AN ACCOUNT OF OBSTETRIC METHODS AT ST. MARY ABBOTS HOSPITAL, KENSINGTON

WITH A COMMENT ON MATERNAL MORTALITY

BY

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Early in 1933 a number of wards, skilfully reconditioned and adapted, were opened in St. Mary Abbots Hospital for obstetric and gynaecological patients. This scheme was due to the zeal and imagination of the late medical superintendent of the hospital, Dr. Remington Hobbs, who unfortunately died without seeing the fruition of his plans. The fine gynaecological ward has been named after him, and his memory will be kept green.

The Arrangement of the Unit

As an experiment, and with the full concurrence of the medical superintendent, Mr. J. Carver, I was given entire professional control of the unit, and the purpose of this paper is to record the main results obtained in the maternity wards, and to draw certain conclusions from them. The delivery and lying-in wards for thirty-six patients are situated on the top floor. On the second floor there is an ante-natal ward containing fourteen beds. The gynaecological ward of twenty beds is on the ground floor, as is the "suspect" lying-in ward. All patients who have received ante-natal care, at whatever centre, are admitted straight to the top floor for confinement. All cases which have been tampered with outside, all B.B.A.'s, and all women with a heavy vaginal discharge, are confined to the ground floor and nursed in the "suspect" ward. Patients who have received no ante-natal care are admitted in the first instance to a side ward on the ground floor, and if found clean are transferred immediately to the top floor for confinement. Every patient admitted to the "suspect" ward is given an injection of 20 c.cm. of anti-streptococcal serum on the evening of delivery, and a further 20 c.cm. the next morning.

The rules and regulations governing the admission of patients and the minutiae of treatment to be carried out by the nursing staff are written in a ward book, and it is hoped that they will shortly be published. Reference will only be made here to those considered the more important. On admission, every patient commencing labour is given castor oil 3ij, which is followed by an enema some four hours later. A further enema is given towards the end of the second stage. Each patient is completely shaved, the razor being kept in pure lysol and an adequate supply of new blades assured. The breasts are thoroughly washed with soap and water, special attention being paid to the nipples, and then freely rinsed with a 1 in 1,000 solution of biniodide of mercury. After the breasts are dried the nipples are hardened with spirit. This treatment of the breasts is carried out as often as is convenient before delivery occurs.

The Ante-natal Ward

The ante-natal clinics are conducted by Miss P. N. Hooper, assisted by one or other of the resident medical officers. It has not been possible, mainly owing to expense, to put the patients on milk and cod-liver oil. All cases of contracted pelvis are brought up for a thorough examination in the hospital. All patients whose systolic blood pressure exceeds 140 mm. Hg, all cases

of albuminuria, and all other "toxaemic" or ill patients, are admitted to the ante-natal ward.

Here I would stress the point that the best results from ante-natal care can only be obtained if an adequate number of ante-natal beds are available. In this respect the unit is most fortunate. During the year some eighty patients were admitted to this ward because of toxaemic symptoms, not only from the ante-natal clinic but also from outside sources. The most interesting feature of these cases was the large number of patients suffering from hyperpiesis (the diastolic pressure often exceeding 100 mm. Hg) who never developed albuminuria. They will be reported elsewhere. Here it suffices to say that all these patients were kept all the time on a full hospital diet, including eggs, bacon, and fish, but excluding meat. They were given in addition vitamins A, B, and D; iron; thyroid extract by mouth; and calcium gluconate by intramuscular injection. Induction of labour was never considered, and all the mothers save three went out with living infants.

One, a young primigravida, was a clear case of chronic nephritis, and her premature infant died during the first week of its life. One infant was lost because it presented as a breech and died during delivery, while the third was stillborn through torsion of the cord. In any case the mother of the last child had a normal blood pressure, and there was no albumin in her urine.

The Labour Ward

The nurses when conducting a confinement wear a mackintosh apron which is carbolized between each case. They do not wear masks or gowns. In my opinion the theoretical evidence in favour of droplet infection is unconvincing, and it is certain that the hospitals which have consistently produced the best results offer it no support. The vulva is a small area, and for practical purposes it may be assumed that the organisms responsible for puerperal infection gain access through this narrow portal. If the vulva is kept antiseptic during the second stage of labour and during delivery infection cannot and does not occur. Antisepsis, not asepsis, is the key to safe midwifery.

