organ is sometimes completely transfixed. Success has followed operative treatment of such a severe injury.

It has also happened that bullets have traversed the heart completely and the aperture of entry and that of exit has been closed with sutures and the patient's life saved. In one remarkable instance a revolver bullet (5 mm.) entered the right ventricle and the aperture of entry was closed with sutures; on careful palpation the bullet was detected in the posterior wall of the left ventricle and removed with success (von Manteuffel). In this case the surgeon states that when the opening in the right ventricle was exposed a blood fountain $\frac{1}{2}$ metre high gushed out with each systole of the heart.

A remarkable case was reported in 1908 by Guinard. A garçon de café, aged 26, was shot in the chest and abdomen; one bullet entered the ninth intercostal space, 4 in. to the left of the spinous process. The abdomen was opened and nothing found. Four months later the man returned complaining of dyspnoea, cough, and inflammatory oedema of the chest wall below and to the outside of the nipple line. The x rays revealed the bullet an inch or so behind the ribs. The sixth rib was resected and the pericardium opened. The bullet (7 mm.), surrounded by a piece of the man's shirt, was extracted with forceps. He recovered in spite of an extensive pleural effusion. A piece of the man's coat had also been carried in with the bullet; it lay under the chest wall. When Guinard communicated his case to the Surgical Society of Paris the boy was in the hospital with a fistula. In reply to a letter (1910) Mons. A. Guinard kindly informed me that he had heard nothing more of the boy, so he came to the conclusion that he had remained well.

Some of the injuries to the heart are remarkable. Schubert reports a case in which a ball passed through the heart, and he succeeded in closing the opening of "entrance and exit"; the man recovered. Schubert is of opinion that the bullet traversed the intraventricular septum.

It has happened that a man sustains a serious damage to his chest, and the surgeon in charge suspects an injury to the heart; on opening the pericardium he finds the heart uninjured. In all cases of cardiac wounds which are treated by operative methods it is important that the surgeon should in the course of the operation examine the lung and pleura in order to ascertain their freedom, or otherwise, from injury. If the pleural cavity contain blood it must be removed carefully, and the hole in the pleura should be closed with sutures of fine silk. Blood, sometimes in large quantity, has been poured out from a wounded heart into the pleura; this has been removed in the course of the operation, and the pleura closed without drainage.

This is an important detail. Many surgeons, in reporting cases of cardiac suture in the last two years, insist on the avoidance of drainage, believing that some of the patients who have survived the immediate shock of the initial injury and the operation have died from septic sequelae. Some of these septic complications probably arose from secondary infection through the drainage tube.

It is stated that wounds of the auricles are more fatal than those of the ventricles. In Vaughan's list of 150 cases an auricle was wounded in 8. These numbers are too small to make any comparison of the relative danger of wounds of the auricles and ventricles reliable, but it raises suspicions of another kind, namely, the probability that wounds of the auricles are, as a rule, so quickly fatal that the patients with such injuries die before there is time to place them in the hands of a surgeon.

This is a matter of great importance; I have tried, but without results, to obtain facts in regard to the localization of fatal wounds of the heart which would enable a definite answer to be given to this question. In future it would serve a very useful purpose if those who had the opportunity of conducting *post-mortem* examinations upon men and women who lose their lives from wounds of the heart to accurately note the region of the organ which is injured. A score of such observations would be very valuable.

At the present time the mortality of the operation known as "suture of the heart" is about 65 per cent., according to Vaughan. He also shows in his excellent paper that the mortality of this operation has not diminished during the last twelve years. The secondary

causes of death in the majority of cases are pericarditis, pleurisy, pneumonia, and bronchopneumonia; some of these complications are due to the use of drain tubes.

In spite of the high mortality it is a matter for congratulation that surgery can save 35 per cent. of the patients suffering from a wound which untreated is usually mortal.

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Remarks

ON A

CASE OF PROBABLE OVARIAN PREGNANCY.

