to the post-natal clinic. On vaginal examination the cervical stump was almost flush with the vaginal fornices and was covered by healthy squamous epithelium.

Two years later the patient again became pregnant. She progressed to term, and after a labour of two hours' duration was delivered normally of a live 8-lb (3.6-kg.) infant.

Discussion

In De Costa's series of 17 patients 88% were primigravidae, 71% had early rupture of the membranes, and the average duration of labour was 63 hours. In the 55 case records analysed by Ingraham and Taylor, 75% of the patients were primigravidae, at least 48% had early rupture of the membranes, and the average length of labour was 48 hours. Cephalo-pelvic disproportion was considered to be present in some 25% of cases in both series; on this high incidence De Costa and Ingraham and Taylor concluded that cervical detachment was the result of disproportion which led to nipping of the cervix between the foetal head and maternal pelvis, with resultant oedema, necrosis, and separation.

In opposing this view, Jeffcoate and Lister point out that in labours complicated by disproportion the foetal head is not applied firmly to the cervix, which tends to hang loosely in the pelvis, nor is the fit of the foetal head in the pelvis accurate enough to produce an annular band of cervical necrosis. Again, the theory will not explain the mechanism in those cases in which disproportion is absent. Jeffcoate and Lister believe the primary factor in annular detachment is true cervical dystocia, which in turn leads to obstructed labour. In support of this concept they draw attention to three findings common to the majority of cases, the importance of which has been overlooked by previous authors. The three features are (1) strong uterine contractions, (2) a foetal head low in the pelvis, and (3) a thin well-effaced cervix with an external os surrounded by a rim of hard fibrous tissue and poorly dilated for the length of time the patient has been in labour. In cervical dystocia characterized by failure of the external os to dilate, the strongly contracting upper uterine segment forces the foetal head firmly on to the cervix, which becomes increasingly stretched to form a thin cap of tissue over the head; with increasing pressure, arrest of circulation and tissue devitalization are inevitable; and finally, by a combination of uterine retraction and downward thrust through the foetus, tearing and annular detachment of the cervical cap result. The level of detachment generally lies at the cervico-vaginal junction, but may vary, depending on the level of the pressure ring exerted by the foetal head and on the degree to which the cervix becomes dilated.

Cervical dystocia, the precursor of detachment, may be primary or secondary; in the former, imperfect dilatation may be due to an inherent defect of the lower cervix such as an excess of fibrous tissue, or to failure of the normal preparatory softening so necessary for easy stretching during labour; in secondary dystocia, scarring and excessive fibrosis in the region of the external os may be the aftermath of previous birth trauma or such gynaecological procedures as extensive and badly executed cauterization or conization.

Prevention of annular detachment obviously lies in the early recognition and treatment of cervical dystocia. The latter is to be suspected in a patient with the triad of signs stressed by Jeffcoate and Lister—namely, strong uterine contractions, a foetal head well down into the pelvis, and failure of the external os to dilate. Vaginal examination will reveal the thin well-applied cervix and the characteristic sharp hard fibrous rim around the external os. Occasionally, as happened in two patients whom I examined recently, the rim of the cervix will suddenly yield before the examining finger, following which full dilatation and delivery are quickly completed; in other cases, two or more small incisions through the rim—that is, cervicotomy—are necessary.

Healing of the torn or incised rim is good, and no trauma was noted on the post-natal examination six weeks later.

Once detachment has occurred, little is required in the way of treatment; as a result of vascular thrombosis secondary to prolonged pressure, bleeding from the cervical stump is slight, and delivery, either spontaneous or with forceps, is accomplished without difficulty.

The chief danger to the mother is from puerperal sepsis, which was responsible for the high maternal mortality (7–11%) in the cases recorded in the literature. A high vaginal swab taken immediately after delivery and the use of the appropriate antibiotic in those cases shown to be infected will largely eliminate this danger.

In the recorded series the stillbirth rate varied from 29 to 40%, a mortality which Jeffcoate and Lister believe to be due to the length of labour rather than to difficulty in delivery.

