PERFORATION OF A NON-PREGNANT UTERUS

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The following case is presented because of the relative infrequency with which surgical perforation of the non-pregnant uterus is reported. Undoubtedly such perforations do occur and without untoward results, but the surgeon, in the absence of any indication to open the abdomen, never knows just why the accident occurred and therefore has little reason to record his experience.

The incidence of perforation of the uterus is very variable, and accurate figures are difficult to obtain. The perforation may not even be recognized. But that it does happen from time to time is common knowledge, especially in post-abortal evacuation of the uterus. Taussig[1] has pointed out that there is hardly a busy gynæcologist who will not recall an instance of it in his own practice. Riddel[2] has stated that perforation of the wall by a curette, even though the wound heals without untoward signs, is not so harmless an accident as it may appear. Not only should the fact of such an accident be clearly recorded and the patient's doctor informed, but any subsequent pregnancy should be very closely supervised and the question of delivery by a Cæsarean section given careful consideration (Mair[3]).

Taussig[1] states the incidence to be about 1 in 150 to 1 in 1,000 evacuations of the uterus. Heynemann[4] has reported an incidence of 0.5% and Halban[5] an incidence of 0.15% of all instrumental evacuations of the uterus. Mair[3] has reported an incidence of 0.36% from a review of 273 curettages in Glasgow. TeLinde[6] in his *Operative Gynecology* devotes two short paragraphs to perforations of the uterus not associated with pregnancy or abortion. He remarks that such accidents usually are not serious. He does not elaborate on the possible causes although elsewhere in his book he does mention the danger of perforation through a necrotic malignancy.

The patient, Miss X.Y., a healthy well-developed spinster 56 years of age was admitted to hospital on April 30, 1950, without complaints. In the three months immediately preceding admission there had been one curettage and three cervical smears submitted for cytological examination. On each occasion the report was suggestive of, but inconclusive for, malignancy. One such report read as follows: "Some highly suspicious cells noted made up almost entirely of nucleus. This feature is suggestive of carcinoma but the staining quality is that of benign hyperplasia . . .". On this occasion a second, and it was hoped conclusive, diagnostic curettage was planned.

The past history was essentially negative. Menstrual bleeding had terminated at the age of 46. In 1947 a cervical polyp had been removed. Curettings at that time had revealed nothing unusual.

The present illness began in January, 1950, when the patient noticed slight irregular vaginal bleeding. Following this, several cytological examinations were carried out. At operation on May 2, 1950, the uterus was found to be small, firm, anteverted and mobile. One small sub-serous fibroid was palpated on the anterior wall. The cervix was small, firm and nulliparous. There was no erosion. The adnexæ were not clearly defined. After passing the uterine sound to a depth of about two and one-quarter inches dilatation was performed with Hegar's dilators. This was sufficient to permit insertion of a standard non-serrated, slightly curved, fenestrated curette. The curette was a Sim's No. 1 "sharp", the tip of which had a maximum width of 9/32nds of an inch and a maximum depth of 3/32nds of an inch.

The curette was inserted to the same depth as the sound and curettings obtained from the anterior, posterior and lateral walls of the uterine cavity. Over these surfaces the sensation imparted to the curette was one of firmness. On commencing curettage of the fundus, almost immediately, all sensation of resistance to the instrument was lost and the tip seemed to be free. The curette was gently pushed upward for another inch or two and came to rest against a solid structure presumably the sacrum. The instrument was then gently withdrawn and the operation terminated. There was no abnormal bleeding. For the next few days the patient received antibiotic therapy and recovered quickly from the operation without observable ill-effects.

The cytological report on the curettings was as follows: "Anaplastic cells of highly suspicious though inconclusive type continue to be found. . . ." Further temporizing was considered inadvisable and perhaps dangerous. With this view the patient agreed and she consented to more radical surgical treatment.

Accordingly, eight days later, on May 10, 1950, total abdominal hysterectomy, bilateral salpingo-oöphorectomy and appendectomy was carried out. At operation, inspection of the serosal surface of the uterus revealed several small subserous fibroids and a small bright red linear streak about one-quarter inch in length at the apex of the right fundus. There was no evidence of damage to bowel or other viscera.

Postoperative examination of the uterus showed the presence of several intra-mural and submucous fibroids. In the right fundus the uterine wall measured one-eighth of an inch in thickness and adjacent to this thinned area there was a fibroid tumour three-eighths of an inch in diameter. It was presumably intra-mural in origin but projected slightly into the lumen. A probe passed along the right lateral surface of the fibroid toward the fundus slipped easily through the attenuated uterine wall and emerged at the site of the small red hæmorrhagic streak on the serosa.

The explanation for the easy and imperceptible perforation of the uterus seemed to be apparent. Reference to the accompanying diagrams will show that the curette passed either external or internal to the capsule of the fibroid. In the latter case the capsule would, of necessity have been split. This was not apparent on careful gross examination of the specimen. The ease with which the curette penetrated this area suggests that it passed through the endometrium, over the surface of the capsule and thence through the

Fig. 1 Fig. 2 Fig. 3

Fig. 1.—Fundus from above showing site of perforation. **Fig. 2.**—Coronal section of uterine fundus showing probable path of perforation external to the margin of the intact capsule of the fibroid. **Fig. 3.**—Coronal section of uterine fundus showing possible path of perforation within the capsule of the fibroid.

thin uterine muscle. The pathologist's report did not clarify this point as, unfortunately, his attention was not drawn to it. In all other respects the report was complete and reassuring and of especial interest was the statement: "No evidence of malignancy", the threat of which had led indirectly to the events and findings just described. Gratifying as was this knowledge, of equal interest was the opportunity of having some understanding of the mechanism of perforation.

It seems justifiable to conclude that small intra-mural fibroids may contribute to accidental perforation of the uterus during the operation of curettage. It may be that the peculiar distribution of the tissues in layers round about a fibroid lends itself to the easy passage of an instrument through the uterine wall.

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