REFRESHER COURSE FOR GENERAL PRACTITIONERS

ANTENATAL CARE—I. CLINICAL EXAMINATION

BY

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The half-century has turned since Ballantyne, of Edinburgh, published his article—"A Plea for a Pre-Maternity Hospital"—containing the first suggestion of an antenatal clinic or hospital. During these fifty years opinion and practice have changed, in some instances swinging a full circle. Maternity care is now accepted in this country as part of the Health Service that must be provided by the State. In England and Wales in 1951 there were 695,446 births (679,497 live births and 15,949 stillbirths). The number of mothers (new out-patients) who attended antenatal clinics attached to hospitals was 413,805, and 256,931 attended local health authority clinics. The total attendances made by expectant mothers (new and old patients) during 1951 was 2,333,902 at hospital clinics, and 1,450,097 at local health authority clinics. These figures, kindly supplied by the Ministry of Health, serve to indicate the magnitude of the service required for these expectant mothers.

The most striking recent trend in antenatal care is the increasing emphasis that is being placed on function as distinct from structure. The mechanistic approach to the parturient woman is to be deplored: the woman must be taken as a whole; her psyche and soma are so interwoven that neither can be neglected, especially at this most critical time of her life. In view of the improved physique of women in this country the anatomy of the pelvis should not be given the overwhelming emphasis that it has had in the past. The emotional aspect of pregnancy and labour is as important as the physical, but it has been neglected by doctors and midwives.

History

In addition to obtaining the history of general illnesses, operations, and so forth, it is of value to know something of the psychological background of the woman and her own mother's obstetric history. One should always inquire whether the mother has had any virus infection, particularly rubella, during the first trimester of pregnancy. It has now been established that there is an added risk of congenital malformations (deaf mutism, cataract, heart disease) when a woman has been exposed to such infection in the very early weeks of pregnancy. Severe vomiting early in pregnancy should be noted, since this is sometimes followed by pre-eclamptic toxæmia in the later months.

In a multipara a full history must be taken of the previous pregnancies and labours, including the puerperium. The weight, health, and method of feeding the baby must also be noted.

Physical Examination

Auscultation of the heart should always be performed. In about 50% of women attending an antenatal clinic a soft murmur will be heard towards the end of pregnancy. This is due to organic disease in only about 1% of cases.

The blood pressure should be taken at every visit, before any physical examination and after the mother has rested and been engaged in conversation for a few minutes. The limit of normal blood pressure in pregnancy is usually taken as 140/90, but as the result of Professor F. J. Browne's

researches at University College Hospital it has been suggested that this ceiling should be dropped to 120/80. He has shown that a rise of blood pressure above this level has been present early in pregnancy in about 65% of cases of pregnancy toxæmia. It is to be regarded as an early warning sign of a future toxæmia of pregnancy.

The urine should be tested for albumin at each visit; if this is found, a catheter specimen must be obtained, since the original specimen may have been contaminated by vaginal discharge. If albumin is present in the catheter specimen then the urine should be examined bacteriologically. It is usual to examine for sugar at the first visit, and in some clinics this is repeated at each subsequent visit.

The height and the rate of increase in weight can provide useful information. Recent studies at Aberdeen by Professor Dugald Baird and his co-workers have revealed a relationship between the stature of a woman and the shape of her pelvis. In some of the small women (under 5 ft.—152 cm.) there was evidence of pelvic flattening as shown by x-ray pelvimetry. In women of normal and adequate stature the pelvic brim was gynaecoid (round) or anthropoid (long oval). When growth was stunted as the result of poor nutrition the pelvis was small and contracted, either android or platypelloid. The tall women in the Aberdeen investigation had no difficulties in their first labour. It has long been known that in the absence of a hereditary factor the stature of individuals is a measure of the nutrition of a community. If a woman is under 5 ft. (152 cm.) in height a careful assessment of her pelvic capacity must be made. A survey in 1940 of 500 London women attending University College Obstetric Hospital revealed a significant tendency for those of shorter stature to have a flatter pelvis.

