

Abstracts concerning the use of Interruptin and other pastes for procuring Abortion.

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In 600 pages this volume embodies communications to the German Gynaecological Congress held at Frankfurt in 1931 under the presidency of Seitz: the discussions are also fully summarized.

Manual dilatation of the cervix (B. Aschner, p. 234).

Aschner speaks strongly in favour of this method of intervention, which is a safe way of evading the difficulties and dangers of metreurysis, cervical incisions and Caesarean section, and which in his hands during eight years has not been attended by any mortality and practically not any morbidity. He pleads for further trials, and denies that the simplicity of the method makes it dangerous to demonstrate to students and practitioners.

Planning of lying-in homes (Seynsche, p. 238).

A recommendation is made that in erecting or rebuilding large lying-in institutions separate rooms should be planned for each parturient woman.

Action of contraceptives: experiences of the Frankfurt Matrimonial and Sexual Advice Bureau.

The bureau is in co-operation with the practitioners and, as a rule, gives only preventive treatment and preparations to the poorest classes: preference is accorded to combination of an occlusive pessary (usually Ramses pattern) with a chemical antistubstance. Six hundred cases are analysed, in which contraceptive measures are regarded as justified on social grounds (two-thirds of the husbands were unemployed) and for medical grounds. Only four of 41 failures were ascribed to failure of the technique in itself; the others followed lack of obedience to advice.

Birth control and the German Gynaecological Society (v. Franqué, p. 353).

Many of the speakers appeared, v. Franqué thinks, to lay insufficient stress on ethical considerations in prevention and its significance for the German race. Ethically and biologically considered, the one unobjectionable means of birth control is abstention from intercourse: the contention that abstention is harmful in the healthy or diseased woman is without foundation. If contraception at all will be accepted as a justifiable and necessary accompaniment of modern civilization, national morality will sink to lower planes from which restoration will be impossible.

The use of interruptin in obstetrics (Sachs, p. 548).

Intra-uterine injection is followed directly at term, and within 10 to 36 hours in the case of artificial abortion, by uterine contractions leading to total expulsion of the foetus and at least partial expulsion of the placenta.

In one half of cases curetting was necessary afterwards. It is claimed that in this method cervical dilatation is spontaneous and fraught with less danger of infection or injury than is the case with the metreurynter or Hegar's dilatation. The relative parts played by the rosemarin and iodine contained in interruptin are not yet worked out. The patient must be under the physician's continuous observation and must be admitted to hospital. The method has proved safe and reliable in Sachs's hands and is, he maintains, deserving of further trial. Its greatest danger, he says, lies in its simplicity and the possibility of its use by the lay abortionist.

J. H. Leuenbach of Copenhagen (p. 554) has now used interruptin or provocol in 150 cases; subsequent curettage being required in 12. A Danish colleague had 30 successes and one case of twice-repeated failure, in which urticaria and collapse, attributed to the ethereal oils in interruptin (Leuenbach thinks these superfluous), followed the injections. Leuenbach, working in Russia in 1929, had one similar case, but has not found provocol to fail. Cardiopathic subjects require special supervision. The danger of air-embolus is lessened by injecting the paste from tubes instead of a syringe. (See *Monatsschr. Geburtsh.*, April, 1931.)

Interruptin is described as a fatty paste containing (1) ethereal oils of a number of drugs—aloes, rosemary, myrrh, crocus and camphor—which are reputed to have an abortifacient action when given orally in toxic doses; (2) thymol; (3) iodine. Its use was first suggested by an unqualified person, and it was originally put up in syringes. Four similar preparations are in commerce, including provocol and antigravid. There is reason to believe that besides being tried by gynaecologists, interruptin is being used by criminal abortionists. It is certain that at least 20 deaths, mostly sudden, after injections of interruptin have been reported recently: in nearly all these cases it has been given by a medical man, sometimes in a consulting room. The most common cause of death was air or fat embolus. Interruptin acts lethally on the ovum *in situ* and can produce necrosis in the endometrium and inflammatory reaction in the myometrium; it is partially absorbed in the blood stream and excreted in the urine. See *Zentralb. f. Gynäk.*, Jan. 9th, 1931, pp. 112, 119 and 122; *Med. Welt.*, 1931, Nos. 12 and 47; *Monatsschr. Geburtsh.*, 88, H. 6 (Wolf).

