An Address

ON

MATERNAL MORTALITY.*

BY

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THE problems in the causation of maternal mortality have been so much before the profession and public that I feel I have little to contribute that is new except the results of my own experience. We are all trying to find an explanation for the stationary, if not increasing, maternal death rate, and we are to some extent groping in the dark. I shall limit myself more or less to the obstetrical rather than the administrative aspect of the problem.

Two recent publications have appeared and have given us much material for discussion—Dr. Kinloch's report (Scottish Board of Health, 1929) on the maternal death rate in Aberdeen, and the Government report of the Midwives Committee.¹ We are awaiting with much interest the Government report of the Committee on Maternal Mortality.

On page 7 of the report on midwives the following statement appears: "In spite of all efforts to lessen the death rate amongst women in childbirth, the position is now little better in this respect than it was twenty years ago." This committee has endeavoured by its suggestions to fit the midwife into a scheme on a broad and national basis for the reduction of maternal mortality. We can never be Utopian enough to hope to eliminate deaths from childbirth, but we can reduce them considerably. This is the faith of all of those who are concerned with maternal welfare. If over 27,000 women lost their lives in England and Wales in the last ten years because of pregnancy or childbirth, we cannot but feel that some of these deaths were due to inadequate treatment of the patient. We must be muddling our prevention somewhere. It is not only the death rate we are concerned with, but the enormous amount of ill-health among women which is due to unskilled handling during pregnancy and childbirth. The morbidity alone should be a reason for energetic research. Some day gynaecological beds will diminish in numbers as maternity beds increase. If the maternal death rate has not decreased in the present century what are the outstanding factors to be considered in the changes which have taken place in midwifery practice? These are mainly the increase in the institutional treatment of patients, the establishment of ante-natal clinics, the introduction of panel practice, and the training of midwives.

Institutional Treatment.

The increase in the number of maternity beds throughout the country, especially since the war, has been a marked feature of the present century. There is a great demand for a further increase because of the difficulties of housing.

Dr. Kinloch's report—the result of the most careful research and courageous conclusions on the part of him and his staff, which includes Dr. Steven—is sad reading. In Scotland the maternal death rate in 1928 was 7 per 1,000, and sepsis accounted for 2.4 per 1,000 of these patients. During the preceding ten years the rate was 6.4. An analysis of the sources of the deaths in the Aberdeen area shows that in the practice of midwives the deaths were 2.8 per 1,000, among practitioners 6.9, while in institutions the death rate was 14.9.

If such a result of hospital treatment applies to other maternity institutions we would all feel it was time for us to dispense with the segregation of obstetrical patients and have them treated in their own homes, preferably by midwives only. But this is not the general mortality rate of hospitals, and presently I will show a less gloomy result from the Royal Free Hospital. It may be a good thing to make the worst of it in order to make the best of it. We must, however, have made some progress in hospital practice in all the years we have struggled to conform to

the best surgical methods of cleanliness and asepsis. It may be, perhaps, that surgery has been more of a danger than a blessing, especially if practised by inexperienced obstetricians. In the past no doubt many maternal deaths from puerperal sepsis were not registered as being due to childbirth. Now these deaths are being properly investigated, as in the year 1928 in Aberdeen. The mortality rate may even be increased all over the country because of more efficient registration. There must be less sepsis than in the days when a friendly neighbour supervised the confinement and a doctor was called in who had little knowledge of the researches of Lister or Pasteur. Civilization no doubt increases the risks of parturition. Mental development, we are told, means increase in the size of heads while no corresponding increase in pelvic measurements has been observed. This may in time tend to increase disproportion.

Dr. Kinloch explains the cause of sepsis as due to contagion in hospitals and to carriers in the medical profession. The midwife, because of her special work and strict regulations, is less likely to be a carrier. He considers more cubic space should be given to patients in hospitals and fewer numbers admitted. His report is very encouraging with regard to ante-natal care. Dr. Kinloch is of the opinion that 90 per cent. of the cases of puerperal sepsis are due to the haemolytic streptococcus, and that early notification and treatment will prove of great value.