Regular weighing at each visit is becoming the practice in more and more clinics. In the United States considerable importance is attached to the control of weight as a means of reducing the incidence of toxæmia. This will be referred to in more detail in Part II.

A vaginal examination should be made in all primigravidae, but not at the first visit. It should be postponed till after the sixteenth week, when the risk of abortion has diminished. If an ovarian cyst or other tumour is detected at this time the hazard of removal is minimal. In multiparae who have had normal deliveries there is no need to assess the pelvic outlet.

Pelvimetry

External pelvic measurements as a means of diagnosing pelvic contraction no longer occupy the hallowed place they held two or more decades ago. Nowadays they are taken routinely by medical students and midwives, and serve more as an anatomical exercise than anything else. This does not apply, however, to a woman of small stature (under 5 ft.—152 cm.), since in her case external pelvic measurements when carefully estimated may be a guide to the size of her pelvis.

There is a fairly high correlation between the greatest transverse diameter of the pelvic inlet (5½ in.—13.3 cm.), and the intercrural diameter, which can be measured clinically with callipers with a fair degree of accuracy. Thus this measurement is more reliable in predicting the corresponding internal measurement than is that of the external conjugate in predicting the internal conjugate measurement. The intercrural diameter is measured between the widest points on

the outer borders of the iliac crests, and the average is usually considered to be between 10 and 11 in. (25 and 28 cm.).

A male distribution of pubic hair and hirsuties does not seem to be related to a masculine type of pelvis. The architecture of a female pelvis indicating a masculine tendency is a relatively narrow brim, a narrow sacrosacral notch, a highly curved sacrum, a small subpubic angle, and an unusual degree of convergence of the side walls, or funnelling, leading to a narrow outlet.

The Diagonal Conjugate.—The majority of clinicians agree that this is the most important of all internal measurements. It is a digital measurement taken from the mid-point of the sacral promontory to the subpubic angle and is of value in estimating the internal conjugate. When there is cephalo-pelvic disproportion, and it is necessary to obtain this measurement with accuracy, then an anaesthetic will be needed, since the resistance of the perineum in some primigravidae will make the sacral promontory inaccessible to the examining finger. In the normal pelvis the promontory cannot be reached, and if it cannot be felt at $4\frac{1}{2}$ in. (12 cm.) from the lower border of the symphysis then the pelvic brim is usually adequate. Half an inch (1.3 cm.) is subtracted from this measurement in order to estimate the length of the true conjugate ($4\frac{1}{2}$ in.—11.4 cm.). When the angle of inclination of the plane of the brim is greater than usual the promontory will be difficult to "tip" even in the presence of brim contraction.

Pelvic Outlet.—Much can be learnt from a careful digital examination of the outlet. The perineum should be palpated to ascertain its length and rigidity. With two fingers in the vagina the ischial spines, sacrospinous ligaments, lower end of the sacrum, and the subpubic angle can all be examined. The "knuckle" test (intertuberal) is familiar to all, but the measurement across one's own knuckles must be known. A rough estimate of the intertuberal diameter can be gained by pressing the clinched fist between the ischial tuberosities at the level of the anus. This intertuberal measurement is usually reckoned as $4\frac{1}{2}$ in. (11.4 cm.). If the subpubic angle is normal two fingers of average size can be placed within the pubic arch under the subpubic angle. With experience it is possible by these somewhat crude digital methods to detect the type of pelvic outlet that may give rise to difficult delivery.

X-ray Pelvimetry.—Routine radiographic pelvimetry of every primigravida is to be deprecated. There are enthusiasts who would like every pregnant woman to have her pelvis measured with radiological precision. They forget the expense incurred, the time consumed, the fallacies, and, last but not least, the danger with repeated exposures of radiation damage to the foetal gonads. Radiological methods should be used to supplement—not displace—the clinical examination, and x-ray pelvimetry should be considered only in the following clinical categories: (1) primigravidae with a height of 5 ft. (152 cm.) or less; (2) primigravidae with the foetal head not engaged at term and with variation in the anatomy and capacity of the bony pelvis as detected by digital examination; (3) primigravidae with a breech presentation in which external version has failed; and (4) multiparae with a bad obstetric history.