W. E. Crowther.

The non-operative termination of pregnancy. [Otto, K. *Zentralb. f. Gynäk.*, 1932, lvi, 112].

Non-operative interruption of pregnancy is discussed by Karl Otto on the grounds of his experience with cases at the Allgemeinen Krankenhaus at Hamburg-Barmbeck over a period of one year when the termination of pregnancy was called for on medical grounds. The method used was that of extra-uterine injection of interruptin, undertaken expressly to obtain experience in its use.

According to the description of the manufacturers, interruptin consists of ethereal oils extracted from a large number of drugs. Its internal administration sets up uterine contractions without injuring the ovum unless given in toxic doses. To render it strongly antiseptic the paste is treated with iodine and thymol. On bacterial investigation interruptin has been found to be sterile, and even antiseptic in its action; bacillus

coli and the common pyogenic organisms were destroyed after a short contact with this preparation. Further to test the antiseptic properties of interruptin, injections of virulent cultures of bacillus tetani and the bacilli of gas gangrene were made into guinea-pigs after admixture with an equal amount of the preparation. Temporary local redness at the site of injection occurred but other harmful effects did not result.

For clinical use interruptin is mixed with a fatty base which does not liquify at body temperature, so that a long contact with the uterine wall can be ensured. The preparation is introduced into the lower uterine segment. It arranges itself in the form of a shell round the lower pole of the ovum and becomes only partially expressed with the occurrence of uterine contractions. In these circumstances there is every opportunity for penetration of the drug through the coverings of the ovum to affect the foetus on the one hand, and through the decidua to affect the mother on the other. This penetration of interruptin actually occurs, as is shown by the appearance of the drug in the liquor amnii and in the urine passed by the mother. From an analysis of liquor amnii and urine obtained concomitantly it was found that the former contained more thymol and iodine than the latter. The resulting damage to the ovum appears to be the result of haemolysis, which has not been found to occur in the mother when the concentration of the drug is lower.

The action of interruptin appears to depend upon severe damage to the ovum; the slight damage to the uterine wall serves to set up reflex uterine contractions.

In 24 cases terminated by this method, between the second and fifth months, the paste was in each case injected into the lower uterine segment without an anaesthetic, and did not give rise to pain during its introduction. A few of the patients said that shortly after its introduction they were aware of a sensation of stretching in the post-pubic region. The paste was well retained by all the patients, whether multiparae or primigravidae. In all cases uterine contractions began a few hours after the injection, but strong regular pains did not occur for eight to 14 hours in most cases and did not occur for 18 to 24 hours in three cases. When the expulsive effect of the pains was inadequate small doses of pituitrin were given in addition. In 24 cases there was a spontaneous evacuation of parts of the ovum, but in four cases only was the whole ovum evacuated. In one of these four cases curettage had to be performed on the twelfth day for severe bleeding due to the retention of a small fragment of the chorion. The uterus was curetted unnecessarily in four other cases for suspected retention of the products of conception. It thus appears that satisfactory spontaneous evacuation of the uterus occurred in eight cases only; in 15 cases it had to be evacuated under a general anaesthetic, and in the twenty-fourth case operative interference was necessary because of organic rigidity of the cervix, which resulted from scar tissue. Operative interference was not undertaken hastily, but after the administration of pituitrin and a wait of three to six hours.

Severe bleeding occurred in two cases, so that immediate operation had to be undertaken. Marked atony was present in three other cases.

The lying-in period was afebrile in 23 cases; it was transiently febrile in the case with atresia of the cervix. While serious complications were absent it was noticeable that the lochia remained red for a prolonged

period in all the cases, even in those in which the uterus was known to be empty after curettage. In one case styptics were of no avail and a second curettage had to be undertaken on the nineteenth day.

Fourteen of the patients were followed up for a period of not less than four months. None of these patients was pregnant, and no abnormality could be felt on physical examination. Excessive loss at the first menstrual period occurred in 11 cases, and in six of these it recurred at subsequent periods.

In conclusion the author considers, on the basis of his experience, that the induction of abortion with interruptin is conservative and less painful to the patient as a means of initiating uterine contractions than laminaria tents. In two-thirds of all cases in which the contractions were initiated by interruptin, operative evacuation had to be undertaken—that is, as often as is usually necessary when laminaria tents are used. He considers it to be a mistake to use a method with the avowed object of avoiding operative interference when operation is so frequently needed. Even in the introduction of the nozzle of the syringe, which is of the size of a No. 4 Hegar's dilator, it is possible to injure the uterus; and even when such injury is avoided other damage of a serious nature may occur. Air embolism can be avoided by care in filling the syringe, but fat embolism, from the paste, especially when the placenta is situated in the lower segment is a possibility.