Dr. Jellett, in his recent book on the *Cause and Prevention of Maternal Mortality* (Churchill, 1929), writes from New Zealand and gives many explanations of the problem. He states that in the Rotunda Hospital, Dublin, during the five years preceding 1898, the death rate was 3.1 per 1,000. He states that, while asepsis was unknown, intervention during labour was limited. At present intervention is frequent and asepsis occasional. In the future it will be necessary to avoid intervention as far as is possible, and asepsis must be positive. He considers knowledge, skill, and suitable environment to be essential.

In the obstetrical unit in the Royal Free Hospital the maternal death rate for the last eight years is 2.7 per 1,000. The chief causes of death are obstetric shock, including haemorrhage (10 cases), and sepsis (6 cases; all of which were operative cases). Toxaemia was accountable for 4 cases, embolus for 2, broncho-pneumonia for 1, heart disease for 1, and acute suppurative appendix for 1.

The value of ante-natal care is proved by the small number of cases of accidental or toxæmic haemorrhage which now occur in hospital practice.

Sepsis and its Prevention.

It is essential, when possible, that all cases of sepsis should be treated in the isolation wards of maternity hospitals. Much valuable experience is gained by the obstetrical staff in the treatment of sepsis, and students are more easily impressed with the necessity for preventive measures against sepsis when they see the results of its attacks.

The avoidance of contagion is essential. Attendants should not suffer from carious teeth or septic tonsils. But the most common source of infection is the patient herself. Precautions against sepsis are taken in every case, and yet a normal patient dies, and another, after a serious intervention, has an afebrile puerperium. A parallel example is found in deaths from the stings of insects.

Attention to general health during pregnancy will help to prevent sepsis, especially if carious teeth and any other focus of infection are treated. Coitus is a not infrequent source of infection, and should not take place within two months of term.

The vaginal bacillus of Döderlein, when present, is an important factor in preventing sepsis. If this bacillus is absent, or if pathological germs are present in the ante-natal period, vaginal pessaries of 1 per cent. lactic acid encourage the growth of Döderlein's bacillus.

On admission to hospital a patient ought to be cleansed in a special receiving room. Dr. Jellett strongly deprecates the use of the sitting bath, as it conveys sepsis to the vulva and vagina. The patients, when washed, should be shaved, and the vulva washed and disinfected with biniodide or other solutions. Swabbing out of the vagina or douching is not necessary and is dangerous, even in

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operative cases, unless a definite septic condition is present. An electric hair drier is a great convenience in a receiving room.

As to antiseptics in labour, they all have their day. Acroflavine is the one I prefer, but biniodide is hard to beat. "Blue paint" has its followers, but an antiseptic which stains the linen and remains on the skin until after the patient returns home does not appeal to the aesthetic sense of most women.

Nurses or assistants should not scrub their hands with brushes and strong antiseptics. Abrasions and cracks of the skin are the result, and these may become septic, especially in winter time. Swabs of wool in ethereal soap solution are the best means of cleansing the hands or the vulva of the patients; this is followed by biniodide alcohol solution. Gloves should be dry when ready to wear. Dr. Lachlan Grant has pointed out the advantages in domestic practice of washing in water running from a tap.

Vaginal examinations should be quite unnecessary in normal cases which have had ante-natal supervision and where abdominal methods of diagnosis are efficient. Vaginal examinations are a source of sepsis, and are only required when other methods of diagnosis have failed or where some emergency, like sudden failure of the foetal heart, suggests prolapse of the cord. If an examination is made as a routine, it is safer before the membranes rupture, although prolapse of the cord occurs after rupture. It has always seemed to me a pity that vaginal examinations should be insisted upon in the training of pupil midwives. The rules were made before ante-natal examinations came into use. I am glad to see, on page 92 of the Midwives Report, that there is a suggestion for the modification of this rule. Students should be taught to make their diagnosis of a presentation before labour begins, if possible. The position, fixation, and descent of the head can be ascertained in the average case by external palpation. In the unit labour wards of the Royal Free Hospital a student may only make a vaginal examination in the presence of a member of the staff, and the time and the result must be carefully recorded in the case sheet. As few examinations as possible are made, and in some cases they are omitted entirely.

