CORRESPONDENCE

HALOTHANE IN OBSTETRICS

Sir,—I was most interested in Dr. J. Selwyn Crawford’s article on “The Place of Halothane in Obstetrics” (Brit. J. Anaesth., 34, 386), but find myself at variance with his conclusions.

It is admitted that halothane has a potent action in relaxing the pregnant uterus (Embrey, Garrett and Pryer, 1958; Albert et al., 1959), but the point is strongly made by all these authors that the relaxation is closely related to the depth and duration of the halothane administration. This latter fact should militate against Dr. Crawford’s advice, “a Fluotec is not used, as it is not really necessary”.

Robson and Sheridan (1957) were favourably impressed by their preliminary investigation with halothane and reported on a further series of obstetric cases (Sheridan and Robson, 1959) in which they noticed no significant increase in postpartum haemorrhage.

Montgomery (1961) has shown that, for Caesarean section, the use of halothane as the sole anaesthetic is inferior to, and produces more foetal depression than, the thiopentone nitrous oxide and relaxant technique advocated by Hodges and Tunstall (1961) but the majority of obstetric procedures for which anaesthesia is required are short, and it is for these manoeuvres that the advantages of halothane more than outweigh its disadvantages.

The essential properties of an anaesthetic agent for use in obstetrics are:

(1) Speed of induction.
(2) Adequate oxygenation—sufficient potency without anoxia.
(3) Low incidence of vomiting.
(4) Lack of side effects—laryngeal and bronchospasm (Abajian et al., 1959).
(5) Minimal foetal depression.

Halothane more nearly satisfies all these requirements than any other agent or technique I have used. Vomiting, the greatest hazard in obstetric anaesthesia, has been reported by several authors to have a very low incidence (Dixon and Matheson, 1958; Abajian et al., 1959; Sheridan and Robson, 1959).

The alternative to halothane, a thiopentone induction, may produce increased danger of laryngeal spasm or, conversely, vomiting may occur after the abolition of the protective reflexes (Crawford, 1959). Thiopentone followed by suxamethonium is now well known to increase the intragastric pressure (Andersen, 1962), and this factor may, in a labour ward, be associated with a bed that is either difficult or, at the worst, impossible to tilt. Bourne (1962) has recently suggested that an oxygen-halothane induction be preferred for obstetric cases.

Halothane has been used during the past two years for short obstetric procedures, and for evacuation of the retained products of conception at the Liverpool Maternity Hospital, Mill Road Infirmary, and the Women’s Hospital, Liverpool. A calibrated vaporizer is always used.

The most common indications for anaesthesia in a consecutive series of more than 300 patients were as follows:

(1) The application of forceps to the aftercoming head of a breech delivery.
(2) The unsuitability of pudendal block for forceps delivery.
(3) Internal version with breech extraction.
(5) Evacuation of retained products of conception.

Following premedication with atropine 0.6 mg, anaesthesia is induced with a mixture of nitrous oxide (6 l./min.) and oxygen (2 l./min.) to which is added halothane 0.5 increasing to 1.5 per cent. By this technique light surgical anaesthesia is rapidly attained. Halothane supplementation is discontinued following the initial surgical stimulation. A satisfactory degree of uterine retraction is obtained without risk of detectable foetal depression.

I have used this technique in 151 patients during the past eight months. Vomiting during induction, or in the period of return to consciousness, did not occur in any patient. Vomiting after emergence from anaesthesia occurred in four patients (less than 3 per cent), all of whom had received trichloroethylene analgesia during labour. This proportion is similar to that reported by Dixon and Matheson (1958).

In spite of the allegedly deleterious effects of halothane on the uterine muscle tone none of these patients required uterine packing; one required transfusion as a result of a large vaginal laceration.

Halothane possesses such obvious and definite advantages and is, in my experience, so infrequently associated with complication of any kind that I feel it should be offered to patients in the Maternity Service without hesitation.

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REFERENCES


A copy of Dr. Breed's letter was shown to Dr. Crawford, who sent the following reply:

Sir,—I am beginning to question the propriety of invading your columns so persistently, but as long as you are satisfied to accommodate me, I will assay another reply. Perhaps this welter of correspondence is the happy augury of a surge of interest in the study and practice of obstetric anaesthesia as a science as well as an art.