The antiseptic employed is a 1 in 1,000 aqueous solution of biniodide of mercury. A pair of tongue forceps is kept in a jar of lysol (the handles protruding) by the side of the patient. During the whole course of labour the nurse keeps the vulva not only clean, but antiseptic, by means of swabs taken out of the biniodide solution and held in forceps. My teacher, Dr. Gibbon FitzGibbon, has estimated that each delivery requires a gallon of biniodide solution. This figure is considerably exceeded in this unit.

Management of the Delivery

During delivery no sterile sheets, stockings, or towels are used. The vulva is cleaned with swabs out of biniodide solution from before backwards after every pain, the swabs being held in a pair of sterile forceps. In between the pains the midwife stands with both gloved hands immersed in biniodide solution. When the head is crowned, and not before, she places three fingers on the head to prevent it being born with a rush. At no time during the delivery should the fingers of the attendant touch the vulva or perineum of the patient. This method, which I have described as the "modified Garden of Eden" method of delivery, is perfectly safe. The child's eyes are cleaned with swabs out of biniodide of mercury. The fundus of the uterus is not controlled during the third stage, for it can be seen. Leaving the fundus of the uterus severely alone does not lead to, but prevents, post-partum haemorrhage. Two drachms of the liquid extract of ergot are given as soon after the placenta is delivered as possible.

Sterilization of Gloves

Each pupil midwife has a pair of well-fitting rubber gloves, which she keeps in a tin labelled with her name. After washing her hands and rinsing them in biniodide solution she dries them on a clean towel. Before putting the gloves on she tests them to see that they are not punctured. After they are on she scrubs them under running water with soap, using a nail-brush. The gloved hands are soaked and rubbed together in the biniodide solution before a vaginal examination is made. After the vaginal examination the nurse washes the gloves and proceeds to make a rectal examination. She thus learns that she can find out almost as much by rectal as by vaginal examination.

There can be few who would contradict any of the three following assertions: (1) vaginal examinations are completely unnecessary during the course of a normal labour; (2) most surgeons are less willing to perform Caesarean section after one or more vaginal examinations have been made; (3) a vaginal examination made by the average midwife in private practice is a very different thing from a vaginal examination made under supervision in hospital. It is therefore astonishing that midwives are still not only allowed but compelled to make vaginal examinations during their training. Here is one source of mortality which could easily be eliminated.

The rectal examination made, the nurse holds the soiled finger under a stream of water until the gross soil is removed, and then proceeds to scrub her gloved hands in the manner described, soaks them in biniodide, powders them, and takes them off. The sterile outside of each glove becomes the inside on the next occasion they are used. After again testing them for punctures the gloves are replaced in the tin. The insistence on invariably using the nail-brush is because vernix caseosa and blood cannot be removed without its aid. Two gloves are always worn when making a rectal examination.

This method of sterilizing gloves, described by Theobald and Bigger,² has been successfully used in many institutions in different parts of the world. Apart from the value of the method in obstetric practice the saving on glove expenditure in a large hospital is very considerable. Colebrook³ has confirmed our findings. The gloves can not only be made absolutely sterile, but definitely antiseptic. Oxley does not use rubber gloves, and I agree with him that they are not essential for normal midwifery, providing it can be guaranteed that all the patients are clean. Halsted introduced gloves for the protection of the sister who afterwards became his wife. I do not know whether many patients at the East End Maternity Hospital suffer from acute venereal disease or gross vaginal discharge, but I am convinced that gloves are essential, primarily to protect the midwife, and secondarily to protect subsequent patients.

The Conduct of a Difficult Case

The following two truths may be enunciated: (1) A low forceps rate is dependent more on the conduct of the first stage of labour than on anything which can be done during the second stage. (2) Other things being equal, the longer a woman remains in labour the greater her chance of becoming infected. In my opinion the secret of a normal issue in difficult cases is dependent on the judicious use of morphine, scopolamine, and quinine. Each patient starting labour at night is given an injection of morphine sulphate grain 1/4, and scopolamine hydrobromide grain 1/100. If when she awakens in the morning the pains are poor, quinine hydrochloride grains 10 is given by mouth. The quinine may be repeated if neces-

sary in three hours. In some cases quinine hydrochloride grains 5 given three-hourly changes moderate into good "pains."

