MASSIVE BLOOD LOSS: RECOVERY

BY

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The following is the record of a case of ruptured uterus which required 3 laparotomies and transfusion of 11 pints of blood in the course of 15 hours.

Case Report

The patient, a 4-gravida aged 24, was 40 weeks pregnant when she was admitted to the Princess Mary Maternity Hospital, Newcastle-upon-Tyne, at 10.15 p.m. on Oct. 3, 1941, as a case of toxic ante-partum haemorrhage. In 1938 she had had one miscarriage, for which curettage was performed. Later in 1938 she was delivered of a live baby (breech delivery). In 1939 a further miscarriage occurred, and she was curetted while she had a temperature of 102° F.

The history of the present pregnancy was that she was healthy until 2 weeks before delivery, when she had a slight vaginal haemorrhage and stayed in bed. The haemorrhage re-started and she was sent to hospital. Shortly after admission pains began. The house-surgeon suggested a diagnosis of accidental haemorrhage, and the membranes were ruptured and a tight binder applied. There was no oedema or albuminuria. B.P. 134/88. Os two fingers patent. She was extremely violent all night.

At 6.20 a.m. on Oct. 4 the patient suddenly collapsed and was seen by one of us (S. W.) at 6.30 a.m. She was a well-built woman, icy cold and colourless, and was lying motionless. Breathing was very shallow and she was not sweating. No radial or carotid pulse could be felt on either side. The B.P. could not be estimated. The foetal parts were easily felt, and a diagnosis of ruptured uterus was made. Blood transfusion was begun. At 7.30 a.m. the B.P. was 55/30, the Hb 45%, and the pulse perceptible at the wrist but uncountable. One pint of blood was given.

During the next 4 hours a blood drip was maintained; the B.P. rose to 84/70, and the pulse became of better volume, the rate falling to 120. We had hoped for greater improvement before operation, but at 11 a.m. it was noticed that the B.P. was beginning to fall and the pulse rate to rise. The falling B.P. and rising pulse continued until, at 11.30 a.m., the patient was very ill again and obviously deteriorating. It was decided that serious internal haemorrhage was occurring and that unless it was arrested she would die. The abdomen was therefore opened under local anaesthesia. When the peritoneum was incised a great fountain of blood shot out. This can only be compared to opening an abdomen full of ascitic fluid. About 8 pints of blood was collected in buckets. The uterus was ruptured through the fundus and there was considerable haemorrhage from the torn left ovarian vessels. One leg of the foetus protruded through the rent. The foetus was delivered without enlarging the tear and a rapid subtotal hysterectomy completed. The total operating time was 11 minutes, and throughout the operation blood was run in by gravity as fast as possible. After the operation a dramatic improvement occurred. The B.P. rose at 2 p.m. to 110/74, the pulse rate fell to 130, and the patient looked fit. Transfusion of blood was stopped at 2 p.m.

At 3 p.m., while the B.P. was 110/80, the pulse 120, and the Hb 50%, she complained that "something was coming away down below." This proved to be bright red blood running rapidly out of the vagina. A diagnosis of slipped ligature was made. Transfusion was restarted and under local anaesthesia the wound reopened. The left uterine artery was found to be spurting and was religated. Operating time was 5 minutes. There was no blood in the peritoneal cavity. External blood loss was measured and found to be one pint. She was given a pint of blood.

Her condition improved, the B.P. rising to 130/80 and the pulse falling to 112 at 5.20 p.m. She then gradually got worse; the pulse rate rose steadily to 160, and the pressure gradually fell to 90/65 at 8.30 p.m.; the Hb amounted to 55%. A very slight vaginal haemorrhage had occurred at 6.15 p.m., but this had ceased. A diagnosis of further haemorrhage—possibly again from a slipped ligature, although the ligatures had previously been tested—was considered. It was felt, however, that further observations should be maintained. It was

suggested that the stored blood was lacking in prothrombin, and therefore kapilon 2 c.cm. was given. As all the blood was citrated, this was investigated as a possible cause of haemorrhage. No clinical signs of tetany were discovered, however.

At 9 p.m. her condition had deteriorated; she was cold, blanched, and restless, and sighing respirations had developed. The pulse was irregular and feeble, and the B.P. was 85/65. A pelvic examination revealed a large haematoma behind the cervix. So far, despite the deterioration and the belief that haemorrhage was occurring, no further attempt at transfusion had been made, as it was hoped that, as in most cases of haematemesis, the bleeding would cease spontaneously. However, when sighing respirations had appeared it was felt that further transfusion was necessary and justifiable. A pint of blood was run in in half an hour. This brought about some improvement, and at 10 p.m. the B.P. was 90/65 and the pulse 150. It was now thought that the haemorrhage was due to a slipped ligature, and so, after the utmost deliberation and with great reluctance, it was decided to perform another laparotomy—the third in 10 hours.