BY

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THE literature of ovarian pregnancy increases rapidly, and each year adds its quota to the store of recorded cases. The last few years particularly have been lucrative in this respect. In 1908 Teacher and Bryce¹ published their well-known monograph on the early changes associated with normal uterine pregnancy, including a very valuable report on a specimen of early ovarian gestation. In August, 1909, appeared Norris's paper² on ovarian pregnancy, with the detailed account of a case and summary of previously recorded literature. Hastings Tweedy³ has recently described a specimen of this condition occurring in Ireland, and the current year has seen also the publication by Prince⁴ of a case of full-term gestation in this abnormal position. In spite of this mass of accumulating literature, however, little is known of the processes taking place in an ovary the seat of such an occurrence. The etiology and early pathology of the condition is still largely speculative, and the true facts can be reached only by the comparison of authentic records and the very careful investigation of every specimen that falls to the lot of the individual worker.

The case I now publish is wanting in some details, but it raises several points which may have an important bearing upon the work of others.

History.

The patient, E. J. B., 25 years of age, had been married for five and a half years. She had had two previous confinements, dated June 6th, 1905, and March 16th, 1908, respectively. The first pregnancy and labour were normal in every particular, but the second was noteworthy from the fact that menstruation was regular during the first three months. The catamenia were absent for three months following the second confinement, but recurred on June 16th, 1908. The function was regularly repeated till December 19th, the last period terminating on December 25th. Coitus occurred on two occasions during December, namely, the 12th and 26th. At 1 p.m. on December 31st, 1908, after pushing a heavy wringing machine, the patient was seized suddenly with acute abdominal pain, localized in the right iliac fossa. It was unrelieved by rest and fomentations. Vomiting occurred twice, but although faintness was present, she did not lose consciousness. The pain remained constant till 1 a.m. on January 1st, 1909. It then passed off, but recurred on the following day, when she rapidly became worse, and was admitted to the General Hospital, Birmingham, at 3.30 p.m.

On admission her condition suggested acute appendicitis. The abdomen was exquisitely tender, especially in the right iliac fossa. The abdominal muscles were rigid, and the percussion note over the above-named area was dull. The pulse-rate measured 132 at the radial artery, and the temperature registered 100.4° F.

Operation.

The abdomen was explored during the same evening by Mr. Lucas and the peritoneal cavity found full of blood-clot. Ruptured extrauterine gestation was diagnosed, and the source of the haemorrhage traced to the right ovary, from which protruded a small mass of clot. Both Fallopian tubes and the left ovary were quite normal. The uterus was not enlarged. Right salpingo-oophorectomy was performed, the patient making an uneventful recovery.

Description of Specimen.

The specimen was handed to me for investigation on the morning of January 4th, 1909, when the following notes were made:

"The specimen consists of the right ovary and Fallopian tube, with the corresponding mesosalpinx and mesovarium. It is free from all adhesions, and there is no evidence of any inflammation, acute or chronic. The ovary forms an elongated oval body, 5.4 cm. in length by 4 cm. in breadth. It is divided roughly into two equal portions. The upper or tubal half is somewhat quadrilateral and attached to the tube by the fimbria ovarica. The structure is firm, and appears to consist of normal ovarian tissue. Its colour is dull white, and the surface shows slight puckering, due to scars from previously ruptured follicles. The lower half of the ovary at the attachment to the ovarian ligament is dilated, and forms a rounded swelling with the following measurements: 4 cm. by 3 cm. by 2 cm. A rough granular area, 1 cm. in diameter, to which a small blood clot is adherent, is present at the extreme lower limit of this spherical enlargement. The clot appears to issue from a rupture in the wall of the swelling. There is no evidence of blood extravasation at any other part of the specimen.

"The Fallopian tube is normal in every way. The ostium is patent and the fimbriae luxuriant. In length, the tube measures 4 cm.; it is not distended, and is free from blood clot and adhesions.

"The mesosalpinx presents a well-marked Kobelt's cyst, but otherwise is normal."

