INTRA-AMNIOTIC HYPERTONIC SALINE (5 per cent) FOR
MID TRIMESTER ABORTION

by

AJAY K. GHOSH,* M.O., M.R.C.O.G., Ph.D.,
C. NAG,** M.B.B.S., M.O. (Cal.)

and

SUBRATA JANA,*** M.B.B.S. (Cal.)

Termination of pregnancy in the first trimester is not difficult and intra-uterine aspiration for evacuation of the uterus is an easy, reliable and safe method (Ghosh, A. K., 1972). The trouble arises when one is confronted with the problem of termination of pregnancy in the mid-trimester. Until recently such cases required abdominal hysterotomy. In recent years prostaglandins (PG E2), intra and extra amniotic is being used with increasing success (Embrey et al, 1971), with or without simultaneous oxytocin drip (Morewood, 1973). However, the drug is still not available in India for clinical use and as an alternative intraamniotic instillation of hypertonic saline has been used by a number of observers. Although it is a simple and reliable method, it has certain inherent risks and dangers, occasionally leading to maternal death. Goldman and Eckerling (1972) have reported a fatal complication due to intracranial dural sinus thrombosis in a young woman of 17 following repeated intrauterine instillation of 20 per cent hypertonic saline causing a possible hypernatremia. The risk of hypernatremia due to the use of strong hypertonic saline has also been stressed by several workers (Cameron and Dayan, 1966; Cameron et al, 1969; Finberg et al, 1963). The risk of hypernatremia and consequent cerebral damage has prompted us to think if a lesser concentration of saline could be as well effective with minimal complications. With this object in view a 5 per cent Sodium Chloride solution has been used to procure mid trimester abortion in the present study.

Material and Methods

A total of 50 patients admitted to the hospital or private clinics were subjected to induced abortion. None had any previous history of vaginal bleeding and there was no previous attempt to procure abortion during the current pregnancy. The age of the patients ranged from 15 to 39 years and the parity ranged from 0 to 6. In all cases the duration of pregnancy was between 16 to 26 weeks. After emptying the bladder the patients were placed in the dorsal position and a small wheal was made on the selected site of puncture on the abdominal wall by 1 per cent lignocaine solution. The amount of amniotic fluid removed varied from 50 to 550 ml, while the amount of 5 per cent saline instilled in the amniotic cavity varied from 50 to 300 ml. The object was to remove as much liquor as possible to change the
intrauterine environment and to replace it with at least 50 ml more than the quantity of the amniotic fluid withdrawn. In cases where the patient failed to abort within 48 hours a repeat intraamniotic instillation was performed and a simultaneous oxytocin drip was started (40 units of Syntocinon in a litre of 5 per cent dextrose solution). The pulse rate, temperature, blood pressure and respiration were recorded hourly. Blood samples were taken immediately before the procedure and soon after abortion. The haemoglobin concentration, heat stable alkaline phosphatase, creatinine, urea and electrolytes were measured. Blood loss was clinically estimated and the conceptus was clinically examined after abortion. The patients were kept under constant supervision for any abdominal pain, vaginal bleeding, pyrexia or any evidence of haemorrhagic shock following abortion. All patients were discharged after 48 hours and followed-up until 6 weeks after abortion.

Results

Of the 50 cases of induced abortion, 42 (84 per cent) had aborted within 48 hours with a mean abortion time of 25.5 hours. The remaining 8 patients needed repeat instillation of 5 per cent saline (50 to 100 ml) with a simultaneous oxytocin drip (40 units of Syntocinon per litre of dextrose solution) and all of them aborted within the next 12 hours. In four patients there was rise of temperature up to 101.4°F within 24 hours of instillation of saline, and the temperature was controlled with Inj. Crystalline Penicillin 500,000 Units intramuscular twice a day for one week. Six patients had rigor within an hour of intrauterine saline instillation and Inj. phenargan 50 mg. intramuscular was very effective under these circumstances. All patients had aborted completely and there was only one case of heavy bleeding after abortion and the patient needed 1,000 ml of blood transfusion. All patients excepting the one with severe bleeding were discharged from the hospital after a stay of 48 hours following abortion and they were again seen at the end of 6 weeks. Some of them complained of slight irregular loss of blood for couple of days after abortion but none had any serious bleeding. They were all afebrile, and general abdominal and pelvic examination findings were within normal limits. There was no significant change in the haemoglobin concentration, serum creatinine, heat stable alkaline phosphatase, blood urea and blood electrolytes before and after abortion. There was also no significant change in blood pressure before and after saline instillation in the uterine cavity.

Discussion

Until an effective, simple and safe method of abortion is available, one has to consider the existing methods or modify it with a view to reducing the risks. In this series, 84 per cent of women in mid-trimester of pregnancy had successful induced abortion with 5 per cent saline and the rest needed a repeat instillation of saline with oxytocin drip. This suggests the usefulness of reduced concentration of saline which is supposed to lessen the risk of possible hypernatremia consequent to the use of 20 to 25 per cent saline for this purpose. In all cases the abortion was complete and there was no need for subsequent evacuation of the uterus. In contrast to this, with Prostaglandin induced abortion, the incidence of incomplete abortion necessitating a subsequent evacuation of the uterus is relatively high. Of 38 patients induced by a
A combination of extra-amniotic Prostaglandin E₂ and oxytocin drip by Morewood (1973), in 23 patients (61 per cent) the abortion was considered to be incomplete and surgical evacuation of the uterus was performed. Of the 15 patients who were more than 16 weeks pregnant, 11 (73 per cent) aborted completely, whereas in the 23 patients who were at 15 weeks of pregnancy or less, only 7 abortions (30 per cent) were complete. Embrey et al, (1972) using intermittent doses of extra-amniotic PGE₂ induced abortion within 36 hours in 88 per cent of 33 patients. Midwinter et al, (1972) used continuous intrauterine infusion of PGE₂ in 25 cases of 10-17 weeks of pregnancy. The abortion was incomplete in 5 (20 per cent) cases and exploration of the uterus revealed retained products in 3 patients in whom abortion was thought clinically to be complete. The mean induction abortion time of 26.5 hours in the present series is somewhat prolonged compared to prostaglandin induced abortion reported by several authors (Embrey et al, 1972, 19.5 hours; Miller et al, 1972, 15.75 hours; Morewood, 1973, 13.7 hours by a combination of prostaglandin and oxytocin drip). The cost and non-availability of Prostaglandins are also some of the limitations to its use by many developing countries.

Summary

In view of the possible risk of hypernatremia with the use of intra-amniotic hypertonic saline (20 to 25 per cent), a reduced concentration of 5 per cent saline has been used in the present study to induce midtrimester abortion. Of the 50 patients with pregnancy varying from 16 to 26 weeks, 42 (84 per cent) had aborted within 48 hours with a mean abortion time of 25.5 hours and the remaining 8 patients needed repeat instillation of 5 per cent saline with a simultaneous oxytocin drip (40 units per litre of 5 per cent dextrose solution) and aborted within the next 12 hours. The abortion was complete in all the cases.

Acknowledgements

We thank the Superintendent and the Principal of our hospital for permission to publish the case reports. We are also grateful to Miss Subhra Roy, Research Fellow, Indian Council of Medical Research and Mr. S. Rakshit, the biochemist for helping the biochemical investigations. We particularly acknowledge the help of all the house officers and the nursing staff.

References