

INTRA-AMNIOTIC INJECTION OF HYPERTONIC SALINE THROUGH CERVICAL CANAL

by

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With legalisation and liberalisation of abortion various methods and techniques are used for medical termination pregnancy. It is obvious that these methods will differ according to the size of pregnancy. Hypertonic solution of saline or glucose are known over a period as efficient agents for inductions or abortion. Between the two of them intraamniotic injection of hypertonic saline gained popularity because of its simplicity of injection and less side effects compared to that of glucose injection. In India there has been wide use of transabdominal injection of hypertonic saline into amniotic cavity with great success (Kunders and Hemalatha, 1972). Though this method is quite simple, there is always possibility of injury to intestines or urinary bladder (Buckle and Anderson, 1972). It is also associated with risks of escape of hypertonic saline in the peritoneal cavity or into the vascular system. Taking all these risks into consideration, we thought of injecting hypertonic saline through the cervical canal to make it more safe.

Material and Methods

Thirty patients were studied during the past one and half year period in whom pregnancy was terminated by intra-

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amniotic injection of hypertonic saline through vaginal route. Most of these patients were admitted to hospital for medical termination of pregnancy and they did not have any systemic disease like heart disease, kidney disease, etc. Apart from antiseptic measures no special preparation of patients were necessary. A preliminary dilatation of cervix upto 6/9 is carried out by Hawkin and Ambler dilators. A 20 gauge needle five inches long is introduced through the cervix until it punctures the amniotic cavity. Depending on the size of pregnancy 5 to 80 c.c. of liquor is withdrawn and it is followed by injection of 80 to 150 c.c. of 20 per cent saline into the amniotic cavity. Although the procedure presented no difficulty only 2 cases required anaesthesia due to lack of co-operation on the part of the patient. Analysis of the age of the patients show that it ranged from 18 to 45 years with average age of 29 years. There were 2 unmarried patients who were pregnant for the first time. The remaining 28 cases were multigravidas.

Period of Gestation

Six cases were between 9 and 12 weeks of pregnancy, 22 cases were between 13 and 18 weeks of pregnancy and 2 cases were between 19 and 20 weeks of pregnancy. No patients were admitted beyond 20 weeks of pregnancy.

Results

Out of 30 cases successful outcome was

noted in 28 cases and it failed in 2 cases. The cause of failure was inability to puncture the amniotic cavity in early months of pregnancy i.e. between 9 and 12 weeks. Analysis of 28 cases who had successful termination of pregnancy reveals that the time taken for its expulsion was 25 hours for the earliest and 72 hours for the latest. It is also noted that for 9 to 15 weeks of pregnancy it took about 36 to 72 hours for expulsion, mostly incomplete. For 16 to 20 weeks of pregnancy the products of conception were expelled within 30 hours and in most cases they were complete. In large number of cases there was rise of temperature from 99° to 103°F prior to expulsion of products of conception and it came down to normal soon after the abortion was over. There was no leakage of saline after its injection nor there was any side effect worth mentioning. Dilatation and curettage was necessary when abortion was incomplete. In some cases there were adhesions between the retained bits of conception and the uterine wall.

Discussion

Although the present series is small no major side effect was noticed. It was expected that following injection of hypertonic saline there would be constant dribbling of saline which would cause discomfort to the patient and may fail to induce abortion. But the trial revealed no leakage of saline and the patients aborted after some length of time with a tendency to become incomplete during the early months of pregnancy. An additional advantage is the ability to carry out this procedure even when the uterus is a pelvic organ without having any undue risks attached to it. Menzies and Hawkins (1968) are of opinion that transvaginal route is safer and easier than

transabdominal injection. They also noted that vaginal reflux of saline following injection did not seem to detract from the efficiency of this approach.

During curettage for incomplete abortion morbid adhesions were noted in some cases between the uterine wall and the retained products of conception. It was also observed that if curettage was done some days after the abortion the adhesions become very firm for which vigorous curettage had to be done. It seems that hypertonic saline acts as an irritant to the decidual cells and chorionic tissue which may reasonably explain ultimate formation of adhesions. However, this did not present a major problem to become a deterrent factor for continuing this procedure.

No coagulation disorder was noted in this series as observed by Stander *et al* (1971). They came across changes in coagulation factors which were consistent with disseminated intravascular coagulation following intraamniotic injection of hypertonic saline to induce midtrimester abortion. Accidental injection of saline into blood vessels may happen when the needle is pushed through the myometrium by abdominal approach which may subsequently lead to this complication. But, it is a remote possibility during vaginal injection, unless one is very careless.

In spite of rise of temperature even upto 103°F no case showed any evidence of gross infection. Feldberg and Gupta (1973) have shown experimentally that fever is due to synthesis of prostaglandin from the brain cells upon the action of pyrogens. It may be argued that pyrogens are liberated from the local site in the uterus by the irritant action of hypertonic saline and prostaglandin thus produced may lead to abortion. Although

very little is understood with regard to the mechanism of abortion following injection of hypertonic saline it is probable that further release of prostaglandin from decidual cells damaged by saline might be responsible for provoking abortion (Gustavil and Brunk, 1971).

Summary and Conclusion

Termination of pregnancy was performed on 30 cases by intraamniotic injection of hypertonic saline through the cervical canal. It failed in 2 cases due to inability to puncture the amniotic cavity. The possible side effects and complications which are more prone to abdominal approach are discussed. Since no complication occurred by the method it is considered that its practice is more safe than the abdominal route.

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