In view of the possibility of ovarian pregnancy, I made a drawing of the specimen (Fig. 1) and placed the latter in the following hardening solutions, before submitting it to any further investigations:

Sodium sulphate	...	...	50 gr.
Magnesium sulphate	...	...	50 "
Sodium chloride	...	...	25 "
Formalin	...	...	200 c.cm.
Water	...	...	2,500 "

The specimen remained in this solution for seven days. It was then transferred to the second solution for a further period of fourteen days, namely:

Glycerine	...	...	600 c.cm.
Formalin	...	...	20 "
Sat. solution of potassium acetate	...	...	20 "
Distilled water	...	...	400 "

After hardening, the ovary was divided vertically from tubal to uterine pole, splitting it approximately into equal halves. The line of section passed through the centre of the clot on the surface of the organ. The following notes were made on the sectioned specimen:

"The quadrilateral tubal pole of the organ is solid, and macroscopically appears to consist of healthy ovarian tissue. A few small follicles are present in the substance of the ovary with one well-marked corpus albicans. The lower spherical area consists of a cyst about the size of a cherry, with translucent yellowish contents, coagulated by the agents employed in hardening the specimen. The lining of this cyst is composed of yellow friable tissue typically lutein in nature. It is definitely encapsuled, and at no spot is there any communication with the adjacent blood clot. This lutein cyst constitutes the only lutein element seen macroscopically in the specimen.

"The mass of blood clot adherent to the surface of the ovary is found on section to measure 0.5 cm. in thickness. It is solid throughout, and penetrates into the substance of the organ for a distance of 3 mm. It lies directly over the lutein cyst, at the pole most distant to the Fallopian tube. It is separated from lutein tissue, however, by a bridge 5 mm. in thickness and macroscopically having no connexion with the cystic corpus luteum.

"No chorionic vesicle or fetal structures of any kind are visible to the naked eye, the clot being firm and homogeneous throughout.

"The Fallopian tube on section presents a wall and mucosa that are normal in every respect. The natural folds of the latter are very well marked, and there is neither haemorrhage nor swelling in any part of the tube."

Microscopical sections were taken from the periphery of the clot and carefully examined. No fetal elements were found, although extravasation of blood had occurred to a considerable depth in the tissue. It was then decided to sacrifice the specimen and convert the whole area containing blood clot into serial sections, in the hope of finding gestation products. The

sections were cut in the vertical direction and carefully numbered, to render reconstruction possible. Each tenth section was submitted to microscopical examination.

Microscopical Report on Specimen.

The sections show definite plasmotrophoblast attached to the surface of the ovary and invading the superficial layers. There is much blood extravasation and necrosis of the ovarian tissue immediately surrounding the haemorrhagic area. The

Fig. 1.—Specimen of ovary and Fallopian tube as removed at operation. A, Blood clot on surface of ovary; B, cyst at uterine pole of ovary; C, normal ovarian tissue; D, ostium of Fallopian tube; E, Kobelt's cyst; F, cut isthmus extremity of Fallopian tube.

Fig. 2.—Vertical section through portion of ovary at site of gestation. A, Plasmotrophoblast on surface of ovary; B, ditto; C, ditto in substance of ovary, occupying capillary vessel; D, fibrinous and necrotic zone limiting normal ovarian stroma; E, blood clot; F, normal ovarian stroma. (For description see text.)

normal ovarian stroma is marked off from the necrotic zone by a tortuous band of fibrin and fibrous tissue. The surface of the ovary presents an irregular cavity from which the contents have escaped. The presence of plasmodio-trophoblast attached to the walls of this gap suggests that it was originally occupied by a blastocyst, the latter being lost in the blood clot resulting from the rupture. No chorionic villi are seen, and the pregnancy is presumably of very short duration.

A portion of the ovary showing plasmodio-trophoblast lining the cavity above mentioned is illustrated in Fig. 2. The photomicrograph gives a general view of the structure seen on vertical section through the centre of the blood clot on the surface of the ovary. The trophoblast appears as isolated strands of protoplasm containing numerous darkly-stained nuclei. It is attached principally to the surface of the ovary, but a mass of similarly nucleated protoplasm is seen deep in the tissues occupying the lumen of a capillary vessel. It is limited peripherally by a tortuous band of fibrous tissue undergoing necrosis. The latter merges into the normal ovarian stroma seen at the extreme right of the section. There is considerable extravasation of red cells into the stroma at the upper part of the photograph, but the trophoblastic elements are here absent.