Summary and Conclusions

A case of annular detachment of the cervix is reported. The condition is the late result of cervical dystocia. The latter should be suspected where there is strong uterine action, a presenting part engaged in the pelvis, and a cervix thin and well applied to the presenting part.

Treatment of cervical dystocia consists of digital dilatation or incision of the fibrous cervical rim. The main risk to the mother is from sepsis and to the foetus from the effects of long labour.

I wish to record my thanks to Mr. H. L. Hardy Greer for his kindly advice and criticism and for permission to publish this case.

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Medical Memoranda

Need for Repeated Microscopical Tests in Gonorrhoea

The following case seems interesting, and certainly points the moral that prevention of transmission of gonorrhoea, with the patient's co-operation, of course, can be assured only by repeated microscopical tests and by treating the presence of pus cells in the genito-urinary discharges with due suspicion.

CASE REPORT

A man aged 22 attended my clinic on August 16, 1954, stating that, following extramarital intercourse six weeks previously, he had had a urethral discharge, which had stopped and recurred without treatment during the past four weeks. Also for the past four days he had had a sore eye and pain and swelling at certain joints.

Examination disclosed a very slight purulent bead of discharge, obtained only by milking, with hazy urine which showed heavy threads in all glasses. He also had tenosynovitis affecting the sheaths of tendons round the left ankle, synovitis of the right knee-joint, which was distended, and iritis of the right eye. The prostate was enlarged and the prostato-vesicular fluid showed scanty pus cells. Neither the urethral discharge nor the prostato-vesicular fluid showed gonococci either in smear or on culture. The Wassermann, Meinicke, and gonococcal complement-fixation reactions were all negative.

In spite of the negative findings in respect of gonococci it was thought that the case was one of gonococcal infection rather than Reiter's disease, and treatment was started on this assumption. Penicillin, 800,000 units, in the form of

"prolopen," was injected on two successive days, and daily irrigations with potassium permanganate, 1/8,000, and prostatic massage twice weekly were instituted. Five days later, on August 27, the iritis had cleared, but the affected joint and tendon sheaths were still affected.

As the urine was still hazy and contained many heavy threads, treatment with "sulphatriad" was started, and by September 3 the urine was clear but with heavy threads, and the prostatic fluid still contained an abnormal number of pus cells. The knee-joint and tendon sheaths had recovered by October 21, but there was still pus in the prostatic fluid, and massage of the prostate was continued until December 17, when it was discontinued because on December 10 the fluid had shown a great reduction in the number of pus cells.

On December 29, however, the patient reattended, stating that the urethral discharge had recurred the previous day, following some heavy drinking about Christmas. Sexual intercourse since early July was firmly denied. In the scanty urethral discharge gonococci were found by smear and culture; again the gonococcal complement-fixation reaction was negative. After one irrigation with mercury oxycyanide the discharge disappeared, as often happens in relapses, but I gave two injections of prolopen, one mega unit each on successive days, and the patient has remained well.

I would interpret the above sequence of events as indicating the presence of a closed or almost closed gonococcal focus in the prostate or a vesicle, the focus not having been properly reached by the first doses of penicillin but having been opened sufficiently by the heavy drinking about Christmas time. If so, there may still be some virtue in the old-fashioned use of alcohol provocation in tests of cure. In any case, it illustrates the danger of dispensing with the microscope in testing for cure and of regarding the persistence of pus cells too lightly.

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Pregnancy and Coarctation of the Aorta

The incidence of coarcation of the aorta is stated by Blackford (1928) to be about 1 in 1,500, with a predominance of males over females of about 3 to 1. Pritchard (1953) believed the incidence in the female population to be somewhere between 1 in 1,000 and 1 in 3,000.

