intestine could be emptied this would not arrest the spread of a peritonitis which caused the intestinal distension.

Tympanites and septic peritonitis may each be an indirect cause of the other, but each may be brought about also directly in another way—tympanites by intestinal obstruction (mechanical or physiological), and septic peritonitis by bacterial infection. In one set of cases an intestinal obstruction causes tympanites, and peritonitis follows. In another set of cases septic infection causes a spreading peritonitis, and tympanites follows.

Neither of these sequences can be understood without recognizing the other; and if both are not considered, confusion must arise between the peritonitis which causes distension of the bowel and the peritonitis which is caused by distension of the bowel.

The two causes of trouble—intestinal obstruction, whether mechanical or functional, and septic infection—may arise together, and it may be wise sometimes to try to prevent their development by draining both the intestine and the peritoneal cavity. The indications for these measures are difficult to formulate, because they involve a prognosis several days in advance.

Drainage of the peritoneal cavity is required when it is believed that an onset of septic inflammation is likely to occur. Drainage of the caecum is required when it seems necessary to facilitate the emptying of the upper bowel or to rest the lower bowel. For example, in a case of multiple perforations of the small intestine, if a continuous ali-

mentary canal can be made and the patient's condition is otherwise satisfactory, it may still be wise to drain the depending parts of the peritoneal cavity, and in some cases of this kind I would consider that provision for an immediate escape of the contents of the small intestine through a caecal fistula would offer a better chance of recovery than leaving the faeces to escape after a day or two, by passing through the colon. Damage to any part of the large bowel would be an additional reason for anxiety lest it should not carry off its contents in time to prevent the development of a strain upon sutures or weak places in the wall of the small gut.

CONCLUSION.

I submit that by draining the alimentary canal in suitable circumstances the mortality from abdominal operations may be reduced by a case here and there, and that patients whose lives may be saved in this way are generally suffering from an intestinal obstruction brought about by a disturbance of co-ordination between the muscular activity of the different parts of the alimentary canal, aggravated perhaps by mechanical, physiological or therapeutic hindrances to the flow of the intestinal contents, the colon being the part in which difficulty most frequently arises.

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TWO CASES OF PREGNANCY COMPLICATED BY MYOMA UTERI.

By JOHN BENJAMIN HELLIER, M.D. LOND.,

PROFESSOR OF OBSTETRICS IN THE UNIVERSITY OF LEEDS; HONORARY OBSTETRIC PHYSICIAN TO THE LEEDS GENERAL INFIRMARY; EXAMINER IN MIDWIFERY AND DISEASES OF WOMEN TO THE JOINT BOARD IN ENGLAND.

EVERY case of pregnancy complicated by myoma must be dealt with according to its individual features. Some cases may be left to take their natural course throughout pregnancy, labour, and the puerperal period; some may be allowed to go to full term and then be treated by abdominal section; some require to be treated by operation during pregnancy in either a conservative or radical manner according to the conditions present. I published two illustrative cases in the *BRITISH MEDICAL JOURNAL* for June 29th, 1909, where Caesarean hysterectomy was performed at term. Two further examples are here detailed.

CASE I.—Pregnancy Complicated by Myoma and Retention of Urine treated by Abdominal Hysterectomy in the Sixth Month.

Mrs. A., aged 29, primigravida, was admitted to the Leeds Infirmary on September 10th, 1916, for retention of urine. She was married in March, 1916, and ceased to menstruate in April. Her health previous to marriage had been good, and her menstruation regular without marked excess; the retention of urine was quite recent.

She was a well-developed healthy woman with normal signs of pregnancy. A uterine tumour rose out of the pelvis to the navel, corresponding in size to the uterus at the end of the sixth month of pregnancy, but the upper part of the tumour presented a hard, rounded, and not very mobile swelling caused by the myoma, which is shown in the photograph here reproduced. The pelvis was filled by a tense, cystic, elastic tumour which, as will be seen, was formed by the cavum uteri containing the fetus, membranes, and placenta. The cervix was drawn up

almost out of reach on digital examination, and the urethra was correspondingly stretched. A loud uterine souffle was to be heard on the left side of the abdominal tumour, but the fetal heart sounds were not made out. The case thus strongly resembled an ordinary one of retroversion of the gravid uterus, but the hard abdominal tumour was a distinguishing feature in the conditions present.