Dental Examination.—It is not sufficient for the doctor or midwife to make a perfunctory examination of the teeth and gums. The mother should be under the care of a dental surgeon as early as possible in pregnancy. He will advise on oral hygiene, further visits, and treatment.

Routine Chest Radiography.—Since 1947 every mother attending the antenatal clinic at University College Obstetric Hospital has had a radiological examination of her chest. The incidence of pulmonary tuberculosis detected early in pregnancy in this way has been about 1 in 200. All these patients had had the usual chest examination by the medical officer and in only one out of 27 were any abnormal signs discovered by this physical examination. Routine chest radiography of pregnant women should be obligatory, and, where it is available, miniature radiography might well be used for this purpose.

Preparation for Lactation

The clinical studies of Dr. Harold Waller at the British Hospital for Mothers at Woolwich have been a major contribution to this subject. He has shown that a defect can be found in one or both nipples in about 40% of women in their first pregnancy. Inspection is not enough, and he has devised a simple test which will reveal tethering of the nipple. Such fixation of the nipple interferes with sucking. Waller's test consists in placing the forefinger just above and the thumb just below the nipple's base at its junction with the areola. The finger and thumb are then pushed a short distance into the breast and squeezed together in imitation of the baby's bite. If the nipple retracts then the baby will have difficulty in feeding.

When this defect is present Waller recommends the use of a shield or "shell" made of glass or plastic.* The nipple projects through the hole in its base and the apparatus is kept in position by a well-fitting brassière. At first it is worn for a few hours daily and then throughout the day. It can be applied from the twentieth week onwards.

Waller has also shown how daily expression of the colostrum during the last eight weeks of pregnancy helps to eliminate lactation difficulties. All primigravidae and all who have had difficulty or have failed in previous lactation should be given prenatal tuition. Attempts to "harden" the nipple are to be condemned.

Special Examinations

As early as possible in pregnancy a sample of blood should be taken and sent to a laboratory for ABO blood-grouping, and Wassermann (Kahn) and Rhesus-factor testing. The haemoglobin should be estimated at the same time and again at the thirty-fourth week.

The simple haemoglobin test may lead to the detection of one of the more serious anaemias of pregnancy.

What is the lower limit of normal for the haemoglobin level during pregnancy? This is a controversial question, since there is a progressive increase in blood volume as pregnancy advances. The dilution of the circulating blood reaches a maximum of about 25% early in the last trimester of pregnancy. This physiological hydraemia results in a fall in the red-cell count and thus in the haemoglobin concentration. In a young woman during the last month of pregnancy 80% haemoglobin may be taken as the lower limit of normal; in an older woman (over 30) this figure is lower, about 76%. With increasing parity the haemoglobin level drops.

For many years the Tallqvist method of estimating haemoglobin has been used by general practitioners. Recently it has been criticized because of its unreliability. It is a useful procedure for the approximate estimation of haemoglobin. Although seemingly a somewhat crude procedure, the Tallqvist method has yielded results which are of about the same accuracy as those obtainable with most dilution haemoglobinometers, such as the Haldane and Sahli.

Frequency of Examination

It is usual to see the mother at monthly intervals until the thirty-second week, then again at the thirty-fourth and thirty-sixth weeks, and then weekly until the delivery. It is quite unnecessary to do an abdominal palpation at every visit. Provided there are no untoward symptoms, this examination should be done at the twenty-eighth, thirty-second, thirty-fourth, and thirty-sixth weeks. If the head is well engaged at the thirty-sixth week there is no need to do another abdominal palpation until term. The urine and blood pressure must be examined and the mother weighed at every visit. There is no doubt that many mothers are subjected to much purposeless palpation during antenatal supervision.

[Part II will appear in our next issue.]

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