Rectal Examination.—Dr. Jellett lays stress upon the advantages of this. Some time ago, for a period of eighteen months, we tried rectal examinations. The sepsis rate was increased rather than diminished in that period of time. I think it is an objectionable method of examination. The patients dislike it. It causes pain if the head is low or if haemorrhoids or oedema are present. If the rectum has cracks or sores the risk is increased. The finger in the rectum tends to push up the posterior lower vaginal wall and infect the cervix. It is difficult to diagnose the degree of dilatation of the cervix, the presenting part if a caput is present, and also to feel a prolapsed cord if pulseless. Can we trust every student and midwife to see that the gloves are sterilized after a rectal examination before using them for delivery?

In the third stage of labour the patient should lie on her back and so prevent the entrance of air and micro-organisms into the uterus because of the apposition of the anterior and posterior vaginal walls. The uterus is better left alone, as manipulations by the hand on the abdomen tend to cause suction of the lower membranes into the cervix from the vagina, where they have been in contact with the walls and are infected to some extent. Bruises and lacerations should be avoided, as they are a nidus for septic organisms. All tears of the genital canal should be carefully sought for and stitched.

During the puerperium infection may take place by contagion from bedpans or from the swabbing up by a nurse who does not change her gloves between each patient. I almost think it would be better if each patient did her own washing up. Bedpans are the most frequent carriers of infection, as they are often given indiscriminately about the ward, and are only disinfected by a swill out from some innocuous disinfectant. Each patient should have her own bedpan in her locker. After cleansing it should be plunged in an ever-boiling cauldron of water. Every locker should be disinfected before a new patient occupies the bed. It would be better if bedpans could be dispensed with as

much as possible, and patients encouraged to get out of bed; they are very much disliked by working-class women. If a lacerated perineum does not heal, the stitches should be removed and antiseptics applied. If healing is slow, scarlet red ointment for a few days has a stimulating effect. When clean, secondary suturing of the freshened edges in about ten days gives excellent results. Tightly applied vulvar pads and binders prevent proper uterine drainage. It is difficult to persuade women that this traditional method has its disadvantages, if not dangers.

Treatment of Sepsis.

This subject is too long and too controversial for discussion. Early isolation and treatment is essential. In acute cases the treatment comprises nursing in the open-air ward, daily colon lavage, antistreptococcus serum 20–40 c.cm. in a daily dose, quinine hydrochloride 5–10 grains daily into the buttock, and blood transfusion. Drainage of the uterus by glycerin also helps in acute blood infections, but it is more beneficial in localized sepsis. Douching of the uterus and hysterectomy have been entirely given up by me. Instrumental curettage seems to be an obsolete operation in Britain. Sometimes a piece of retained placenta may have to be removed later, but, as a rule, glycerin causes the uterus to expel it spontaneously.

Abortion, especially when criminally induced, is an increasing cause of maternal mortality. It accounts for many gynaecological affections and may cause sepsis at a subsequent confinement. If the placenta is retained and offensive, it should not be removed until the patient's resistance is raised, as there is grave danger of disseminating septic emboli and organisms into the blood stream. Glycerin drainage, serum, and quinine should be employed in acute cases. The placenta can be removed in a few days, if not expelled spontaneously. Since employing this method of treatment we have not lost a case of septic abortion, even in patients where perforation has been suspected. It is a mistake to perform hysterectomy in these cases of criminal septic abortion except later on, if injury to the uterus is known to have taken place. Intervention, other than drainage, is the cause of some deaths from sepsis. Criminal abortion requires investigation, and is a serious cause of the increase in maternal deaths, more especially in Continental countries. I have advocated for some years the notification of all abortions, just as stillbirths are notifiable.

Toxaemia.

Ante-partum haemorrhage, due to toxaemia, is now very rarely met with among patients who have had ante-natal care. Eclampsia has decreased. Fulminating types of eclampsia occur in spite of any preventive treatment. The death rate from eclampsia has much decreased because of the use of the Tweedy-Stroganoff treatment and the decline in Caesarean section, and also because of the abandonment of accouchement forcé. Maternal deaths in cases of toxaemia might be prevented to some extent if we could get over the tradition that a woman must not be allowed to die undelivered. Cases of acute toxaemia would show better results if treated by experienced obstetricians rather than by house-surgeons, as is often the case in hospitals.