On September 12th the patient was anaesthetized, and an attempt was made to push the uterus up out of the pelvis and to draw down the cervix to its normal position, but reduction could not be achieved. The fingers passed into the vagina could indeed be made to touch the sacral promontory by compressing the elastic swelling, but on withdrawing the pressure the uterus filled the pelvis again. A large rubber ring was inserted to see whether elastic pressure would succeed, but this was unsuccessful. After ten days it was found that the patient was no better in spite of regular catheterization, the vesical distress had increased, and there was some haematuria. The temperature had begun to rise.

On September 22nd abdominal section was performed with the purpose of thoroughly exploring the conditions present and of dealing with them as might seem best. On opening the abdomen the bladder was found lying very high up and bulging into the wound. It was seen that the tumour was entirely uterine, but that the abdominal part consisted almost wholly of a large myoma and that the uterine cavity was squeezed down into the pelvis. With little difficulty the whole tumour was lifted up to the abdominal wound. The cervix then formed a well marked elastic pedicle. It seemed best not to attempt myomectomy, but to remove the whole by supravaginal hysterectomy. This was quickly and easily accomplished in the usual way, leaving the left ovary. The patient made a quick and uncomplicated recovery, except that the bladder needed irrigation for a few days. The retention of urine disappeared at once.

Description of Parts Removed.

The specimen, after being fixed with formalin, was divided by a sagittal section, and was photographed by Mr. Wagstaffe of the electrical department of this hospital. The whole tumour measures about 8½ in. in vertical diameter, and there was certainly some shrinking during fixing. The upper portion

CASE I.—Pregnancy complicated by myoma. The left half shows trunk and funis; the right half shows fetal head.

shows a large, solitary, interstitial myoma measuring about 4½ in. from above down. The lower part shows the uterine cavity containing a fetus and placenta. The placenta lies in the lowest part of the specimen. The cervix is seen projecting from the anterior wall of the tumour, somewhat above the middle. In the original relations the cervix pointed downwards towards the vagina. The uterine cavity has assumed a globular shape since removal, but in the original position the sacral promontory made a deep dent into the posterior uterine wall. The fetus is of the male sex, and in the sixth month of development.

Pathological Report.

For the following pathological report on this tumour I am indebted to Captain M. J. Stewart, M.B., pathologist to the Leeds Infirmary:

The tumour is situated in the anterior wall of the uterus, immediately above the cervix. It presents the typical whorled appearance and firm consistency of a uterine fibromyoma, but it shows, in addition, a number of large irregular cavities with irregular shaggy walls and apparently possessing a lining of softer, whiter tissue. Seven such cavities are cut across in a sagittal section of the growth. Parts of the tumour are the seat of great vascular engorgement; elsewhere there are very pale, non-vascular areas. The tumour is well encapsuled by a thinned-out layer of myometrium, as well on the endometrial as on the peritoneal aspect.

One or two tiny fibroids are present elsewhere in the uterine wall.

Histologically the tumour presents the usual appearances of a uterine fibromyoma, with considerable excess of fibrous tissue. There are many areas of necrobiosis, and the large cavities seen with the naked eye are found to be degenerative pseudocysts, each lined by a broad layer of completely necrotic tissue. Certain parts of the growth show numerous thin-walled, dilated blood vessels, mostly filled with blood, but free from thrombosis. Occasional small foci of polymorphonuclear accumulation are seen.

CASE II.—Myoma Uteri threatening to Obstruct Labour : Caesarean Section with Myomectomy.

Mrs. B., aged 36, was sent to me by Dr. W. Bell of Skelmanthorpe in May, 1916. She had been married thirteen years, but was now pregnant for the first time. Dr. Bell had diagnosed pregnancy, with a tumour in the pouch of Douglas, and he sent her for an opinion as to the best method of treatment. I found a normal uterine pregnancy of about seven months, and there was in the pouch of Douglas a swelling, due to a myoma, which seemed likely to cause serious obstruction to normal delivery at term. There were no bladder symptoms. I advised that she should be allowed to go to term and then be treated by abdominal section. Two months later she entered a Leeds nursing home, and I operated when labour was nearly due (July 5th).