Dr. Breed bases his advocacy of halothane partly on his personal use of the agent in 151 obstetric anaesthetics. However, he uses halothane apparently only as a secondary induction agent, for administration "is discontinued following the initial surgical stimulation". How is the latter defined? Catheterization? Vaginal examination? Episiotomy? The time to delivery following any of these manoeuvres can rarely be prognosticated. Does Dr. Breed claim that during the period from cessation of halothane to the end of the operation, the patient—without the defence of an endotracheal tube and controlled respiration—is in anything but a hazardous situation?

I question, too, that one can accept as a criterion of the rapidity and efficiency of recovery of uterine tone, the absence of a necessity to pack the uterus in any one of 151 patients. Packing is the penultimate measure of desperation—I would rather that the volume of blood loss, or the time to the achievement of satisfactory tonicus, were used as a scale of comparison.

I would feel less uneasy about Dr. Breed's opinions if that part of his argument which is based upon his reading of the literature were more sound. Lest your readers are inadvertently persuaded to accept some misinterpretations, I beg leave to make the following observations:

The point is not "strongly made by all these authors that the relaxation is closely related to the depth and duration of the halothane administration". Embrey, Garrett and Pryer (1958) declare that the inhibitory effect is evident at a fairly light plane of anaesthesia—a plane in which all patients showed stimulation of breathing and some stridor when the cervix was stretched—and that though the pre-anaesthetic contractility pattern of the uterus was quickly restored following withdrawal of the halothane, this restoration was attained "when consciousness was restored".

The paper by Albert et al. (1959) also requires critical reading. Their vaginal deliveries received pethidine 100 mg plus pentobarbitone 200 mg intramuscularly "for sedation" (time pre-delivery not stated), and thereafter received halothane intermittently, in 50:50 nitrous oxide/oxygen, from a demand-type McKesson machine. Of 21 spontaneous deliveries so conducted, none exhibited a boggy uterus with excessive bleeding. Forceps were applied in 7 cases (the halothane induction is described as being smooth and rapid, with a very short excitatory period; the agent was again given only intermittently) without unusual haemorrhage, and 1 case of manual removal, with similar success, is reported. These operative cases took less than 30 minutes, and Albert et al. stress that the administration of halothane persisted for longer than this time introduces the danger of uterine "bogginess" and of excessive bleeding. Of 4 forceps deliveries involving administration for more than 30 minutes, 2 exhibited such complications. These workers, however, place the main burden of their proof of the danger of prolonged administration upon experience with 27 Caesarean section patients (who, incidentally, received thiopentone for induction of anaesthesia, and who were subsequently given halothane intermittently from a Heidbrink machine via a semiclosed circuit and an endotracheal tube). For 26 of these patients the administration of halothane persisted for over 30 minutes, and in all cases the uterus was boggy and the haemorrhage excessive. However, if Dr. Breed had read the "small type" (actually a rather poorly presented table) he would have noted that the twenty-seventh patient, to whom halothane was administered for less than 30 minutes, suffered the same complications. Albert and his co-workers declare that the affected uterus showed signs of contraction only when halothane administration was interrupted and the drug removed from the system by frequent flushing with oxygen for 3-5 minutes, followed by direct infiltration of the uterine muscle with Pitocin.

It is true that Sheridan and Robson (1959) conclude that no undue depression of uterine tone need be expected if anaesthesia with halothane is maintained in a very light plane. However, the view expressed in the summary of their paper is not reflective of the findings reported in the main account, which again I urge Dr. Breed to read carefully. Examination of table V in Sheridan and Robson's paper reveals that, in 1959, when patients who received halothane were compared with a control group who received other anaesthetics, there was a significant excess of "halothane patients" exhibiting other than normal uterine tone, and a significant excess of these patients had a postpartum haemorrhage. This was not a reflection of inexperience in the administration of the anaesthetic, for in 1958 only the "other than normal tone" excess was significant.

Sheridan and Robson are concerned only with vaginal deliveries, and it is noteworthy that they state: "It is very doubtful if full surgical anaesthesia with Fluothane is produced in the majority of patients and it appears to be a stage of full analgesia and amnesia from which the patients emerge without vomiting...".