It is a common fallacy to regard the action of quinine as antagonistic to that of scopolamine. Slow dilatation of the cervix is due to inhibitory stimuli from the brain. These are cut off by the scopolamine, while the quinine augments the force of the uterine contractions. Quinine diminishes the anxiety associated with primary uterine inertia, but should not be given until the head is engaged unless the obstetrician is certain that it can pass through the pelvis. Quinine can and has caused rupture of the uterus. There can be little doubt that the value of this drug in toning up the uterus during the last few weeks of pregnancy and in increasing the force of the uterine contractions during labour is not fully realized in this country.

Conduct of the Puerperium

Each patient is given castor oil 3ij on the morning after delivery and a purgative on each subsequent night that she spends in hospital. She is encouraged to sit bolt upright in bed at frequent intervals, and is not hampered by any binder. The perineal toilet is made in the following manner.

The nurse wears gloves, but holds all the swabs she uses in a pair of tongue forceps. The patient is placed, suitably draped, on a douche pan. The soil is washed away with swabs out of weak lysol (half a drachm to the pint). A jug of biniodide solution is then poured over the vulva. The thighs and buttocks are dried, and the dry sterile pad is placed on the "wet" vulva. Particular attention is devoted to the bedpans. Each pan is flushed after use. The rim is then swabbed with pure lysol. The pan is subsequently immersed in a strong solution of lysol for at least ten minutes before it is again used. Silver catheters are employed exclusively, no rubber one being allowed in the wards.

Every patient is given potassium citrate until the urine becomes alkaline, and it is kept alkaline for some days. I have long been convinced that infection of the urinary tract usually precedes or is causally associated with puerperal infection. In any case the *Bacillus coli* can be cultured from the urines of from 10 to 20 per cent. of all puerperal patients. It is my belief that purgation and rendering the urine alkaline are two of the most important measures which can be adopted to prevent morbidity.

Attention has already been drawn to the treatment of the breasts on admission. Before and after each feed the nipples are washed with boric solution and subsequently with glycerin and borax. The swabs used for this purpose are held in a pair of sterile forceps. If the nipple is cracked it is treated at frequent intervals with spirit. Towels, somewhat similar to those used for circumcision, are daily provided for each patient. The nipple, after being cleaned, protrudes through the hole in the towel, and is thereby prevented from being contaminated by the blankets and nightdress. Further, great care is taken to see that the nails of the patients are kept short and clean. Each mother washes her hands and soaks them in biniodide before feeding her infant.

I maintain that a temperature of 98.4° F. during the puerperium is pathological, particularly if it occurs in the morning. More than 90 per cent. of the patients never recorded a temperature of 98.4° during their stay in hospital. Morbidity is the true index of the standard of work in a maternity hospital, and the attainment of a low morbidity rate demands the utmost vigilance, attention to detail, and something of the powers of a detective on the part of the obstetrician in charge.

Anti-streptococcal Serum*

It has already been stated that every patient delivered on the ground floor and nursed in the suspect ward was given an injection of 40 c.cm. of anti-streptococcal serum. In 1926 I reported that seventy-six consecutive cases admitted to the Leeds Maternity Hospital, after gross interference outside, were given this amount of serum, and of this number four patients died and fifty-seven had a normal puerperium. Since then I have regularly employed it in all contaminated cases. The extraordinarily low morbidity rate obtained in the suspect ward, which for many reasons was extremely difficult to run, confirms the view that the prophylactic use of anti-streptococcal serum is of immense value.

Abortion and Miscarriages

It is only because I believe that the late Dr. Remington Hobbs would wish truth to take precedence of sentiment that I venture to make the following remarks about the glycerin treatment. In his day this treatment was given to every woman after confinement, and I can only conclude that it in some measure contributed to the high morbidity rates he recorded. No maternity patient has been given glycerin during the last twelve months and only four simple intrauterine douches with weak lysol, followed by flavine 1 in 500, have been given.