Fig. 3 illustrates a portion of the same tissue under a higher magnification ($\frac{1}{2}$ objective). The characters of the plasmodio-trophoblast are well seen and the situation of a mass of protoplasm in the lumen of a capillary vessel eroding its wall affords some explanation of the large haemorrhage which has caused destruction of the specimen. A few large solitary cells with a single definite nucleus are also present in the section. According to Teacher and Bryce, such cells are probably maternal and possibly point to an effort on the part of the ovary to produce decidua from the connective tissue stroma cells.

Fig. 4 shows a section taken at a deeper level than the preceding and forms a continuation with the latter. It illustrates the minute structure of the cyst wall lying beneath the seat of the pregnancy. It will be seen that the immediate lining of the cyst is composed of dense fibrous tissue.

This is limited peripherally by typical lutein cells. There has been a small haemorrhage into the fibrous tissue, but the wall is entirely intact and the lumen is occupied by hyaline contents. There is no plug of fibrin or any irregularity in the contour of the cyst, and the lutein tissue in the ovary is confined absolutely to the immediate vicinity of this body.

Microscopical examination of the Fallopian tube showed a perfectly normal structure. No evidence of any haemorrhage or fetal structures was found. Furthermore, no decidua reaction was noted in any of the tubal sections examined.

This case suggests several interesting points for discussion. In the first place, can it be granted that the presence of plasmodio-trophoblast is sufficient evidence of pregnancy? Without this assumption the specimen falls to the ground as an example of ovarian gestation, as further evidence of pregnancy is wanting. No chorionic villi are present, and the blastocyst has been lost apparently in the blood clot removed at the operation. C. van Tussenbroek⁴ argued from her historical specimen that the plasmodium covering the villi of an ovum embedded in the ovary cannot be a derivative of the uterine epithelium, and the work of Teacher and Bryce¹ furnishes very decisive proof that this plasmodium is definitely fetal. Granting, then, that trophoblast is essentially a product

of gestation, is one justified in stating that this tissue is only found under these circumstances? The recent work on chorion-epithelioma appears to negative this assertion. On June 10th, 1909, Fairbairn⁶ exhibited a specimen of primary chorion-epithelioma of the ovary before the Obstetrical and Gynaecological Section of the Royal Society of Medicine. A full report of this remarkable specimen, with reference to similar cases described by Döderlein and others, appeared in the Society's *Transactions* for July, 1909. Sections of this tumour showed the usual syncytial meshwork with masses of polyhedral cells derived from Langhans's layer. No decidua reaction was present in either tube or uterus, and there was nothing in the history of the case to suggest that the condition had supervened upon a previous pregnancy. Pick,⁷ also, has collected seven cases of primary ovarian tumour containing chorion-epitheliomatous elements; several of these neoplasms occurred in young girls before the age of puberty, and more than one contained teratomatous elements. Reference also should be made to the

cases of Kanthack⁸ and Eden and Schlagenhauser.⁹ These authors also mention the presence of plasmodial tissue in association with sarcomatous elements in the male testis. Schlagenhauser suggested as an explanation that the chorion-epithelioma-like tissue represented the trophoblast of an included ovum, the latter being now generally regarded as the source of ovarian teratoma and dermoid tumours.

Ritchie¹⁰ has described a dermoid containing plasmodium in the anterior mediastinum of a man, secondary nodules being present in the lungs, etc.

These cases prove that trophoblast may occur apart from pregnancy, and

can be used as arguments against the thesis that the specimen described is an example of ovarian gestation, in the absence of more conclusive data. On the other hand, it must be noted that in all the above cases syncytium did not occur alone. It was always associated with other elements; either the polyhedral cells of chorion-epithelioma, sarcomatous cells, or definite teratomatous elements. No specimen is recorded in which plasmodio-trophoblast is the only abnormal structure present. Furthermore, all the above-mentioned cases were associated with the development of a tumour. In no instance was operation performed for an acute condition, and none were associated with internal bleeding. Severe internal haemorrhage has for long been associated with the rupture of an extrauterine gestation, although recent cases have shown that other factors may be concerned in the production of this catastrophe.