In the cases dealt with in this series the ovum was not viable and its inevitable death was immaterial, but the absorption of drugs into the maternal circulation was a possible source of damage to the mother's liver and kidneys. The slight raising of the amount of bilirubin in the blood suggested that there was transitory hepatic damage.

Microscopical examination of the curettings obtained from the uterus showed that necrotic changes of the chorionic villi and decidua occurred in every case. There was constant disappearance of cellular nuclei—leucocytosis and haemorrhage. Specimens examined after spontaneous evacuation showed exactly the same changes as though the interruptin had had a caustic effect on the tissues.

Because of the disadvantages experienced with interruptin, and the risk of damage to the mother, it has been decided to discontinue its use in the clinic in which the author works.

On the dangers of interruptin. [Engelmann, F. *Zentralb. f. Gynäköl.*, 1932, lvi, 119].

Engelmann of Dortmund, having seen a fatal case after the use of interruptin, has undertaken an inquiry into other fatal cases under the care of other observers.

He has traced four cases of death from air embolism. One patient was under the care of Fraenkel (Berlin) another reported by Otto (Hamburg), a third in Halle, and a fourth in Magdeburg.

In the author's case there was no post-mortem evidence to confirm the diagnosis, and the case differed from most cases treated by this method in that the injection was made to hasten abortion which had begun. The patient was a highly excitable woman who wished for the rapid and easy termination of an already inevitable abortion. As the writer had been using this method without any mishap for a period of

one year he considered it to be the most expeditious and harmless method to choose. At the time of injection she became very hysterical and stated she was sure she would die, and for this reason ether was administered. At the end of the injection she suddenly collapsed and died within 10 minutes. As a post-mortem examination was not allowed he does not know whether death resulted from the short anaesthetic in a patient who was in a state of terror or whether it was due to the injection.

He points out that in a total number of 20 cases there were five recorded deaths; and that three of these were due to air embolism and one to uterine perforation.

He also refers to two cases of sudden death from fat embolism resulting from the injection of ointment into the uterus, recorded by v. Manteufel (Berlin).

For many years the criminal termination of pregnancy has been attempted by the injection of various fluids with risk to the lives of the patients. Reuter of Hamburg records a case in which a cubic centimetre of tincture of iodine was injected into the uterus. Death resulted within a few hours. The cause of death in this case could not be defined, but it was certainly not due to iodine poisoning.

He considers that reference to this case and the teaching of Oehlschlager is called for in view of the recent introduction of the use of interruptin.

Two cases in which death occurred during the use of interruptin. [Brack, E. *Zentralb. f. Gynäkol.*, 1932, lvi, 122].

Brack, pathologist to the Port Hospital in Hamburg, gives a report on two cases of death during the use of interruptin. Three weeks after the paper read by Otto to the Hamburg medical meeting on deaths due to interruptin, the writer was called, on behalf of the police, to investigate a case of death during an injection.

The person responsible was a general practitioner who was employing interruptin for the first time, using the original instrument recommended for this purpose. The patient was a married woman of 34 years, pregnant for the third time and bleeding from a threatened miscarriage. He injected interruptin in his consulting room, and as he was introducing the third unit from the syringe the patient had a slight attack of dyspnoea and died. At the post-mortem examination macroscopically there was marked pulmonary oedema but no sign of air embolism. The portio and the cervical canal were not wounded. The intact ovum was still adherent to the fundus and the anterior wall of the uterus, but separated from it, posteriorly, by a large deposit of interruptin which had also infiltrated the muscular wall, without any wound in its surface.

On histological examination this interruptin infiltration was found to extend between the muscle fibres in the uterine wall, and in a few places beginning necrosis could be demonstrated. Section of the lungs showed numerous ointment emboli in the smaller blood-vessel; there was an enormous hyperaemia of the lungs and secretion of fluid into the pulmonary alveoli.

In correspondence with Sellheim on the subject of this case he heard that he had had a similar case in his practice.

Just as he was forwarding this article for publication the writer was asked, on behalf of the police, to investigate an exactly similar case.

In this case the doctor had carried out many such procedures previously, and an entirely unexpected death resulted with exactly the same post-mortem findings.