I hesitated to stop this treatment for abortion and miscarriage, and was open to be convinced of its efficacy. A large number of patients are admitted to the gynaecological ward in whom abortion or miscarriage is inevitable. The vast majority of them are single women, and in nearly every case the abortion is due to criminal interference. Some women take drugs for which they pay an extortionate price. Others douche themselves with soap-water or lysol, and most succeed in introducing the nozzle into the cervical canal; while still others favour the use of sticks of slippery elm, which they introduce into the cervix. Still others pay large sums of money to doctors, midwives, and abortionmongers, and the latest method in vogue is to introduce a "lamp" into the vagina! Many of the patients were admitted with a high temperature. Now the glycerin treatment of such a patient is laborious, costly, and of long duration. The temperature often remains high for days, and even rises some days after the treatment is begun. Further, the placenta does not always come away. Glycerin is not irritant, neither is it definitely antiseptic, while its hygroscopic action is too weak to have any effect on the tissues. We have therefore gone back to the old-fashioned treatment. Every patient admitted with bleeding is examined per vaginam. If abortion is inevitable the uterus is emptied with the gloved finger with or without an anaesthetic. The uterus is not douched for fear of carrying the infection into the Fallopian tubes. Each patient is given 40 c.cm. of anti-streptococcal serum. The results obtained by this treatment are summarized as follows. Of 113 patients admitted between January and September of this year only one died. She was admitted moribund and in extreme pain, and died a few hours later. In the majority of cases the temperature fell as soon as the uterus was emptied, and the average stay in hospital was short.

Only one patient was drained. Two or three hours after the placenta had been removed from the cervical canal, without an anaesthetic, Dr. Craig decided that she had pus in the abdominal cavity. A small incision was made in the abdomen, through which a drainage tube was inserted. It is of interest to note that this was one of the few patients who had not attempted to terminate the pregnancy whether *per alia* or *per se*.

* Streptococcus antitoxin (concentrated), Scarlatina. L.C.C. Belmont Laboratories.

There can therefore be no doubt that the best method of treating cases of inevitable abortion which do not terminate spontaneously is to empty the uterus, using the finger and eschewing the curette and the douche. There can also be little doubt that the prophylactic use of anti-streptococcal serum is of great value, for convalescence was not as a rule complicated by pyrexia.

Maternal Mortality

During the first twelve months of this arrangement 846 patients were delivered of 856 babies, 393 of the women being primigravidae and 453 multigravidae. Of this number 746 were delivered on the top floor and 100 in the suspect ward. Of the patients delivered in the hospital four died.

CASE RECORDS

The first patient, a 2-gravida, was a case of "failed forceps," admitted from outside and with a badly ruptured uterus. She survived hysterectomy, performed the same day (but after the onset of peritonitis), six weeks, and then died from toxic absorption.

The second case was that of an ante-natal patient who died from eclampsia. She only paid three visits to the ante-natal clinic, the last being fourteen days before her death. At that visit nothing abnormal was discovered. Three days later she apparently fell ill, complained of headache and severe abdominal pain, and sent for her doctor. She did not come to the hospital until ten days later, during the whole of which time she had been ill. Shortly after admission she had a fit, and within two hours of this convulsion died, undelivered. The liver showed the classical lesions, and the right ventricle of the brain was occupied by a large haemorrhage.

The third patient died of circulatory failure. She was a 3-gravida, 32 years of age. Early in pregnancy she had a severe attack of pleurisy. She was repeatedly urged to come into the ante-natal ward, but refused, and insisted on remaining under the care of her own doctor. On admission oedema extended from the feet to the umbilicus. She was cyanosed and dyspnoeic. Labour was very short and easy, and her condition appeared to improve during the subsequent three days. Marked oedema of the right leg then developed; the urine contained albumin 0.9 per cent.; mental symptoms supervened; and she died on the twelfth day after delivery, her temperature having remained normal. This patient ought to have been sterilized after her last confinement, but there can be little doubt that pregnancy merely hastened the inevitable by a few months at the most.

The fourth patient was a primigravida 28 years of age. The pelvis was large; nevertheless the foetus died *in utero* a few hours after the rupture of the membranes. Later a well-marked contraction ring could be seen through the abdominal wall, just below the umbilicus. Under an anaesthetic the cervix was found to be fully dilatable, but the hand could not be passed above the contraction ring. Both arms were extended, and the cord was twisted twice round the neck. Two ampoules of amyl nitrite were broken under a mask and delivery effected, much difficulty being experienced with the shoulders. The blood pressure fell incontinently after the amyl nitrite had been given, and remained at an extremely low level, in spite of all treatment, until death occurred within two hours after delivery.