Obstetric Shock.

I am much interested in this cause of death. It accounts for some of those cases in which no clinical or post-mortem evidence of the cause of death is present. Fear, anxiety, and intense suffering during labour are predisposing factors. Haemorrhage is not always sufficient to account for the collapse, and sometimes death, which occurs after a long, painful labour. Surgeons know the value of deep anaesthesia in the prevention of shock. Not long ago it was the fashion for gynaecological surgeons to inject the abdominal wall with local analgesics while making an incision, in order to prevent shock. Very few take the trouble to give anaesthetics in obstetric cases unless an operation is being performed. Many so-called normal labours are characterized by agony so intense that it has no parallel in any other branch of medicine. During the actual delivery of the head the suffering is almost unbearable. The best sedatives are preparations of morphine, potassium bromide, scopolamine or modified "twilight

sleep," or adaline in 10 grain doses by the mouth. Sedatives and intermittent anaesthesia should be used for the second stage. It will be found that the dose of morphine can be reduced and its effect prolonged by dissolving it in a 50 per cent. solution of magnesium sulphate and giving intramuscularly. Gas and oxygen is the best anaesthetic for the mother and least harmful to the foetus. Indeed, the oxygen is beneficial if the nitrous oxide gas is removed and the oxygen continued after delivery and before the cord is severed in cases of blue asphyxia. Deep anaesthesia should be employed for the delivery of the head. Midwives, who attend 60 to 70 per cent. of the cases in the country, should be taught the use of sedatives in labour under the supervision of the doctor with whom the patient is registered as an ante-natal case. In our unit nearly every patient is given a sedative, and quite a number are given anaesthetics, apart from those who have operative intervention. Patients must be prepared to pay for an anaesthetist in private practice, just as they pay for a surgical operation. Nothing is too good in the way of skilled help for a woman who is bringing a child into the world.

Embolus is the nightmare of all obstetricians. It is due to sepsis in most cases. Exercises during the puerperium and drainage of the uterus by sitting up in bed all help in its prevention.

Caesarean Section.

The Caesarean section rate in the unit in eight years is 1.6 per cent. with a death rate of 3.9 per cent. This is about the average mortality of the teaching hospitals in Britain. Professor Whitridge Williams, quoted by Jellett, gives his hospital rate as 3.35 per cent. when he excludes deaths from general conditions. He estimates the general death rate in the United States as about 10 per cent. Dr. Jellett gives the general mortality rate in the most favourable circumstances as 2 per cent. In unfavourable conditions it is 10 to 50 per cent. Caesarean section has its uses and its risks. So far as possible it should never be a substitute for natural labour. In some small institutions it is performed by a general surgeon who has little experience of obstetrical methods and who only undertakes the case because of its surgical aspect. It is an operation which appeals to everyone, as it takes under thirty minutes to perform, as compared with the possibility of a labour of as many hours. It is an easy way out of the difficulty when in doubt. The Caesarean section rate has been reduced since we began to operate only when the patient had been in labour for a few hours. A considerable number of patients deliver themselves in a most unexpected manner when it has been decided beforehand that Caesarean section may be necessary. In cases where Caesarean section has been definitely decided upon it is better to wait until labour has started, as there is less risk of haemorrhage, owing to better uterine contractions. The partially dilated cervix gives better drainage. Caesarean section, after prolonged labour, when the patient is exhausted or when intervention has been carried out, is a very risky operation. The foetus, although alive, may not survive its birth. Hysterectomy for haemorrhage, except in very toxic conditions, should be unnecessary if the uterus is packed with glycerin gauze, which can be extracted before the last stitches are tied. An injection of 100 c.cm. of glycerin into the cavity of the uterus, as recommended by Remington Hobbs, will stop most cases of post-partum haemorrhage in ordinary deliveries. Deaths from Caesarean section are due mainly to shock or sepsis. If the scar does not hold during a future pregnancy death may occur from rupture of the uterus, but this is a rare occurrence. Another factor which has helped to reduce our Caesarean section rate is the employment of induction of labour by means of drugs or by the rubber tube. This is a procedure which can be carried out in the patient's home. It should rarely be done before the thirty-eighth week. In no case in the unit has a craniotomy been performed on a living foetus.

