Acta Paediatrica Academiae Scientiarum Hungaricae, Vol. 10 (3—4), pp. 235—237 (1969)

Acute Neonatal Haemorrhagic Anaemia: Placental and Umbilical Cord Bleeding

By

GY. KORÁNYI

Municipal Péterfy Hospital, Budapest

(Received December 9, 1968)

Acute posthaemorrhagic anaemia is often fatal in the foetus. Foetal bleeding has five forms of which placental and umbilical cord bleeding, their occurrence, diagnosis and treatment are discussed on the basis of some illustrative cases.

The first case was that of a premature infant born with placenta praevia and admitted with symptoms of haemorrhagic shock. The condition improved promptly on the transfusion of blood.

Another case was that of a dysmature premature infant admitted with posthaemorrhagic anaemia, after velamentous insertion of the cord with ruptured vessels. Two transfusions of blood ensured rapid improvement.

Acute foetal posthaemorrhagic anaemia is a rare condition which always endangers life. According to SCHAFFER [5] foetal blood loss may ensue from five causes.

(i) placental bleeding;

(ii) umbilical cord bleeding (vasa praevia);

(iii) placental injury during Caesarian section;

(iv) foeto-maternal bleeding;

(v) foeto-foetal bleeding.

PLACENTAL BLEEDING

This is a rare condition, the number of reported cases being less than a hundred. MACAFEE [3] found that of 20 foetal deaths due to placenta praevia 9 were the result of blood loss. WICKSTER and CHRISTIAN [7] reported five, WIENER [8] three, and SCHAFFER [5] six similar cases. Placental bleeding threatens, according to literature, the life of the foetus rather than that of the mother. Among the 52 cases of placenta praevia surveyed by RUCKER and TUREMAN [4], in 3 newborns death was due to haemorrhagic anaemia. The majority of the fatal cases were premature infants with symptoms of asphyxia and haemorrhagic shock.

Case No. 1. The mother was admitted with slight bleeding and weak labour pains, but developed a sudden massive haemorrhage after 18 hours. Placenta praevia was diagnosed with a blood loss of 1000 ml. By means of Caesarian section a baby of 1600 g was delivered. The weakly whimpering baby displayed extreme pallor and no tonicity. The pulse rate was 100/min, the respiration shallow with slight sternal retraction. Since cyanosis and increasing frequency of respiration were pointing to

respiratory distress, an alkaline solution was administered. Although this treatment reduced the degree of cyanosis, the pallor became still more pronounced and the pulse rate still higher. RBC was 2,660,000 three hours after admission. In view of the severe state of shock the infant was given 12.5 mg of prednisolone and then 35 ml of blood. The condition improved considerably thereafter, both the cyanosis and the signs of anaemia disappeared almost completely in two hours. RBC rose to 3,400,000 at five hours. After a second transfusion of 26 ml of blood, breathing and circulation became normal and the skin pink. The baby made an eventless recovery.

Case No. 2. The mother was admitted with placenta praevia with profuse bleeding. She received a blood transfusion of 1440 ml during delivery. The premature female baby had a weight of 2200 g; both mother and child were A Rh-positive. The weakly whimpering and slightly cyanotic infant displayed a pulse rate of 120/min., the ECG record showed signs of hypoxia. RBC amounted to 3,400,000 in the first hour of extrauterine life, the haemoglobin was 14.2 g per 100 ml. Immediately 25 ml of blood and an infusion of alkaline glucose solution were given, after which the condition showed rapid improvement. Next day, heart rate was normal, the skin assumed a pinkish colour, haemoglobin was 15.4 g per 100 ml, the reticulocyte count 120 per 1000, the packed cell volume 39%. The child subsequently developed hyperbilirubinaemia without isoimmunization. The indirect bilirubin value was 18 mg per 100 ml on the fifth day. The patient responded favourably to light treatment, the jaundice decreased rapidly, and the baby was discharged with a body weight of 2500 g, in good health.

Considering the frequency of vaginal bleeding during pregnancy, it is remarkable that the foetus should lose blood so rarely. In the case of placenta praevia the anatomy favours both foetus and maternal bleeding. The placenta lying above the internal uterine orifice is thin, and it is at its lower edge that the cord is attached [5]. There are less severe cases in which the blood loss is slow, but in the majority of cases the infant is born with shock and does not survive. Those who survived had received massive blood transfusions a few hours after delivery.