Cuthbert Lockyer¹¹ recently recorded two cases of pelvic haematocoele of ovarian origin, and a third is described by Thomas Holmes¹² in the *BRITISH MEDICAL JOURNAL* of March 19th, 1910.

The present case would be included under this heading were it not for the presence of plasmodio-trophoblast,

Fig. 3.—Portion of tissue seen in Fig. 2 under $\frac{1}{2}$ objective. A, Plasmodio-trophoblast on surface of ovary; B, ditto; C, plasmodio-trophoblast occupying lumen of ruptured capillary; D, decidua-like stroma cell; E, ditto; F, blood clot; G, fibrinous and necrotic zone. (For description see text.)

which at once places it in a different category. The association of severe haemorrhage, with the presence of plasmodo-trophoblast and a recent corpus luteum, although cystic, and the absence of any tumour containing other chorion-epitheliomatous or teratomatous elements is strong evidence that the condition is one of ovarian gestation.

The pregnancy is apparently of extremely short duration, but in the absence of more exact data from the microscopical specimens the exact period can be only speculative. Little help is obtained from the menstrual history. During the first three months of her previous intrauterine pregnancy the patient menstruated regularly; and in the present instance there was no period of amenorrhoea previous to the illness terminating the gestation. In fact, the catamenia, normal in all respects, ended only six days before the onset of acute symptoms, and the patient was unaware that pregnancy had occurred. A very definite history regarding coitus was obtainable. The dates upon which coitus occurred were given as December 12th and 26th.

Teacher and Bryce,¹ following the observations of Birch-Hirschfeld,¹³ allow twenty-four hours as the interval between coitus and normal fertilization. If it is granted that the gestation terminated on December 31st, with the onset of acute symptoms, a choice between eighteen and four days is possible as an index to its duration. It is impossible to correct or amplify these figures by His's convention, because no menstrual period was missed. The presence of plasmodo-trophoblast with a comparison of other early cases points to eighteen days as being approximately correct. In Teacher and Bryce's early case

of ovarian pregnancy the duration is given as from twelve to fifteen days, and here definite chorionic villi with Langhans's cells and plasmodium are present.

In the earliest case of intrauterine pregnancy recorded—namely, fourteen and a half days (Teacher-Bryce ovum),¹ plasmodo-trophoblast and cyto-trophoblast are present, but no definite chorionic villi are seen. On the other hand, in the important ovum described by Eternod,¹⁴ the age being 18 to 19 days, the villi are well developed and measure 1.2 to 2 mm. in length.

In the specimen I describe villi are entirely absent, although the plasmodo-trophoblast is well developed. Of course, it is possible that the villi have been lost with the blastocyst in the mass of blood clot. It is surprising, however, that not a single villus was seen after complete section of the specimen in the presence of such well-developed trophoblast.

One is forced, therefore, to the following conclusions: Either (1) the chorionic villi have been completely lost in the course of operation; or (2) the ovum is of a very early age, and the epiblastic proliferation constituting the trophoblast has not been invaded by the fetal mesoblast in the production of chorionic villi.

In the absence of further data it is impossible to fix the duration of the pregnancy within exact limits.

The relation of the pregnancy to surrounding structures must next be considered. Norris² in his paper referred to the conditions formulated by Spiegelburg¹⁵ which must be fulfilled before a diagnosis of ovarian gestation is justified. He furthermore added the rider that the Fallopian tube on the affected side must be microscopically free from any evidence of pregnancy. The present case conforms to these revised requirements. The Fallopian tube is macroscopically and microscopically normal. The evidence of gestation occupies the ovary, and the portion of the organ containing the specific elements is connected to the uterus by the ovarian ligament.

It remains, finally, to consider the relation of lutein tissue to the trophoblast. The corpus luteum in this specimen is represented by the cystic body described above and illustrated in Fig. 4. The relationship of cystic corpora lutea to abnormal pregnancy, ectopic and otherwise, is interesting. The condition is now well

known and needs no further comment.