Forceps.

The forceps rate in the Royal Free Hospital unit is 5 per cent. In some cases it is difficult to decide where forceps should be applied or withheld. At the Congress of

Obstetrics in Dublin last April the opinion was unanimously expressed that forceps should not be applied unless the head was close to the pelvic outlet. High forceps have no longer a place in obstetrics. "Failed forceps" means that they should never have been attempted. The risk of sepsis and lacerations is increased by the use of forceps, not to mention the great danger to the foetal head. Substitutes for forceps, or, rather, the prevention of their use, are to be found in the employment of frequent hot sitz-baths before and during labour and the administration of sedatives. I have found that the squatting position in the second stage helps to drive the head downwards. If the foetus gives signs of distress, forceps should not be applied until the results are observed of giving the mother a hypodermic injection of 3 grains of camphor. This stimulates the foetal heart and enables it to bear better the stress of labour.

Students should be taught not so much the indications for forceps applications as their risks, and also what can be done to avoid them. The blades are often badly applied, and the newborn may carry a groove over its forehead or in the neighbourhood of the eye for some hours after birth. Neo-natal deaths or subsequent cranial complications owe, in many cases, their origin to maladjustment of the blades. This would prove a valuable field of research for infant welfare clinics and school inspection. Each blade should be applied so that the ear lies in the centre. The head should be as completely flexed as possible, as it is only the suboccipito-bregmatic diameter which can bear the pressure with the least injury on its way through the pelvis. Manual rotation of an occipito-posterior position will save many a case from forceps, as it does from craniotomy. Slow delivery, with relaxation between the pains, helps to prevent undue pressure from the blades. The midwife should not expect a doctor to apply forceps in every case of delay in labour in which she has sought his aid. Patients' relatives should not object to the doctor's full fee on the score that no forceps were applied. There is always a temptation on the part of a busy practitioner "to get the case over," and at the same time to relieve the suffering of the patient and the anxiety of the relatives. If the patient is under the influence of sedatives the demand for forceps is less pronounced. Dr. Jellett quotes a case where Sir William Smiley was asked by an anxious husband if he could not do anything to relieve his wife. Sir William gave the characteristic reply, "Yes, mischief!"

Pituitrin is given in labour more extensively in private practice than in hospital. It should only be used when the head is on the perineum and delivery has been delayed because of weak pains. It must be remembered that a dose of pituitrin given before delivery inhibits the effect of a subsequent dose which may be required for post-partum haemorrhage after the third stage is over. Labour is always more easily borne if its aesthetic aspect is considered. The first stage should be spent in a room other than the delivery room, which in private practice is usually overheated and smells of antiseptics and airing baby clothes. In the new Royal Free Hospital building, we have planned to have a waiting room where the patient can sit about and pass the time with magazines, etc., until labour has progressed. A second room is provided for the second stage, and, if necessary, in operative cases, a special delivery room.

Ante-natal Care.

The introduction of ante-natal supervision is one of the greatest advances ever made in midwifery practice. The problem at present is, Who is to supervise the expectant mother? Each patient should be seen by a doctor, registered with him, and passed on to a midwife if it is to be a midwife's case. The doctor examines her at intervals—at least three times: early in pregnancy, after the thirty-sixth week, and close to term. If any complication arises at labour the midwife should communicate with this doctor. He ought to examine and discharge the patient when she has got over the puerperal convalescence. A midwife has not the qualifications to enable her to attend an ante-natal case without the supervision of a doctor. I consider ante-natal care the most difficult branch of obstetrics. In all large towns there are ante-natal clinics in connexion with the voluntary hospitals. Most clinics, however, are under