Maternal Morbidity

Of the 846 patients only fifteen were morbid as judged by the B.M.A. standard.⁴ Seeing that this standard is no less abused than used its definition will be given:

"The table of puerperal morbidity should include all fatal cases and also all cases in which the temperature reaches 100° F. on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery."

It is, moreover, demanded that the temperature be taken in the mouth, and that the thermometer be left in the mouth for four minutes. In this unit half-minute thermometers were employed and kept in the mouth for three minutes. Further, four-hourly temperature charts were kept for each patient, so that no morbidity escaped unnoticed.

Of these fourteen patients no fewer than seven were admitted with pyrexia. The case of ruptured uterus has been mentioned: the six others had booked for the maternity wards of other hospitals. Two patients were admitted with lobar pneumonia, in one case complicated by otitis media; one had acute pulmonary tuberculosis; one was a case of influenza and bacilluria; one had acute venereal infection of the vulva; and the sixth had severe haematuria, albuminuria, and pyuria, possibly due to drugs taken with a view to terminating the pregnancy. If these seven cases and the other three deaths be excluded it will be seen that of 836 cases only five were morbid. In one case the temperature was definitely due to an influenzal cold, and in another to a right pleural effusion, which occurred on the seventh day of the puerperium, and was almost certainly tuberculous.

Operative Intervention

Induction of Labour.—The uterus was emptied early in pregnancy on two occasions, once for old-standing and severe chorea, and once for active tuberculosis with rapidly extending lupus. The membranes were ruptured at term on three occasions, twice because of changing presentation associated with pendulous belly and a slight excess of liquor amnii, and once in a multigravida whose first baby was born dead, as the simplest means of avoiding post-maturity. Quinine was given on many occasions to induce labour at term to prevent post-maturity and bed wastage. On no occasion was induction of labour carried out as a therapeutic measure because of either contracted pelvis or toxæmic symptoms.

Caesarean Section.—Caesarean section was performed once for central placenta praevia in a primigravida, aged 34, whose baby weighed over 8 lb.

The Forceps.—The forceps were applied on twenty-nine occasions, twenty-two of the patients being primigravidae and seven multigravidae. In nearly every case the head was at the outlet before the forceps were applied. Two infants were born dead, and two died on the fourth day from intracranial haemorrhage. The forceps rate was therefore under 3.5 per cent., but nevertheless, in my opinion, too high.

Infant Mortality

The fact that over 800 confinements were conducted without recourse either to Caesarean section or to the induction of premature labour for contracted pelvis makes it necessary to prove that the conservative treatment was not associated with a high foetal mortality.

DETAILS OF CASES

Sixty-one babies were either born dead or died in the hospital. Of this number, twenty-six were of thirty weeks' gestation or under (no fewer than twenty-four being admitted as emergencies); fourteen were dead on admission, eight being macerated; one premature infant was stillborn, and five others died in hospital; one hydrocephalic skull was perforated; and one microcephalic infant died from atelectasis. This leaves thirteen cases to be accounted for. One was a breech; two babies were lost through torsion of the cord. Three infants with normal vertex presentations were born dead after easy labours, and post-mortem examinations did not reveal the causes of death: one infant weighed 13½ lb.; the head was born normally, but delay occurred with the shoulders. An infant with a face presentation was lost because one arm was in the posterior nuchal position, and the cord was not only round the neck, but also round the trunk, where it was tightly clutched in the infant's hand. One primigravida had an extremely pendulous abdomen, and was mentally deficient. She refused to wear a binder or do as she was told. Somewhat late in labour I decided to perform internal version, but difficulty with the anaesthetic at a crucial point in the operation resulted in death of the infant before the version was completed. Subsequent delivery of the breech was not difficult. Two infants died from cerebral haemorrhage four days after delivery with the forceps.

Two infants delivered with the forceps were stillborn; in one case the woman had already had two living babies, and the difficulty was probably to do with the shoulders; the other was a case of primary uterine inertia. The forceps were applied many hours too late. The head was well down in the pelvis from the commencement of labour. The foetus of the patient who had a contraction ring died *in utero*.

