of another 2 pints (1,140 ml.) of blood. Mild haemorrhage again occurred on March 26.

In view of the recurrent haemorrhage and limited fluid intake by mouth a very slow saline drip with added vitamin C was kept going continuously and 2 pints of blood were always available. Penicillin was discontinued, and on March 26 a course of oxytetracycline ("terramycin") was begun for the staphylococcal and coliform infection of the burns.

On March 27, ten minutes after a small warning haematemesis, the child vomited 3 oz. (85 ml.) of fresh blood and passed a massive stool of pure dark blood clots. Blood was given immediately, but the child became profoundly shocked over the next half-hour before responding.

The prognosis in this case was extremely grave, and the possibility of the child surviving abdominal operation, in an attempt to arrest the haemorrhage, was remote. Conservative treatment was therefore pursued, and, in addition to giving the sedatives three-hourly instead of six-hourly, "coagulen Ciba" was given daily, subcutaneously and orally as a haemostatic, and "alludrox," 1 teaspoonful, four-hourly by mouth. In spite of this, haemorrhage recurred on the 30th and 31st, and after a further transfusion of 1½ pints (850 ml.) of blood her haemoglobin rose to 63%.

Treatment of the Burns.—With the maintenance of the child's general condition by blood transfusions, the superficial and partial-thickness burns healed and the full-thickness sloughs separated. It was then decided that an endeavour should be made to graft the remaining deep burns as soon as possible, in the hope that decreased toxæmia would promote healing of the Curling ulcer. Curling's operation was accordingly performed on April 2 (22 days after injury), when autografts were applied to the legs and right forearm and a blood transfusion was given. The child's condition improved, but three days later, after an attack of epigastric pain, she again vomited 5 oz. (140 ml.) of blood and passed a further melaena stool, but was not unduly shocked. The next day, however, her haemoglobin was found to be only 51%, so a further pint (570 ml.) of blood was given. The first dressing showed a complete "take" of the grafts, and on April 8 the remaining burns of the right upper arm were grafted. Intermittent tarry stools were passed after a haemorrhage on the 10th, and, following a haemoglobin estimation of 55% on April 21, a final transfusion of blood was given. The burned areas had by now completely healed (six weeks after injury) and daily baths and walking exercises were started. Apart from a small melaena stool passed on April 30, the ulcer symptoms subsided and light diet was begun. Rapid improvement in the child's general condition followed.

Investigations.—The bleeding and clotting times and platelet count were normal. Barium-meal examination, postponed until June 4 through the child developing a streptococcal tonsillitis followed by chicken-pox, showed "a deformity of the duodenal cap with some spasm of the pre-pyloric antrum consistent with ulceration." Repeated investigations for occult blood in the stools until her discharge to convalescence on June 22 proved negative. Barium-meal examination repeated three months later showed persistence of the deformity of the duodenal cap. Symptoms remained absent and repeated investigations for occult blood in the stools proved negative, indicating that the ulcer remained healed.

Discussion

The clinical diagnosis of Curling's ulcer in the above case was based on the fact that recurrent haemorrhage occurred from the upper intestinal tract, in association with burns and in the absence of any abnormalities of the blood. Severe haemorrhage, manifested mainly by melaena and often preceded by severe pain, with absence of perforation, suggested that the site of the ulceration was in the posterior duodenal wall.

Curling's ulcer is usually recognized as a late complication of burns, becoming manifest during the second week, when infection and toxic absorption from the separating sloughs is predominant. In this case the melaena first observed on the fourth day probably resulted from haemorrhage occurring when the child collapsed on the third day. This early onset of symptoms suggested that the acute ulceration occurred during the stage of shock. Oligæmic shock and the accompanying rise in blood urea may have caused some devitalization of the intestinal mucosa, following which, acid secretion, increased in burns by histamine liberation, caused ulceration. Ulcer symptoms became worse as infection increased, and were not controlled by the usual conservative measures. As soon as the burns had healed and infection was controlled the symptoms of the ulcer subsided.

The persistence of the duodenal cap deformity three months later, in the absence of further signs and symptoms, indicated that the ulcer had healed, leaving a considerable degree of scarring. This scarring, together with its interference with the normal growth of the duodenum, may lead to the development of pyloric stenosis in the future.

Summary and Conclusions

A case of Curling's ulcer in a child aged 4 years with 25% body surface burns is described. From the third day onwards for six weeks, severe attacks of melaena and haematemesis occurred, during which time a total of 13½ pints (7.7 litres) of blood was given. After two grafting operations, with resultant healing of the burns, the ulcer symptoms subsided and the child improved rapidly.

