ANAESTHESIA FOR CAESAREAN SECTION IN HAEMOGLOBIN SC DISEASE COMPLICATED BY ECLAMPSIA

A Case Report

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SUMMARY

Patients with haemoglobin SC disease rarely manifest serious clinical symptoms except during pregnancy when eclampsia and crisis commonly occur. Such a patient, who developed eclampsia which was treated with chlormethiazole infusion, and who subsequently underwent Caesarean section under general anaesthesia, is described. This case confirms previous experience that careful attention to detail with a straightforward technique is the most important factor for a successful outcome.

Patients with serious sickle-cell disease normally possess haemoglobin SS and seldom reach childbearing age. The rarer and normally less severe haemoglobin SC disease may, however, cause considerable problems during pregnancy, and it has been noted that this is particularly so in West Africa (Fullerton and Watson-Williams, 1962).

In either disease, there is a high risk of eclampsia, abortion and stillbirth, anaemia, heart failure and infection (Margolies, 1951); sudden unexpected death has also been reported (Edington, 1951; Adams, Whiteacre and Diggs, 1953) and sickling may be precipitated by malaria.

In haemoglobin SC disease, although anaemia is not usually severe, thrombotic episodes are common and maternal mortality may be as high as 10% (Lawson, 1962; Gilbertson, 1965, 1967). Eclampsia is a frequent finding but may be difficult to differentiate from intracranial sickling crisis. Such sickling may be precipitated by anaemia associated with pregnancy, increased oxygen consumption, sedatives, anaesthesia, blood loss and absorption of foetal products encouraging intravascular coagulation and stasis. Crisis is indicated by skeletal pain, abdominal cramps and splenomegaly and is particularly likely to occur associated with the triad of pregnancy, eclampsia and surgery (Adams, Whiteacre and Diggs, 1953); it is most frequent in the immediate postpartum period.

CASE REPORT

A 28-year-old primigravida with haemoglobin SC disease was admitted to Korle Bu Hospital, on April 7, 1972, at an estimated 38 weeks gestation, to await delivery; her haemoglobin was 11.8 g/100 ml, p.c.v. 32%, and m.c.h.c. 39%. Past history revealed that her haemoglobinopathy had been discovered at the age of 14 years when she complained of eye trouble. Prior to admission she had developed a urinary tract infection, successfully treated with antibiotics; otherwise she was considered to be relatively well.

In hospital she was given oral folic acid 10 mg daily, chloroquine 500 mg weekly, and sodium bicarbonate 1 g 6-hourly, this being the routine treatment for all pregnant patients with haemoglobinopathies approaching term.

Over the next week she developed moderate albuminuria accompanied by joint and back pains which gradually became worse and her blood pressure rose from 140/90 mm Hg on admission to 160/105 mm Hg and was accompanied by palpitations. In view of this, artificial rupture of the membranes was performed on April 15 at 14.30 and a course of buccal oxytocic tablets commenced at 15.15. She developed strong contractions but failed to progress. By 22.00 her blood pressure was still raised and she was given chlormethiazole 600 mg (Heminevrin) by mouth with pethidine 100 mg, promethazine 25 mg and frusemide 40 mg intramuscularly. To prevent a possible sickle-cell crisis associated with blood loss and eclampsia, blood transfusion was commenced.

At 23.10 she had an epileptiform convulsion which lasted for about 1 minute; during this she bit her tongue which subsequently became swollen. An infusion of 0.8% chlormethiazole in 5% glucose was commenced at 15 drops/min and the patient's blood pressure quickly fell to 110/60 mm Hg; haemoglobin at this time was 10.7 g/100 ml. In view of the eclampsia, it was decided to perform a lower segment Caesarean section.

When first seen by the anaesthetist at 01.15 on April 16 the patient was very drowsy but otherwise well, the systolic blood pressure being 120 mm Hg. The chlormethiazole infusion was stopped and blood transfusion continued.

After inhalation of 100% oxygen for 5 minutes, anaesthesia was induced with thiopentone 300 mg containing atropine 0.36 mg, and suxethonium (Brevidil E) 150 mg to facilitate intubation with a cuffed rubber endotracheal
The regimen suggested by Oduro (1969) is avoidance of stasis and cooling during anaesthesia and surgery. Surgery for patients with haemoglobinopathies and not beneficial in the clinical situation. It must be stressed that Lewis, 1964), magnesium sulphate (Lehmann et al., 1963), and others, is not considered to give any advantage to patients with stenosis, or preparatory blood transfusion should be considered. There is still much controversy about the most suitable anaesthesia for sickle-cell states. Preoperative haemoglobin should not be low and non-urgent cases should be anaesthetized when the reticulocyte level is rising, or preparatory blood transfusion should be given (Browne, 1965).

In this centre, routine administration of alkali, first suggested by Nwokolo (1960) and Lehmann (1963) and others, is not considered to give any advantage over a straightforward, careful anaesthetic. Furthermore, phenothiazines (Lewis and Hathorn, 1963; Lewis, 1964), magnesium sulphate (Lehmann et al., 1964), low molecular weight dextran (Watson-Williams, 1963) and urea have not proved to be beneficial in the clinical situation. It must be stressed that the administration of bicarbonate to the patient discussed above was part of the obstetrician's routine for patients with haemoglobinopathies and not specifically in preparation for anaesthesia and surgery.

It is clearly important to avoid hypoxia, acidosis, stasis and cooling during anaesthesia and surgery. The regimen suggested by Oduro (1969) is avoidance of premedicant drugs which depress ventilation, preoxygenation for at least 5 minutes with 100% oxygen, thiopentone for induction with suxamethonium to facilitate intubation, followed by a 50% mixture of nitrous oxide and oxygen with halothane supplementation, and, where indicated, intermittent positive pressure ventilation using a muscle relaxant.

Because of the risk of excessive haemorrhage, associated with Cesarean section, halothane was avoided in this instance, and the above technique slightly modified in that the nitrous oxide concentration was increased to avoid patient awareness.

It is gratifying that in the face of the adverse circumstances of pregnancy and haemoglobin SC disease, eclampsia, a swollen tongue causing partial respiratory obstruction, and Cesarean section, the outcome of this case was successful.

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