APPENDICITIS AND PREGNANCY

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WITHIN recent years considerable attention has been given to this subject, Mundé, in 1893, being the first to refer to it in this country. In 1897 Abrahams collected only eleven cases reported by American authors and added four others observed by himself. Since that time a very considerable number of cases have been reported both in Europe and America. The disease is more common than is suspected, being undoubtedly often overlooked because the symptoms and signs in many cases are not sufficiently pronounced to lead to careful investigation or are classed among the various disturbances which are so frequent in the pregnant condition. The great majority of reported cases have been those in which the phenomena have been distinct or alarming. According to Donoghue eighty per cent of these have occurred during the first six months of gestation.

So far as is known pregnancy does not favor the occurrence of primary appendicitis. In cases in which there has been previous inflammation in or around the appendix, pregnancy may increase the liability to an exacerbation. Increased vascular engorgement and constipation may be factors which exert a harmful influence. But the most important element may be mechanical, viz., pressure of the growing uterus on the appendix and cecum or the stretching of adhesions. The latter factor is likely to be most serious when the appendix is adherent to the broad ligament or pelvic viscera which are considerably displaced upward by the pregnancy.

Several cases have been observed in which a woman has had definite attacks in successive pregnancies.

The seriousness of appendicitis is certainly increased by the complication of gestation, especially in suppurative cases, the risk being greater the more advanced the pregnancy. The mortality following perforation, whether operated immediately or not, is very high. In cases in which the periappendical suppuration is localized, the danger is far more pronounced than in the non-pregnant state, because spontaneous emptying of the uterus tends to take place.

The alteration in the size and position of the uterus which is thereby produced is apt to lead to rupture of adhesions, bursting of the abscess cavity and general extension of infection. Even when such areas are opened and drained, there is still a much greater risk than in the case of non-pregnant women.

The occurrence of appendicitis soon after labor is in some cases undoubtedly due to the mechanical changes in the uterus and adnexa. Under these circumstances an appendix may be stretched, twisted or even ruptured and a severe local or generalized infective process may be started and the wall of the uterus may be invaded. Doubtless, such an attack is not infrequently diagnosed as "puerperal infection" in the absence of careful bacteriologic examination of the interior of the uterus, and because the symptoms of acute peritoneal infection of appendical origin may resemble so closely those following extension from the tube and uterus. Several cases have been reported

in which the appendix was the source of infection, supposed to be "puerperal."

As regards the influence of appendicitis on the gestation, it is certain that there is no interference in slight cases or even, sometimes, in sharp attacks where there is no suppuration. But, generally, in severe disturbance, especially where an abscess or general peritonitis develops, there is a tendency to emptying of the uterus, and to fetal death. Infection may extend to the uterus and its contents, or the fetus may be affected by the high temperature and the circulating toxic matter. In some cases, however, in advanced gestation a living fetus is expelled, though it is not likely to survive if the patient has been septic for some time previous to delivery.

Diagnosis.— The diagnosis of appendicitis in pregnancy is sometimes easy, but is often uncertain. When the characteristic typical features of an acute attack occur, they are generally recognized, but in other circumstances it may be difficult to form an opinion. In slight cases the nausea which may be present is apt to be considered as due to the pregnancy. Pains may be regarded as due to old pelvic inflammation, or, in some cases, to threatening of miscarriage. Leucocytosis may be thought to be due to pregnancy.

Whenever fever accurs with pain in the right side and nausea, the possibility of appendicitis as a cause should be kept in mind. An infective process in the ureter or pelvic organs, gall-bladder or right kidney, various gastro-intestinal disorders, and other conditions may produce somewhat similar symptoms, and, thus, an error in diagnosis may easily arise. A severe sudden attack may simulate rupture of an ectopic gestation, but with the latter there is usually more or less evidence of loss of blood without fever.

When a local abscess forms the mass may be mistaken for a tumor. In one case observed in consultation by the author, the pus extended on one side deeply into the pelvis and displaced the pregnant uterus towards the opposite side, so that it was believed to be an ectopic gestation.

Treatment.— Every non-pregnant woman who is likely to become pregnant, in whom a definite attack of appendicitis has once occurred, should have her appendix removed before pregnancy is allowed to take place, as a prophylactic measure. When the condition is diagnosed for the first time during gestation, or when there is a recurrence of an old attack, it is advisable to operate as early as possible. The earlier in pregnancy the operation is performed the more satisfactory is the result and the stronger the abdominal wall if the patient goes to full time. There is always a risk of interrupting pregnancy by the operation, and this is probably increased if the latter be prolonged or the viscera be handled excessively. In suppurative cases this risk is very much greater. The most troublesome cases are those in which drainage must be employed, since during healing adhesions are apt to form on the right side of the uterus which may lead to distress or tenderness if pregnancy continues and may interfere with the action of the uterus during labor. Moreover, the scar area may be weakened and herniation may occur. If premature emptying of the uterus takes place during drainage, there is a risk of infection of the genital tract by the discharge. When general peritonitis is present, the outlook is very serious. Free drainage is necessary but is difficult to carry out satisfactorily if pregnancy be at all advanced.

In all acute cases in advanced pregnancy Marx advises *accouchement forcé* at first, followed by the abdominal operation. This suggestion is a good one because it enables the abdominal drainage, which may be necessary, to be more thoroughly carried out. It would not be advisable to adopt this procedure in cases in which a localized abscess is present because of the risk of rupturing the latter by the change in size and position of the uterus which may form part of its wall.

When an attack of appendicitis occurs during labor, operative interference should be carried out very soon after delivery. An abdominal operation should also be performed when the disease develops in the puerperium.

The method of incision generally favored is McBurney's. The technic is that ordinarily employed in non-pregnant cases.