the public health authority. The staffing of these clinics is carried out in some cities by whole-time medical officers with a special knowledge of obstetrics. These medical officers attend when summoned by the midwife for complications of labour. This arrangement is found to work so well that it is being extended to more towns. This work is, of course, restricted to the poor patients. In most areas, however, the clinics are staffed by part-time practitioners who may, or may not, be engaged in the practice of midwifery and may have little actual experience of labour and its complications. It may be impossible for them to follow up a case, especially if they do not reside in the district. These practitioners cannot be expected to take the whole responsibility of the case, and they tend to become critics of the doctors or midwives who attend the confinement. The local practitioners called in at the confinement take no responsibility for the complications, which they may maintain could have been avoided by more efficient ante-natal examinations. They in turn become critics of the methods of the clinic, and the poor patient is thus the loser. It is a wrong system altogether, but it will take time to make any suitable readjustment. The practitioner who does the ante-natal work should supervise, if necessary, the labour and puerperium, and should be made responsible for the whole welfare of the patient with the midwife. It therefore means that the patients must be under a whole-time medical officer or under the general practitioners in the locality. In rural districts the patients can visit the doctor or midwife or be visited in their homes, as the case may be. Ante-natal centres are obviously more difficult to arrange in country districts than infant welfare clinics, nor are they necessary if the work can be done individually. In theory it seems ideal that the local practitioners, or those of them who have an aptitude for midwifery, should do the work. But we have to reckon in some cases with professional ill feeling where a family practice is thus acquired by one who is not bound by the rules of etiquette of the specialist. Much as the whole-time officer or one from outside the district may be criticized, he or she is at least a non-competitor in family practice.

It is stated occasionally that the general practitioner has little knowledge of ante-natal work. This can be remedied by post-graduate courses, especially of an intensive kind. But the new generation of practitioners and assistants has a good knowledge of ante-natal diagnosis and treatment as it is taught in hospital. They mean to exercise this knowledge in practice. Ante-natal examinations should be paid for in addition to the fee for a confinement.

General Practitioner or Specialist?

Some specialists take the view that midwifery should be in the hands of specialists and midwives. This cannot apply to anything but large towns and to hospitals; in smaller areas it is impracticable. There is no doubt that the general practitioner has lost a considerable amount of his midwifery practice in the last ten years. Some of the patients go to hospitals, some to specialists, but since the war the main midwifery among the working classes has been undertaken by the midwife. The panel system may have an influence upon this diminution of practice. If the general practitioner has relinquished so much midwifery practice he cannot be held responsible for the stationary mortality. Trained midwives have in a large measure helped in its decrease, and yet we cannot find a solution of the problem. There is much to be said for the family doctor who undertakes midwifery. He knows the homes and circumstances of his individual patients. This is a knowledge which a specialist cannot acquire first-hand. The practitioner has perhaps treated the mother for conditions pre-existing to pregnancy. He is trusted and is easy of access. He can follow up the progress of the health of the mother and the welfare of her child. Continuity of supervision is the aim of all health authorities, and nowhere can this be so well attained as by the supervision of the local practitioners and midwives.

From the point of view of a teacher of midwifery the role of the general practitioner is of very great importance

to me. How very few students specialize in midwifery compared with the large number who go into general practice. Specialists are not born, but are made by their post-graduate studies. If we are to become teachers of a particular type of student, I consider it would be waste of time and money on the part of medical schools if midwifery were taught and not practised by their graduates. Why, our whole aim is to train our students in the best way possible to fit them to be efficient in midwifery in domestic practice. The bulk of the midwifery of the country—among the middle classes at least—must be in the hands of the family practitioner, who should be well trained and willing to undertake it. The employment of a consultant is a different matter, and should always be available when possible. In outlying districts, where the mortality is still high because of the absence of skilled and prompt assistance, the specialist is out of the question for at least 50 per cent. of the population.