He considers that these cases and those reported by Engelmann are indications that interruptin should not be used as a means to terminate pregnancy.

R. H. B. Adamson.

The production of abortion by the intra-uterine introduction of ointment.

[Wolf, H. *Monatsschr. f. Gynäk.*, 1932, lxxxviii, 442].

The author points out that following the investigations of Leunbach and Sellheim, a great deal of work has been done on the induction of abortion by the intra-uterine applications of ointments. He has used the method for about six months in a series of 12 cases in which interruption of pregnancy was necessary. In most of the cases he used interruptin, a paste containing, chiefly, iodine, thymol, camphor, crocus, rosemary, eucalyptus and myrrh. Provocol, an ointment having as a base, superfatted soap made with olive oil, cocoa butter, sodium and potassium, to which was added iodine and thymol, as in interruptin, was used in the last two cases.

The technique consisted of injecting the substances by means of a special syringe through the cervical canal into the uterus. It was not found necessary to dilate the cervix. In the second month of pregnancy it was advised that 20 cubic centimetres of the paste be injected; in the third month, 30 cubic centimetres, and so on.

Leunbach's provocol is supplied in tubes containing 40 grammes, together with a canula which is sterilized and attached to the tube of paste; by means of a special screw it is possible to squeeze the paste into the uterus. This supplies a very simple technique and saves expense. It is not necessary to grasp the cervix with volsella, so that the patient does not suffer pain. Untoward symptoms were not noticed in the author's cases.

Following the instillation of the paste the patient should remain in bed for about four hours, the pelvis being raised for the first two. Afterwards the patient can get up and walk about. Ten to 12 hours after the paste is injected, sometimes even earlier, pains begin; quinine may be used to increase their strength if necessary. The abortions appear to be easier than spontaneous ones. Complete delivery of the foetus and placenta occurs, on an average, in 20 hours. The actual treatment of the individual cases is described in detail, giving parity, age, period of pregnancy and particulars of the accessory treatment employed.

M. Datnow.

The interruption of a pregnancy without an operation. [Abel, K. *Med. Klinik.*, 1931, xxvii, 727].

Abel considers that the literature suggests that it is merely necessary to inject the paste and leave the woman to her fate; everything is over in 12 to 36 hours. In his opinion the preparation should not be used in a light-hearted manner. By the end of the year there would be a dozen different pastes on the market, and Leunbach has just introduced provocol,

contained in a tube attached to a uterine nozzle. The tube is wound with a key which indicates the amount of paste injected. The author found that the introduction of the paste was painless, that the cervix became fully dilated in every case, and that manipulations were not usually necessary. The pains were slight and could be relieved by 0.5 cubic centimetre of dilaudid. Nevertheless, in his experience the uterine contents were not always completely expelled. In many cases portions of the placenta had to be removed with the curette, and in some it was necessary to separate the placenta with the hand. In one of his later cases the haemorrhage was so severe that he determined to curette the uterus in every subsequent case to make sure that no portion of placenta remained behind. In his opinion the paste should be injected only in a clinic, and the patient should remain under careful observation.

The termination of pregnancy without an operation. [Hirsch, F. E., and H. Lewin. *Med. Welt.*, 1931, v, 413].

Hirsch and Lewin record their experiences with a preparation called interruptin, which has the consistence midway between that of an ointment and that of a paste; it contains the oils of crocus, rosemary, eucalyptus, myrrh, thymol and camphor mixed in a vehicle containing iodine. The patient is placed in the lithotomy position after the bowels and bladder have been emptied. A bimanual examination is made and a uterine sound is passed. A vaginal speculum is then introduced and the anterior lip of the cervix is gripped by a volsellum and drawn downwards. The nozzle of a 50 cubic centimetre metal syringe is then introduced well beyond the internal os uteri and an appropriate amount of paste is injected. During the first month of pregnancy 10 cubic centimetres are sufficient; for every further month 10 cubic centimetres must be added. If the paste escapes from the cervix more must be introduced, and the cervical canal may then be plugged with gauze. In a few cases barium was added to the paste, and X-ray pictures proved that it did not enter the Fallopian tubes. This technique was carried out in 32 cases, the periods of gestation varying between two and five months. The pains began 12 to 14 hours after the paste was introduced and the contents of the uterus were expelled after a further eight to 12 hours. The average time from the introduction of the paste to the expulsion of the uterine contents was between 26 and 30 hours. Small doses of quinine and pituitrin were given in a few cases. In every case the external os uteri and cervical canal became fully dilated. In most cases all the contents of the uterus were expelled, although curettage was necessary in some of the early cases because of severe haemorrhage. In one case (four months' pregnancy) the placenta had to be manually removed. The temperature occasionally rose to 38°C. before the contents were expelled, but in no case was convalescence disturbed by pyrexia. In no case did infection of the parametrium or adnexa arise; neither was pre-existing disease of the adnexa aggravated by the paste. A slightly thicker paste called antigravid, containing iodine, oil of rosemary, eucalyptus, medicated soap and a hormone, was used in seven cases. In six cases the uterine contents were expelled in 14 to 18 hours; curettage was necessary in one of these cases. The authors conclude that the method is simple, efficient, and reduces the risks of artificial abortion to a minimum, but they are