A point requiring emphasis, however, is that the wall of the cyst in this case is microscopically intact. The lutein cells are separated from the tissues containing trophoblast and extravasated blood by a narrow layer of normal ovarian stroma. This is bounded peripherally by the tortuous band of fibrous tissue and fibrin described above.

There is, in fact, no evidence of any previously existing connexion between the gestation elements and the follicle from which the ovum presumably is derived. The specimen, therefore, is in accordance with that described by

Hewetson and Jordan-Lloyd.¹⁶ It suggests the view that fertilization occurred on the surface of the ovary, and that the ovum, by virtue of its trophoblast, then burrowed into the gland.

As in other records, there is no decidual formation on the part of the corpus luteum. Reference has been made above to the possible decidual reaction of the ovarian stroma cells. A few of these large mononucleated cells are seen in the sections of this specimen, but their origin can only be speculative. It is upon the presence of decidual-like elements in the ovary that Webster¹⁷ has based his theory of Müllerian tissue being an essential factor for the development of a fertilized ovum. The uterus and Fallopian tubes are Müllerian in development, but the ovary is of Wolffian origin. Webster argues that ovarian pregnancy can only occur within an ovary the seat of Müllerian inclusion. Norris² very rightly points out that decidual-like tissue has been found on the posterior surface of the uterus, peritoneum of Douglas's pouch, and rectum in women dying during or shortly after labour. Unless more definite evidence is forthcoming, ovarian pregnancy appears to point to the fallacy of Webster's theory.

Fig. 4.—Section through wall of cyst shown in Fig. 1. A, Lutein cells; B, fibrous lining of cyst; C, hyaline contents of cyst; D, ovarian stroma cells. (For description see text.)

The etiology of the present case is obscure, as there is no degree of inflammation about the Fallopian tube to prevent the entrance of the fertilized ovum to its lumen. Possibly over-activity of the lutein body stimulated trophoblastic formation and burrowing of the ovum before the latter had succeeded in obtaining access to the ostium abdominale by the peritubal peritoneal currents.

In conclusion, my thanks are due to Mr. Lucas, Assistant Surgeon to the General Hospital Birmingham, for the specimen forming the subject of this paper; and to Dr. Thomas Wilson, Honorary Gynaecologist to the General Hospital, Birmingham, for kind assistance in the microscopical investigation of the same.

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NOTES ON

ONE THOUSAND CASES OF INSTRUMENTAL LABOUR, WITH FOUR DEATHS, IN A COLLIERY PRACTICE.*

BY

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THIS series of 1,000 instrumental labour cases might be termed consecutive if it were not for the fact that about twelve natural labours occurred amongst them.

They extend over a period of thirteen and a half years, and comprise the second series of 1,000 midwifery cases of which I have had experience. I had 4 deaths, giving a death-rate of 0.4 per cent.

In colliery practices we are only sent for when the midwife thinks that help is required. The rule I impose upon the midwives is: In the case of a primipara with dilated os and good pains, wait two hours. In the case of a multipara, wait at least one hour. The one great drawback to this method of practice is that of course all preventable or corrective midwifery is impossible.

My methods are the usual ones as now taught. I keep my nails cut short, I wash and scrub my hands thoroughly with hot water and soap, and then soak them in hot biniodide solution. All instruments are placed in boiling water and lysol. I prefer to have the posterior hair clipped and the pubic parts thoroughly disinfected. My midwifery bag contains everything that is necessary except a cranioclast and sterilizer.

I allow a reasonable time for expulsion of the placenta—say, twenty to thirty minutes—and I extract it by a combination of Credé's method and gentle traction. If I have any suspicion that a piece of membrane is left behind I always carefully search the interior of the uterus. I give plenty of chloroform upon an open mask. For years I always douched out the vagina and uterus with a Bozeman's tube and lysol, but I have almost abandoned it because I found it difficult to guarantee the aseptic condition of the instruments.

I have the bowels opened on the second or third day, preferring two or three teaspoonfuls of magnesium sulphate as an aperient taken upon the fasting stomach.