The training of students has been most deficient in clinical obstetrics, especially with regard to attendance on normal labour. Operations are demonstrated by the senior staff which will never be done by the average practitioner, whilst ordinary cases are either taken under the supervision of a midwife or alone. If there is a slight complication, a house-surgeon undertakes the demonstration of the case. Many students conduct only about six or eight cases out of the twenty laid down by the regulations of the General Medical Council. If a placenta is seen being expelled, that counts as "a case," or even if its expulsion is observed from a distance that is sufficient. Students should be signed up by the senior staff for work done and not for the number of cases attended. In our unit the students must deliver the patient completely before it is counted as a case; if delivered by forceps or by other operative methods by the staff it is not counted. Pupil midwives, by their regulations, must conduct the case entirely and record the patient's name. Resident assistants, rather than house-surgeons, should do the teaching in the labour wards. The medical student as a rule does not acquire anything like the same experience in clinical midwifery as the pupil midwives—I am speaking of the London area more especially. A practitioner must have the knowledge and experience of normal cases in order to cope efficiently with complications. It is well to teach students that most patients will do better if carefully guided into natural ways, and that intervention is the resort of the inexperienced.

Midwives.

It is hoped that the position of the midwife will be more clearly defined and that the present unsatisfactory rate of remuneration will be improved. The service of midwives must be subsidiary to that of the medical profession, not a rival one. There should be less criticism and much more co-operation between doctors and midwives. This I feel confident will be brought about by ante-natal work. If midwives were trained in the rudiments of medicine and surgery they would be of additional value in looking after medical or surgical complications, and their relationship to the practitioner would be more easily defined. Registration with a doctor of an expectant mother would ensure that the midwife has prompt assistance if required at labour. Many midwives undergo great anxiety because medical help is unobtainable; I have known of cases where four or five doctors have been sent for before one could be found or induced to attend. I have always expressed the opinion that midwives should be inspected by senior members of their own profession and not by women doctors. If a doctor is employed, he or she should be allowed to carry out treatment if required, and not merely report on the conditions found.

Finance is the greatest problem of all, both in public health and in private practice. The public must learn that if they want efficiency this has got to be paid for. It is for us to point out the way and let those concerned find the financial support.

We look forward to a new era now that the advice and help of the obstetricians of the country is available as a corporate body—namely, the College of Obstetrics and

Gynaecology. In co-operation with the Boards for the training of midwives, it will prove of value to the public health authorities in the future.

I have touched on many points of a controversial nature, but I only speak from the small area of my own experience.

REFERENCE.

¹ *British Medical Journal*, September 28th, 1929, p. 592.

THE PREVENTIVE ASPECT OF OBSTETRICS.*

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THE importance of this branch of preventive medicine needs no stressing at this time of day, when a large and constantly increasing experience has demonstrated, not only to our profession but also to the lay public, the enormous value of preventive methods in obstetrics and the large amount of foetal and maternal life that can be saved by their appropriate application.

Much has been written on this subject, especially from the institutional point of view, but I wish to speak now more particularly of the methods which may be used in carrying out ante-natal investigation in domestic practice, either in the consulting room or in the patients' homes. It will be found, I think, that the matter is much less formidable than might at first sight appear, and that the application of common-sense rules will clear away the greater proportion of difficulties. I would recall that this was the main subject for discussion in the Obstetrical and Gynaecological Section at the Bradford Meeting of the Association in 1924, and the papers then read will well repay perusal.

Ante-natal examination may vary in extent and thoroughness, but what I want to indicate in this paper is the minimum which should be expected of any general practitioner, and which is expected under such a scheme as the National Maternity Service Scheme of the British Medical Association.

When a pregnant woman comes, either of her own free will or on the recommendation of a midwife, to consult her doctor, the first glance will tell him whether she is of a healthy appearance or poorly nourished, of normal stature or undersized, and whether she walks normally or with a limp, so that even now a definite number of important points can be noted.

The next thing is to take her history, and here again a few minutes' conversation will bring out several more important points. The duration of amenorrhoea and the date of the onset of the last menstrual period should be inquired about. It is remarkable how definite the majority of patients are on this point; this is fortunate, as the period of amenorrhoea still constitutes the most exact method we have of estimating the approximate date of confinement. The history of previous pregnancies and labours (if any) is also of great value. If one patient says that in the previous pregnancy the legs and face became very swollen, it would indicate the necessity for a very strict examination of the urine, while if another reports that, of several previous pregnancies, only one child is alive, the others being born dead after prolonged labours with instruments, a careful examination of the relative size of head and pelvis would be indicated. In the primigravida, of course, we have no previous history to guide us, and we have to form our own opinion from the beginning.