It is not surprising, therefore, that coarctation of the aorta complicating pregnancy occurs infrequently. Morgan Jones (1951) could find only two cases out of 485 pregnant women with organic heart disease, and Mendelson (1940) found three cases in approximately 31,000 consecutive deliveries. Pritchard (1953), who has made an extensive review of the literature—as did Benham (1949)—collected only 79 cases, with an overall mortality of 10%. It is probable, however, that the condition is more common than the literature would suggest (Donald, 1955). Further, cases with a fatal outcome are more likely to be recognized and reported, and may give an exaggerated impression of the gravity of the prognosis.

Novak (1947) urged that as many cases as possible should be reported in order that the prognosis may be more intelligently evaluated and the management put on a well-authenticated basis. To this end the following case is reported.

CASE REPORT

First Pregnancy.—The patient became pregnant for the first time in 1946, when 21 years old. She had always been a healthy person and had led a normal active life. Coarcation of the aorta was first diagnosed during the seventh month of pregnancy. She was described as being a classical case of this condition. Examination showed a fit-looking woman of a rather nervous temperament. The resting blood pressure in the right arm was 230/130 mm. and in the left 220/120 mm. Hg. Both femoral pulses were palpable, but were thought to be diminished in volume. The apex beat was 4 in. (10 cm.) from the midline in the fifth intercostal space. A squeaky apical systolic murmur was present and a loud pulmonary systolic murmur was constant in every position. Arterial pulsations were visible in the region of the vertebral borders of both scapulae. A chest *x*-ray film showed moderate enlargement of the left ventricle, a small aortic knuckle, and multiple rib-notching. The E.C.G. was normal.

The patient remained well throughout the pregnancy and was admitted in labour on May 11, 1946, when 37 weeks pregnant. The first stage lasted 12 hours. Early in the second stage forceps were applied, but were abandoned when unexpected difficulty was met with at the outlet, as it was not thought justifiable to persist in the unfavourable circumstances. A live female infant, in good condition and weighing 6 lb. 10 oz. (3 kg.), was subsequently delivered by a lower-segment caesarean section. The patient's condition throughout the operation was satisfactory, the blood pressure immediately afterwards being 120/80 mm. and two hours later 180/120 mm. Hg.

Convalescence was complicated by a mild puerperal pyrexia, but she was well when discharged three weeks later.

Second Pregnancy.—In January, 1955, the patient stated that she had been well in the intervening period and had been going out to work, in addition to doing her own housework. She was found to be 19 weeks pregnant and the clinical state of the coarctation was unchanged. The blood pressure in the right arm was 250/110 mm. and in the left 240/120 mm. Hg. The E.C.G. now showed sinus tachycardia with left ventricular preponderance and slight ST depression in leads I, AVL, and V_{5-7}. Throughout pregnancy the only abnormality was the raised blood pressure. At no time was albuminuria or oedema present. After one week's rest in bed in hospital an elective lower-segment caesarean section was done at the 39th week. A normal live female infant, in good condition and weighing 7 lb. 10 oz. (3.5 kg.) was delivered. The patient made an uneventful recovery and was discharged well on the 12th post-operative day. Unfortunately, she failed to attend the follow-up clinic six weeks later.

COMMENT

Divergent opinions have been expressed on the management of these cases. Mendelson (1940), taking a pessimistic view of the prognosis, advocated termination in cases seen in the early months of pregnancy and sterilization if pregnancy is far advanced. But Benham (1949) believes, with certain reservations, that the available information does not justify prohibition or interruption of pregnancy.

The majority of authors advocate caesarean section at term in order to avoid the hazards caused by a diminished cardiac reserve and an increase in the hypertension during labour and obstetrical manipulations. Only Pritchard (1953) has advocated vaginal delivery. In his review of the literature he found that the maternal mortality rate was no lower in the group delivered by caesarean section than in the group delivered vaginally, being 7.1% and 6.5% respectively. Tebow *et al.* (1954) have reported three cases successfully treated by surgical correction of the coarctation early in pregnancy, a method first advocated by Miller and Falor (1952).

The case reported above is of interest in that the patient has been delivered by caesarean section on two occasions; the first following "failed forceps" and the second as an elective procedure. At no time was there any sign of cardiac decompensation.

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