Thus, of sixty-eight stillbirths and neo-natal deaths, twenty-six occurred in pregnancies of thirty weeks or under (most foetuses weighing about a pound); fourteen were dead on admission; one was hydrocephalic and another microcephalic; and six were markedly premature (three being twins). A careful review of the remaining thirteen cases does not reveal any case where the death of the foetus was due to lack of operative intervention.

A considerable number of cases of contracted pelvis were, however, delivered normally. One patient—whose external measurements were interspinous 9½ in., intercrystal 10½ in., and external conjugate 6 in.—delivered herself normally of a female child weighing 6 lb.; while two patients who had previously been subjected to Caesarean section because of contracted pelvis were allowed to go to term. The one delivered herself spontaneously, and the other was delivered with the forceps.

During the year thirteen infants were delivered in the occipito-posterior position, three of the mothers being primigravidae and ten multigravidae. In only one case—that of a primigravida, was the application of the forceps necessary. The largest baby to be born spontaneously in this position weighed 9 lb. 12 oz., and more than half the number weighed over 7 lb.

Manœuvre for Estimating Whether Head will Pass Through Pelvis

I do not believe in the trial of labour, because I am convinced that it is possible to decide at the thirty-sixth or the thirty-eighth week of pregnancy whether the head will be able to pass through the pelvis or not. It may be necessary to put the patient under an anaesthetic, but this was not found necessary in any of these cases. There would appear to be no doubt that the commonest source of error in making this estimation is to be attributed to the anteriorly projecting promontory of the sacrum.

The external measurements may be small. The head feels very large and hard, rides in front of the pubic bone, and cannot be pushed into the pelvic inlet. The patient is placed in the lithotomy position. Two or more fingers of the right hand are introduced into the vagina, while the left hand grasps the head by a reversed Pawlik's grip. The assistant sinks both hands behind the fundus of the uterus and lifts it forwards.

By this manœuvre, which I have not seen described elsewhere, the head can be pushed into the pelvic inlet. If the assistant merely pushes the fundus downwards the head overrides the pubic bone. It is for this reason that a binder during labour, advocated by some writers, is strongly contraindicated. Instead, the woman should sit up or adopt any convenient attitude which allows the fundus to fall forwards. In this type of case the head tends to remain well above the pelvic inlet until the cervix is at least half dilated, and until after the rupture of the membranes. It follows that in such a case a "trial of labour" is useless unless the attendant waits until an hour or two after the rupture of the membranes. I think, too, that the width of the pubic bone gives some help in estimating the difficulty of any given labour.

Comment and Discussion

I have reported what I believe to be the lowest morbidity rate that has been published by any maternity unit or hospital in the country, and have shown that

over 800 consecutive confinements could be conducted without resorting either to induction of labour or to Caesarean section in the treatment of contracted pelvis or of the toxæmias of pregnancy. The forceps rate, which I admit as being too high, was under 3.5 per cent. An analysis of the stillbirths and neo-natal deaths compares very favourably with those of other institutions whose reports I have studied. It can, moreover, be fairly claimed that the material was of more than average difficulty. A very high proportion of the patients were unmarried, and many of them tried to hide themselves during pregnancy and received no ante-natal care. Many were sent in as emergencies, and not a few who were booked for other institutions were sent to this hospital.

The peculiar problems associated with the management of an obstetric unit are not fully appreciated by practitioners of other branches of medicine. That obstetrics is a subject which deals entirely with emergencies is forgotten. The very fact that 90 per cent. of all cases can be dealt with by midwives merely makes the art of dealing with the abnormal cases more difficult to acquire, while the constant stream of normal cases is apt to put the obstetrician off his guard. Whitridge Williams laid it down that a man could not obtain an adequate training in obstetrics unless he resided for at least three years in a maternity hospital, where he assumed he would have the opportunity of expert guidance and instruction by day and by night. Jellett, in his book *Maternal Mortality*, stresses the same point.