Other points to be inquired about are the condition of the bowels. Most women suffer from more or less constipation, and this has to be borne in mind when advising the patient about her habits. It has to be emphasized that if a satisfactory daily motion of the bowels is obtained, the likelihood of toxæmia or eclampsia is remote. The amount

of urine passed is best ascertained by asking if she passes about the usual amount, or more or less. The necessity for emptying the bladder during the night is often the first thing that will bring home to a patient the fact that she is passing more urine than normal. Oedema of legs or face, indigestion, sickness, headaches, interference with sight, and the occurrence of any bleeding should also be inquired into. Finally, and especially if she appears to be in the later months of pregnancy, the date when foetal movements were first felt should be inquired into, as this usually indicates mid-term and may, along with the period of amenorrhoea, give further information regarding the present duration of pregnancy. Usually, however, the patient is seldom so exact about this date as about the last menses.

Only after settling these points should we proceed to the physical examination. The first point to be determined now is this: *Is the patient pregnant?* While it can be taken for granted that, in the great majority of cases, when a woman says she is pregnant, she is pregnant, this is not always so. I have known a patient with a fibroid, who had several children, declare, even on the morning of operation; that she distinctly felt foetal movements; while in another case, a lady who was several weeks "post-mature" showed no signs of going into labour, merely a fat abdomen and a uterus ten months post-menopausal being found. Many other instances in both directions could be quoted. It is common knowledge that pregnancy may be very difficult to diagnose, and mistakes are often made in this way, but this is not evident to the lay public.

Certain points may be noted here. First, before the tenth week it is not possible to be certain that the uterus is pregnant, and often time has to be allowed for confirmation or the reverse. Secondly, before the uterus becomes an abdominal tumour it is felt on bimanual palpation as enlarged, of a peculiar doughy consistency, globular shape, and strongly anteverted, so that the cervix may be pushed far posteriorly. If it should be retroverted with the cervix anterior, incarceration must be suspected, and steps taken to lift the uterus clear of the sacral promontory, and if necessary to keep it up for a few weeks with a pessary. Thirdly, when the uterus comes up into the abdomen it forms a swelling whose outlines are characteristically vague, and in this way it is unlike even an ovarian cyst and much more so a fibroid, whose outlines are usually clear-cut.

There are certain points characteristic of the pregnant uterus, and among these may be mentioned the presence of a uterine bruit. This is caused by the distended uterine vessels, and is therefore heard at the sides of the uterus. Theoretically any uterine tumour—for example, a fibroid—may exhibit such a bruit, but in practice it is not usually found apart from the pregnant uterus. While the palpation of foetal parts and of a presenting part indicates a pregnancy and nothing else, the elicitation of foetal movements and of foetal heart sounds demonstrates not only pregnancy but a live pregnancy. These are all, therefore, positive signs, but one or more, seldom all, may be absent even in normal pregnancy.

The next point to determine is whether the patient is pregnant according to the duration of amenorrhoea. Often a patient with, let us say, three months' amenorrhoea, will show the uterus enlarged to the umbilicus—that is, to five months—and while in the majority of such cases the discrepancy is due to an error in the patient's dates, or possibly to some menstruation occurring in the first month or so of pregnancy, still the possibility of such a condition as hydatidiform mole or an associated pelvic tumour must be borne in mind. On the other hand, the uterus may be much smaller than for the duration of amenorrhoea, and may not increase in size even after waiting and several examinations. Such a condition would indicate death of the ovum without expulsion, the carneous or fleshy mole, and steps should be taken to evacuate the uterus.

But if all is normal here the pelvic measurements should be taken and should be noted. The interspinous, intercrestal, external, and diagonal conjugates can be taken with an ordinary pelvimeter in a very short time, and from the two last the true conjugate can be estimated. It is very useful to take also the transverse at the outlet,

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