The membranes were swept and a Drew Smythe catheter was introduced in order to rupture the hind-waters. A few millilitres of pure blood was obtained and the catheter was at once withdrawn. The foetal heart was checked carefully but there was no evidence of distress. Three days later the membranes were successfully ruptured with a Drew Smythe catheter and 6 oz. (170 ml.) of heavily blood-stained liquor was withdrawn. The foetal heart sounds were checked regularly until labour began 16 hours later; at no time was foetal distress noted, but with the onset of labour the heart sounds suddenly disappeared. After labour lasting 12 hours the patient delivered a stillborn child, weighing 7 lb. (3.2 kg.). The child was very pale, and examination of the foetal aspect of the placenta revealed a tear in one of the vessels. Under the amnion, surrounding the torn vessel, was a blood clot 2 in. (5 cm.) in diameter. Death was attributed to foetal exsanguination.

Haemolytic disease was excluded in both cases.

Discussion

In performing surgical induction of labour it is invariably our practice to sweep the membranes off the lower uterine segment before rupturing the hind-waters. Possibly, in both cases described above, the placental edge lay just beyond the examining finger. On the other hand, in the course of rupture of the hind-waters the Drew Smythe catheter is introduced well beyond the examining finger, and it is not surprising that the lower margin of a posteriorly situated placenta is occasionally encountered, even though the placenta lies entirely in the upper segment. It is not practicable for placentography to be carried out on all patients who are to have a surgical induction of labour, and it seems to us that so long as rupture of the hind-waters with a Drew Smythe catheter is accepted practice then the risk of the accident we describe will always be present.

In the first case a caesarean section was undertaken as soon as foetal distress was noted, but the warning was too late, for the baby died in spite of blood transfusion. In the second case the foetal heart sounds disappeared without warning several hours after the injury to the foetal circulation. Where a blood-stained tap has been obtained we believe there is need for a simple reliable test to differentiate foetal from maternal blood. By this means earlier warning of damage to the foetal circulation will be obtained and the case managed with greater assurance. Had such a warning been available in our two cases the lives of the babies might well have been saved.

One of our colleagues in the Princess Mary Maternity Hospital, Dr. G. S. Anderson, has modified the test described initially by Singer *et al.*, and by means of a technique employing rapid denaturation of the blood sample (Mitchell *et al.*, 1956) is able, within 10 minutes, to tell whether foetal blood is present. This test is now being applied to all cases of ante-partum haemorrhage in the hospital.

Summary

Rupture of the hind-waters by means of a Drew Smythe catheter is a method often used for induction of labour in this country.

We record two cases in which the procedure resulted in damage to foetal vessels in the placenta and death of the baby due to exsanguination.

When a blood-stained tap is obtained with a Drew Smythe catheter we suggest that the sample be checked to find out whether foetal blood is present.

We are indebted to Professor Harvey Evers for permission to publish details of Case 1.

REFERENCES

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Medical Memorandum

Complete Rupture of Uterus with Subsequent Pregnancy

A Mohammedan woman, a primipara aged 30, was first admitted to hospital as an emergency in May, 1954. Labour pains had started on the morning of May 15, and the membranes had ruptured during the night of the 16th. Labour continued all day and night with apparently little progress. On the morning of the 17th the pains suddenly became severe and slight bleeding per vaginam started. The pains ceased just as suddenly, but the bleeding continued.

Her condition on admission on the afternoon of May 18 was poor. The pulse was rapid, of low tension, and of poor volume. The tongue was dry and she was repeatedly vomiting. A slight blood-stained discharge was coming from the vagina. Abdominal palpation showed the foetus to be easily palpable, and a diagnosis of rupture of the uterus was made. Two pints (1,140 ml.) of "plasmosan" was given intravenously.

A para-umbilical incision was made and the foetus was found lying free in the abdominal cavity along with the placenta. Both foetus and placenta were removed. Inspection of the uterus revealed a complete rupture extending from the anterior surface of the lower segment laterally up to the fundus. There was no damage to the bladder. As the patient's condition was poor and no facilities for blood transfusion exist here the uterus was sutured and the abdomen closed.

The patient made a good recovery and was discharged on June 3. She was advised not to become pregnant for at least a year. Post-natally she was seen here twice routinely, and had made a good recovery.

About a year after her discharge pregnancy was confirmed again. On December 28, 1955, she was admitted to the General Hospital and kept under observation in view of her previous history. Her height was 4 feet (122 cm.). The haemoglobin was 10.5 g.% Sahli; R.B.C., 3,488,000 per c.mm.; W.B.C., 6,100 per c.mm.; Kahn negative. One tablet of "fersolate" was given four times a day. Urine and stool examinations revealed no abnormality, and blood-pressure recordings were within limits of normality. Vaginal and x-ray examinations revealed a severe degree of contracted pelvis.

Pregnancy proceeded normally, and on January 31, 1956, the abdomen was opened through a midline subumbilical incision under chloroform anaesthesia. The old uterine tear had healed remarkably, and it was difficult to realize that only a year previously a complete rupture had existed. With a lower-segment caesarean section a live 7½-lb. (3.4-kg.) male child was delivered. The child cried immediately. The old scar did not tear and bleeding was minimal. The placenta was delivered easily. Sterilization was carried out and the abdomen closed in the normal manner. The mother and child did well, and the patient was discharged on February 12.

COMMENT

The patient was an ordinary tea estate labourer living in an isolated estate.

There are no facilities for blood transfusion here, and in cases of rupture of the uterus, which occur not infrequently, the uterus is sutured on every occasion. No hysterectomies are done for such cases.

In this case it was apprehended that the uterus might rupture a second time, and for this reason the patient was admitted to hospital for observation. Another reason was that a child to this type of woman, particularly a male child, is so important.

I am indebted to Dr. M. O. Cheriyan for his helpful advice and criticism in this case and to Mrs. T. George and Mrs. M. Philip for their help and assistance at operation.

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