The prognosis in cases of Curling's ulcer is poor, especially in children, death occurring most often from haemorrhage or perforation. This case illustrates that if conservative treatment of the ulcer and its complications can be maintained until the burns have healed, then the ulcer will heal spontaneously.

My thanks are due to Mr. Randell Champion for his encouragement in publishing this case.

OBSERVATIONS ON THE TREATMENT OF RHEUMATOID ARTHRITIS BY TRANSFUSIONS OF BLOOD FROM PREGNANT WOMEN*

BY

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It has often been found that blood transfusion is effective in initiating a remission or recovery from rheumatoid arthritis. There have been many suggested explanations for the improvement. The anaemia which is so often present in rheumatoid arthritis is in most cases peculiarly resistant to treatment by oral administration of iron. Transfusion will improve this, even if only temporarily. Hartung (1943) suggested that improvement may be due to a form of non-specific protein-shock reaction or possibly to transmitted passive resistance.

Many physicians have repeatedly confirmed the potentially favourable effect of pregnancy on the course of rheumatoid arthritis. Sclater (1943), in an analysis of 388 cases of rheumatoid arthritis, noted that in no case did arthritis manifest itself during pregnancy. Hench (1938) had already stressed this point. In his observations on 22 women with rheumatoid arthritis during 37 pregnancies Hench showed that 20 of the 22 patients experienced striking and generally complete relief of symptoms during pregnancy and for a period afterwards varying from 1 to 24 months.

The frequently favourable effect which pregnancy has on the course of rheumatoid arthritis has encouraged many workers to look for an explanation of this phenomenon in the hope that therapeutic advances would be forthcoming. Barsi (1947) thought it might be possible

to imitate the effect of pregnancy on arthritis by transfusion with blood from pregnant women. He assumed that the improvement was due to a hypothetical substance circulating in the blood of pregnant women which could be transfused and utilized elsewhere. On the basis of these conjectures he transfused the blood of pregnant women into persons suffering from rheumatoid arthritis. In each case he gave 300 ml. of citrated blood, and repeated this several times according to the symptoms of improvement. He recorded the results in six cases selected from "those seemingly hopeless cases in which scientific treatment had so far yielded no results." He claimed that when improvement occurred it took place rapidly, with dramatic suddenness compared with the months or years needed to effect an improvement with gold therapy. Two cases were said to have shown lasting improvement and did not relapse—and cure was permanent in four cases. The period of follow-up was from two to six months. More recently Barsi (quoted by Hench, 1949) has reported the effect of repeated blood transfusions with blood from pregnant women in 28 cases of "seemingly hopeless" rheumatoid arthritis. Sixty-four per cent. recovered or improved, while in 6 cases a complete remission was said to have resulted and 4 were cured for three to five years of follow-up study.

I decided to investigate the results of treatment on lines similar to those advocated by Barsi and to compare these results with those obtained by transfusions of ordinary blood. I did not wish to select my cases in any way, and no restrictions were enforced from the point of view of age or sex of the patient, or severity of the disease.

Method

Fifty-three cases of rheumatoid arthritis, chosen at random, were given repeated intravenous transfusions of 300 ml. of blood from pregnant women of the corresponding blood groups. Transfusions were given so far as possible at weekly intervals. In some cases in which improvement occurred it was not considered necessary to give transfusions at so frequent intervals, and in a few cases the interval between transfusions was delayed owing to unavoidable circumstances.

Forty-five unselected cases of rheumatoid arthritis were treated by the same technique, using blood from non-pregnant donors of both sexes. All cases were observed for a minimum of six months and a maximum of eighteen months.

Pregnant women who volunteered to donate their blood were drawn from two sources. In the main, they were normal healthy women who were attending an antenatal clinic. They were at various stages of pregnancy, though it was not thought advisable to withdraw blood from those who were expecting their babies in the very near future. The donors were collected at random, the only restricting factor being that they had to be considered fit enough to withstand the withdrawal of blood without this having any harmful effect on the donor.

A few of the donors were selected from pregnant women who were hospital in-patients. Again the health of the donor had to be considered, and patients were chosen who would themselves be likely to benefit by the blood donation. (These included such cases as toxæmia of pregnancy (including pre-eclampsia), nephritis, and hypertension.)

With all donors, a blood count was done, the Wassermann and Kahn reactions were checked, and the blood groups (ABO and rhesus) were determined. A record was kept of the parity of the donor, the stage and any abnormality of the immediate pregnancy, and the blood pressure at the time the blood was taken.

*This paper is based on a thesis presented for a degree of M.D. at the University of Durham in June, 1950.