I encourage the patient to sit up in bed from the third day on, and after the first day allow the ordinary diet, of course in reason.

My four deaths in this series were as follows:

The first was due to concealed accidental haemorrhage; the pains were of an agonizing description, and when the os was dilated I gave chloroform and delivered. The placenta followed naturally, and then came two huge clots of different colours. The patient sank and died in about half an hour.

* Read at a meeting of the Monmouthshire Division of the British Medical Association.

The second death was a perforation case, when unfortunately I had no cranioclast handy, and I am afraid I used more force than was safe in extracting with the forceps. She developed peritonitis and died.

The third death was also a perforation case, when vomiting set in on the third day and continued until the patient's death on the ninth day. She had no rise of temperature, and apparently nothing the matter with the genital tract. There was total obstruction of the bowels, and what caused it I cannot surmise unless it were connected with the fact that she fell a couple of days before delivery.

The fourth death was also a perforation case. She apparently got all right, and came downstairs in due time and then caught influenza. She was getting the better of that when one day, as her husband was reading to her, she calmly announced that she was dying, and die she did. She was trying on old bonnets a minute or two before death. I suppose embolism must get the credit of that death.

Two of these deaths, I think, might have been avoided, so that it would be possible to do 1,000 cases of instrumental labour in a colliery practice with what I consider the low death-rate of 0.2 per cent.

Trouble arose through the chloroform in three cases. Two had some kind of epileptic fits, and one got pale in the face and stopped breathing; her tongue was pulled forward, when she ejected some fluid and recovered. I must confess these cases startled me considerably. I know of no preventive of rupture of the perineum save slow, careful delivery, and episiotomy. I always sew up each laceration carefully, doing it while the patient is under the influence of the chloroform, and before the expulsion of the placenta. I employ silkworm gut and a Hagedorn's needle. I generally do it in the lateral position. As years go on I get fewer ruptures. Of late years I have never failed, with one exception, to get a good sound union. Episiotomy I generally reserve for elderly primiparae.

On two occasions I had occasion to practise secondary suture of the perineum, with excellent results. I mean by secondary suture from the seventh day on, and I can strongly recommend it for those cases in which primary union has failed or suturing has been neglected.

I had two cases of complete rupture of the perineum; one I consider could have been avoided, the other was unavoidable. The first case healed up and stood the strain of two subsequent craniotomies; the other, I regret to say, required operation in a hospital.

Post-partum haemorrhage caused anxiety in some six cases, and in one serious anxiety. I always employ saline rectal injections after haemorrhage. I depend upon clearing out the uterus, compression, and hot intrauterine douche.

I had not one case of placenta praevia centralis. I had several of the lateral variety and no bad results. Injections of ergotine I have abandoned, as the tablets are often inert, and the bulbs smashed in the bag when most required.

Analysis of the 1,000 Cases.

Thirty craniotomies.

Two face presentation, both of the favourable type.

One brow, this demanded craniotomy.

Twelve transverse presentations; three of these occurred consecutively in the same patient.

One anencephalic monster, in which singularly enough the use of forceps was required. The head, or what represented the head, would not engage in the pelvis.

As regards instruments, I pin my faith to Nevill's axis-traction forceps, Auvard's cranioclast, Simpson's perforator, and a blunt hook with a good curve. I think that in the course of my midwifery career I have run the gauntlet of all the varieties of forceps, and I consider that the chief requisites are a proper fitting blade and one strong enough, everything else is merely secondary.

I do all my craniotomies myself. The majority of these were done in the persons of four patients, all with contracted pelvis.

Mrs. J. I confined her 10 times, with the results of 3 living children and 7 craniotomies.

Mrs. B. (her sister) 4 times—3 craniotomies and 1 living child.

Mrs. C., 10 times—4 living children and 6 craniotomies.

Mrs. P., 3 times—2 craniotomies and 1 living 7 months child.

If I were asked what I considered the most awkward operation in ordinary midwifery, I would answer, perforation and craniotomy of the after-coming head in a breech case with flat pelvis, and a large child having a short, fat neck.