Umbilical Cord Bleeding

Acute neonatal haemorrhagic anaemia caused by cord bleeding is even rarer than a blood loss due to placenta praevia: its incidence is 1 : 5500 [6]. Foetal mortality due to cord haematoma was estimated at 47% by Irani [2] who had lost two of his three cases. In the case of a velamentous insertion of the cord the vessels overlie the cervix uteri, constituting a form of vasa praevia quite as dangerous for the foetus as a cord haematoma. The cord is not directly attached to the placenta; its vessels, running between amnion and chorion, insert into the membranes and reach the placenta at different places. Velamentous insertion is a serious complication since the umbilical vessels are compressed when the head of the foetus passes into the pelvis, and this may lead to foetal asphyxia, grave or fatal haemorrhage. Foetal mortality amounts to 60% in cases of this kind [1].

Case No. 3. The baby was born after a normal pregnancy in asphyxia with a

weight of 2500 g and started breathing after 10 min. only. The umbilical cord was velamentously inserted into the placenta and a rupture of the vessels was clearly visible. The dysmature baby was anaemic, in a weak condition, with wrinkled skin, cyanosed face and extremities. The mucous membranes were pallid and dry; the infant was atonic, flaccid, breathing was rapid, the pulse rate 160/min. Infusion of alkaline glucose elicited no response, the pulse became worse, heart sounds were hardly audible, and the child vomited frequently. RBC was 2,800,000. Repeated dextrose infusion had a favourable effect but the RBC remained unchanged. Transfusion of 30 ml of blood relieved the cyanosis, RBC rose to 3,800,000 and next morning the haemoglobin value was 12.4 g per 100 ml. The child was still pale but its pulse was vigorous. After a second transfusion of 35 ml of blood, the condition improved rapidly and on the 17th day the baby was discharged with a body weight of 2500 g.

Discussion

Placental or cord bleeding is of a prime paediatric importance since in these cases even small losses of blood may lead to shock with fatal outcome. The newborn is asphyxic and therefore it is only after resuscitation that the posthaemorrhagic anaemia is detected. Acute neonatal haemorrhagic anaemia has to be differentiated from asphyxia and respiratory distress. The anaemic newborn baby is limp and pale; the pulse rate is rapid and the respiratory amplitude small. The baby is crying and responds weakly to stimulation. Owing to the inflow of extravascular fluid and the vasoconstriction it is sometimes difficult to diagnose or to rule out the acute haemorrhagic anaemia; still, its early diagnosis is highly important since the condition calls for immediate treatment.

Neonatal loss of blood due to placental or cord bleeding carries, according to literature, a mortality rate of 50%.

The task of the paediatrician is facilitated if he has the assistance of the obstetrician to call his attention to the possibility of a blood loss. Timely transfusion is the only method of saving the life of the newborn in such cases.

References

1. Hufmann, J. W.: Gynecology and Obstetrics. Saunders, Philadelphia 1962.
2. Irani, P. K.: Haematoma of the umbilical cord. Brit. med. J. **2,** 1436 (1964).
3. Macafee, C. H. G.: Modern views on the management of placenta praevia. Postgrad. med. J. **25,** 297 (1949).
4. Rucker, M. P., Tureman, G. R.: cit. Wiener [8.]
5. Schaffer, A. J.: Diseases of the Newborn. 2nd ed. Saunders, Philadelphia 1965.
6. Toland, O. J. Mann, H. J., Helsel C. M.: Haematoma of the umbilical cord: a case report. Obstet. and Gynec. **14,** 799 (1959).
7. Wickster, G. Z., Christian, J. R.: Posthaemorrhagic shock in the premature newborn. Pediat. Clin. N. Amer. **1,** 555 (1954).
8. Wiener, A. S.: Diagnosis and treatment of anaemia of the newborn caused by occult placental haemorrhage. Amer. J. Obst. Gynec. **56,** 717 (1948).

Dr. G. Korányi
Péterfy Hospital
Budapest VII., Hungary