At 10 p.m. the wound was reopened (S. W.) under local anaesthesia with gas, oxygen, and ether. About 2 pints of bright red blood and clot was found in the pelvis. There was a steady ooze through the sutured pelvic peritoneum. This was reopened and all the ligatures were seen to be dry and satisfactory. The ooze was coming from the cervical stump, despite the fact that this contained two large mattress sutures. Three courses were open: (1) to remove the stump of cervix—this would have been followed by an ooze from the pelvic cellular tissues, difficult to control; (2) to put a pack down to the cervix through the peritoneal cavity—this would have led to peritonitis; or (3) to marsupialize the stump and stitch it to the surface: this was done. The wound was packed with streptocide powder and a small gauze pack applied to the bare stump. Operating time was 1 hour 15 minutes, throughout which blood was given by drip.

At 11 p.m. the B.P. was 115/70 and the pulse 150, irregular, and of poor volume. The patient was, however, warm and pink. She vomited 4 oz. of bile-stained fluid. At 11.15 p.m. the B.P. was 140/70 and the Hb 80%, and her condition was fairly good. She remained warm and comfortable; the pulse fell to 110, and was of good volume throughout the night. At 12 noon on Oct. 5 the B.P. was 120/80, the pulse 110 and of good volume, and the Hb 80%. Her condition was very satisfactory. Catheterization produced 26 oz. of urine, which contained numerous red cells. Soluble protosil 20 c.cm. was given intramuscularly. She made a steady recovery and remained apyrexial. The fistula resulting from marsupialization of the stump was treated every other day with streptocide powder and remained clean; it healed in 4 weeks.

On Oct. 20 thrombosis of the right superficial saphenous vein was noticed and the leg was immobilized. The swelling was gone by Nov. 1. The patient was discharged from hospital 32 days after operation.

As only universal blood O (IV) was stored in the blood bank, this was given—in all, 11 pints of blood and 1½ pints of plasma. This resulted in a change in the blood group of the patient from A (II) to O (IV), and it was 11 days after operation before there appeared to be some agglutination with B (III) serum. On the twelfth day she was definitely A (II) again.

Discussion

The cause of the haemorrhage on the third occasion is obscure. Several possibilities can be considered:

1. So much blood was given that the blood volume was increased, and hence haemorrhage occurred from the damaged tissue. If this were so, one would have expected an abnormal rise in blood pressure. Further, the measured quantity of blood lost was $8 + 1 + 2 = 11$ pints, and the addition of 1½ pints of plasma seems unlikely to produce haemorrhage.

2. Prothrombin deficiency. This was thought to be possible; therefore kapilon was given. Recent work suggests, however, that the prothrombin does not decrease in stored blood until the fifth day. All the blood given was 3 days or less old.

3. Excess of citrate in the circulation. This seems unlikely, as clot was found in the peritoneum, and it was thought that there should be clinical evidence of tetany. This was sought, but none was found. No samples of blood, however, were taken to estimate the Ca or prothrombin level.

4. The fault probably lies in the failure of the capillaries to contract. This may have been due in part to the large amount of morphine (1½ grains) given during 12 hours. One result of this morphinization is that the patient has no recollection of

the happenings or of any of the operations, although she became conscious enough at 2 p.m. to tell us of the vaginal haemorrhage.

Sections of the uterus showed the cause of the rupture to be degeneration of the uterine muscle, probably due to the fact that she was curetted in a previous pregnancy for an incomplete abortion when her temperature was 102° F.

When seen on Dec. 23 the patient was in good health. The wound was satisfactory, and the position of the cervical stump appeared normal.

Summary

A case of ruptured uterus treated by hysterectomy and blood transfusion is reported. Secondary haemorrhage occurred, and in all 11 pints of blood was used to resuscitate the patient, and the peritoneum was opened 3 times in 10 hours.

The patient's blood group was temporarily changed from A to O.

The cause of the third haemorrhage is discussed.

We wish to thank our two house-surgeons, Dr. Woll and Dr. Harrison, without whose help and attention the patient could not have survived.

ARIBOFLAVINOSIS REPORTS OF TWO CASES

BY

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In these days when some attention is focused on the part riboflavin plays in man's metabolism it may be of interest if cases are reported in which some, or all, of the signs of the syndrome named ariboflavinosis by Sebrell and Butler (1939) in the United States are present, and if the apparent success or failure of riboflavin therapy in such cases is noted.