convinced that the woman should remain under constant medical supervision.

Dangerous abortifacients. [v. Marenholtz. *Med. Welt.*, 1931, v, 1678].
ii, 1678].

v. Marenholz reports two deaths following the use of ointment for the induction of miscarriage. An unmarried woman became ill immediately after the introduction of provocol into the uterus and bled from the nose and mouth. She was admitted to hospital in a moribund state, three hours later, suffering from air hunger and haemoptysis. The pulse was small and its rate could not be counted; râles were heard all over the chest. Death ensued an hour later. The autopsy was not performed for six days, so that it was not possible to make a definite diagnosis of air embolism although the symptoms and the fact that gas was found in one of the veins draining the uterus strongly suggested it. The pregnancy was of six months' duration and the placenta was found to be separated from the uterine wall. A tube of provocol was examined and a brownish fluid containing gas bubbles escaped before the paste itself appeared at the end of the nozzle. The second patient was a girl of twenty, in the second month of pregnancy, who was found dead. The heart was opened under water and gas escaped from the right ventricle. The uterus contained a foetus five centimetres long; the ovum being separated from the uterine wall by fresh blood. A paste-like substance was found in the cervix, and a similar substance of a thinner consistence in the bladder. In neither case were fat emboli found in the brain or lungs. The author concludes by stressing the point that these pastes are dangerous, and that it is not yet known whether they are poisonous or otherwise.

On the dangers of the so-called interruption of pregnancy without an operation.
[Englemann, F. *Deut. Med. Wochenschr.*, 1932, lviii, 166].

Engelmann, in a paper which he was invited to contribute, gives a short résumé of the literature dealing with the interruption of pregnancy by means of a paste, before recording his experiences and reporting the fatal results of which he is cognizant. According to von Heiser the method is several hundred years old, and the virtues of rosemary, aloes, myrrh, crocus and camphor have been sounded in folk-poetry. The method was brought to the notice of the profession by Leuenbach of Copenhagen at a meeting of the World League for Sexual Reform held in London. The paste was made by a Berlin apothecary named Heiser, who claimed to have used it with complete success in thousands of cases. Leuenbach has now used the method with success in 150 cases. So popular is the method that a factory has sprung up for the preparation of the paste, and a tube of Leuenbach's provocol may be bought for seven marks. Following Leuenbach, Levy-Lenz reported satisfactory results from the use of this method, which he advocated in the lay press. Sellheim was the first German author to report satisfactory results from the use of this paste, and he saw no untoward effects. Abel, and Hirsch and Lewin between them, reporting 43 cases, were able to recommend its use but discounted its adoption in a light-hearted manner. Sachs used it in 20 patients and found it necessary to use the curette in about half his cases. In

his view the great danger of the preparation lay in the fact that its use was so simple and would be adopted by the laity. The author, in spite of the large amount of material at his clinic, was able in the course of a year to find only eight patients in whom he could use the method. In half of these patients it was found necessary to explore the uterus to make sure that the miscarriage was complete, and this investigation was rendered difficult by the paste. After discussing the action of the paste, which he thinks is probably toxic both to the foetus and to the uterine mucous membrane, he reports 17, probably 18, deaths which have followed its use. The cause of death was ascertained in 12 of these cases. Four patients died from fat and eight from air embolism. He further hints that if he knows of these fatal cases it is probable that there are many more of which he does not know. Although it is possible that air and fat embolism may be obviated by improved technique, it is not yet proved that the paste is not toxic. The fact remains that 17 deaths have resulted in a comparatively short time from a method which is claimed to be harmless.

G. W. Theobald.