There is another aspect of the question. Of recent years more than a thousand ante-natal clinics have been opened in England and Wales, and Browne⁵ estimates that at least 80 per cent. of all pregnant women receive ante-natal care. More than 7,000 beds are devoted to maternity cases, many "consultants" and "specialists" have been appointed, and millions of pounds have been expended. Sensible changes in clothing, various Factory and Shop Closing Acts, and the increasing pursuit of open-air exercise have contributed to improve the physique and health, if not the stamina, of the women throughout the country. Thanks to the work of Mellanby, serious rickets is yearly becoming rarer, and is hardly encountered in the South of England. In spite of all these factors the maternal mortality rate for 1933 was the highest for many years. Even the mortality rate from the toxæmias of pregnancy shows no decline, while the ratio of stillbirths to live births is not decreasing. Browne (1934) has quoted figures which suggest that the mortality rate from eclampsia shows a slight improvement in the years 1931 and 1932. Reference to the *Manual of the International List of Causes of Death*, however, reveals that a transference of causes of death in the toxæmic group was made from one heading to another, and this change first appeared in the statistical reports in 1931. The heading "Puerperal albuminuria and convulsions" does not include the same certified causes of death as in previous years, and it is therefore necessary, in order to obtain comparable rates, to add the mortality rates from "Puerperal albuminuria and convulsions" to those for "Other toxæmias of pregnancy."* It will then be seen that the mortality rate from the toxæmias of pregnancy was higher in 1932 than in 1921.

Unless my view is correct,⁶ that the toxæmias of pregnancy are deficiency diseases and may be prevented by seeing that each woman takes at least a pint of milk, a dessertspoonful of cod-liver-oil, and vitamin B in some form or other throughout pregnancy, and is given an injection of calcium gluconate at the thirty-sixth and

thirty-eighth weeks of pregnancy, then there is no evidence that the mortality rate from this cause can be affected by ante-natal care as at present organized. Nobody can deny that ante-natal care is in itself ideal and proper, particularly if it is supported by an adequate number of ante-natal beds. Neither can anybody deny that the results obtained by the Rotunda Hospital, the East End Maternity Hospital, the Queen's Jubilee Nurses, and other institutions, prove conclusively that no change in the habits and customs of the woman is responsible for the increased maternal mortality. The argument that the higher proportion of primigravidae confined is responsible for the worsening results is for the same and other reasons unconvincing. The logical conclusion of the whole matter is that the increased mortality is due to increased operative intervention.

I would submit that there are two fundamental questions which require answer from the obstetricians and medical statesmen: (1) Is it true that unnecessary operative intervention inevitably leads to increased morbidity and mortality? (2) Is it true that an individual cannot acquire a sound conservative knowledge of obstetrics unless he resides for at least three years in a large maternity hospital under expert guidance? If these two questions be answered in the affirmative then it follows that the more money spent, the more ante-natal clinics opened, the more maternity beds provided, the more "consultants" and "specialists" appointed, the more certainly will the mortality rate from childbirth exceed five per thousand in 1944.

Summary

1. Over 800 patients were confined without resorting either to Caesarean section or to induction of labour in the treatment of contracted pelvis or of the toxæmias of pregnancy. Twelve out of thirteen infants were born spontaneously with the occiput in the posterior position. The forceps rate was under 3.5 per cent.

2. The morbidity rate was, it is believed, the lowest recorded by any hospital in this country.

3. The methods used in the labour ward can be carried out in any tenement dwelling in the country, no sterile gowns, towels, masks, or stockings being required.

4. A manoeuvre for estimating whether a head can pass through the pelvis is described.

5. It is suggested that rendering the urine alkaline during the puerperium by administering potassium citrate is of importance in preventing morbidity.

6. A technique for preventing mastitis and breast abscess is given.

7. The value of the prophylactic use of anti-streptococcal serum is stressed.

8. It is suggested that the maternal mortality would be lessened if midwives were not allowed to make vaginal examinations.

9. It is further suggested that the increasing maternal mortality rate must be attributed to increased operative intervention. If the present policies are continued a still further increase may be anticipated during this decade.

In conclusion, I desire to record my appreciation of the cordial co-operation afforded by the medical superintendent, Mr. J. Carver, and I should like also to thank his deputy, Dr. N. S. Craig. I am indebted to Miss P. N. Hooper and Miss E. M. Carless, who have done most of the hard work. Last, but not least, my warmest thanks are due to the sisters and nursing staff, and, in particular, the senior sister, Miss G. Williams.

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- ⁶ Theobald, G. W.: *British Medical Journal*, 1933, ii, 376.

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