In man the syndrome is said to consist of cheilosis, perlèche-like erosions, seborrhoea of the face, vascularization of cornea, and keratitis (Gross, 1941). Neither of the following cases had any eye symptoms or signs, nor were there any changes on the tongue. This organ has been described as looking clean, of a purplish-red or magenta colour, and as having had mushroom-shaped papillae (Kruse *et al.*, 1940).

Case I

An otherwise healthy girl aged 7 complained of an eruption, worse each winter, that started five years earlier. At the muco-cutaneous junction of each nostril, extending on to the mucous as well as the cutaneous surface, crusted exudation was present, mingled with some scaliness. Superficial fissuring, capped with crusts, was seen at the postero-lateral angles. A similar condition was found on the lips, where the involvement of the red part was most marked at the line of closure; but the crusting was less and the scaliness more. Bordering the muco-cutaneous junction was a strip, a fraction of an inch wide, consisting of roughened and slightly erythematous skin, covered with fine scales. Oedema was slight. The angles were swollen, corrugated, and superficially fissured. An erythematous-squamous condition extended along both naso-labial furrows and their borders. The entrances to the external auditory meatus were conspicuously scaly. In addition the child had irregularly shaped erythematous-squamous patches on the sides and front of the neck, and lichenified eczema of the bends of the elbows. The skin of the rest of the body was of normal appearance. The patches on the neck and in front of the elbows had sometimes wept; those on the face had been dry. Slight bleeding occurred at the fissures when they were irritated. Internal examination of the nose did not reveal any abnormality or disease.

In treating the case, soap was restricted quantitatively and only a superfatted variety was allowed. Advice was given that the skin should be carefully mopped dry, especially in windy

and cold weather. Internally, riboflavin was given in 4-mg. doses daily. Nicotinic acid, 50 mg. t.d.s., was given also during the earlier part of the treatment. Externally, a paste containing weak concentrations of tar and ammoniated mercury, with bismuth carbonate, was used.

When seen a fortnight later the signs of ariboflavinosis had vanished. The patches on the neck were less conspicuous, and those in front of the elbows had made some progress towards healing. A month later the face was still normal, the neck showed a little dryness and desquamation, and the elbows were a step nearer healing.

Case II

The second case was that of a woman aged 44, a munition worker, who complained of sore lips and an itchiness of the skin along the naso-labial furrows. She was depressed mentally, but could not account for it. The menses were normal. The trouble, which had started several months earlier—she could not remember when exactly—waxed and waned from time to time. On examination the lips presented a picture very similar to that seen in Case I, but in addition there was a fissure on the lower one running transversely on each side of the mid-line at the line of closure. This fissure was covered with a crust and bled readily on pressure. The angles of the mouth were swollen, formed into folds, and superficially fissured. The adjoining skin of the face was slightly oedematous and covered with fine scales. Only slight erythema was evident. The nostrils were affected in a way similar to the girl's, as were the naso-labial grooves also; but here the picture was more vivid. The ears had escaped.

General advice was given, as it was to the child, and nothing but riboflavin was prescribed internally. This was given in 6-mg. doses daily. Locally, an ointment of zinc oxide and boric acid was used.

When seen in three weeks' time the patient had greatly improved, but the fissuring at the corners of the mouth was still present. When seen a month later she had relapsed. She said she had not taken the tablets since the second visit because she thought it had been the ointment that had brought about the improvement in the first place. In a further three weeks' time healing was complete except for the fissuring at the angles of the mouth. She had taken the riboflavin regularly during this period.

Comment

In neither case had a carbolic tooth powder been used. Both patients had been having their full food rations, and as much in addition as possible. The child's response was particularly gratifying in view of the long history. From the point of view of finding out if the lesions disappeared on riboflavin treatment alone, it was a pity any other form of treatment was given, but in my experience such lesions on the lips and nostrils have not responded to nicotinic acid. This was given because it appears to be helpful in some cases of seborrhoeic dermatitis of the neck and face. The relapse in the woman's case seemed to disprove her belief: the improvements coincided with riboflavin therapy. The persistence of the fissures at the angles of the mouth was attributed to an obstinate infection, of a type often responsive to a weak cignolin paint.

Riboflavin appeared to hasten healing in both these instances. Cases presenting similar signs have healed in the past without it, but it is my impression that they have taken much longer in doing so. It is possible that when this has happened an increased riboflavin intake had occurred in the diet.

Questions difficult to answer arise: Why, for example, in these war days, when rationing makes our diets more nearly alike than they are in other times, should the individual show signs that disappear after taking some vitamin? Conditions in the gut will vary and influence absorption generally, and that of vitamins in particular. But the apparent answer is that individual needs may vary greatly and are dependent on the interactions of the hormones, vitamins, and autonomic nervous system.