There was a tumour behind the uterus, fixed by adhesions. I first opened the uterus and removed a living male child, which weighed 7lb. The placenta came away without any trouble, and the uterus was sutured with iodized catgut in the usual way. Then I found it easy to break through the adhesions which bound the tumour to the pelvic floor. The tumour was compressed, and had the size and shape of a Bath bun. It was attached to the posterior uterine wall by a well-defined pedicle. This was divided, and the attachment was stitched over with catgut. The tumour was in a state of degeneration. The patient made an excellent recovery, and suckled her baby, which thrived well. A pathological report by Dr. Stewart is appended. By this operation it was possible to save the child, conserve the uterus, and obviate all danger of puerperal sepsis from a degenerating, bruised, or infected myoma.

Pathological Report.

Microscopically this is a fibromyoma, which has undergone complete necrosis except for a very narrow zone at the periphery.

THE TECHNIQUE OF CAESAREAN SECTION.

BY

ERNEST F. NEVE, M.D., F.R.C.S. EDIN.,
SURGEON TO THE KASHMIR MISSION HOSPITAL.

OSTEOMALACIA is extremely common in Kashmir. It occurs in multiparous women, and the symptoms show themselves soon after childbirth. The deformity is characteristic, and well shown by *x* rays. The pelvis simply yields to weight and pressure. The subpubic angle becomes very acute, or the rami may be almost parallel. Sometimes the hand cannot pass; the sacral promontory projects downwards and forwards. There is considerable variety in the external pelvimetry. In three cases the measurements were as follows: Iliac crests, 26, 25½, 24 cm.; great trochanters, 28, 29, 24½ cm.; anterior superior spines, 24, 22, 25 cm.; external conjugate, 21, 15, 18 cm.

In cases for which relief is sought before labour sets in Caesarean section presents no special difficulty or danger,

and the results are as satisfactory as those of an uncomplicated ovariotomy; the great peril is sepsis. Even in cases admitted a few weeks before parturition a vaginal examination may reveal the presence of a foul tampon, containing perhaps quince seeds. Such plugs are handed on by native midwives from case to case, and are always intensely septic.

The cases which give rise to most anxiety are those which are admitted after from one to four or more days' labour, and in which perhaps successive midwives have tried weird septic local applications, or even used unskilled and lacerating force. In such cases we used to think craniotomy the less objectionable method of delivery, but they always stood a chance of dying, in any case, of initial puerperal septicaemia. If the child is also sacrificed the result is indeed deplorable; so it seemed better, by improving the method of operation, to try to save both lives. The cause of failure in these cases was usually peritonitis, either from extension from the uterus or from contamination occurring during the operation, when septic fluid from the interior of the uterus is apt to infect its environment.

The following method appears to have given a higher standard of success than that which we obtained formerly.

After preliminary douching with potassium permanganate solution, cleansing of the abdominal wall with 1 in 500 solution of mercury iodide in spirit, painting with tincture of iodine, and isolation with sterile towels, an incision is made about eight inches in length. The peritoneum is opened at one point, and the rest of the wound cut with scissors. A large swab is now placed behind the uterus, which is displaced forward from the abdominal cavity. The upper angle of the abdominal wound is then clamped firmly together, embracing the lower segment of the uterus. A swab is now placed in the peritoneal cavity on either side of the cervix. A moist warm sterile towel is drawn tightly round the uterus where it emerges from the abdominal cavity. The uterus is now opened, the incision being clean but not extending over the fundus. The placenta, if anterior, must be extracted at once. If posterior, the child is extracted, and a pause is made till the uterus contracts. The placenta is then removed, together with the whole of the membranes. Haemorrhage from uterine sinuses is controlled by finger pressure, and about twelve interrupted catgut sutures are inserted into the muscular wall, avoiding decidual surface and peritoneum. As these are tied the muscular surfaces are brought into accurate apposition by an assistant. A second row of catgut sutures is now carried continuously from end to end, including superficial muscle and a two-millimetre edge of peritoneum. A continuous line of fine Lambert suture is used to cover the wound securely with peritoneum. The uterus is next carefully cleansed, an inch and a half removed from each Fallopian tube, and the proximal end folded. The intra-abdominal swab is removed, and the omentum brought over the front of the uterus and stitched lightly so as to retain it in contact with the uterine wound. Soiled towels are then removed, and with cleansed hands and instruments the operation is completed. If, however, the case has been attended by city midwives before admission it is regarded as septic, and suprapubic drainage is provided.

From 1914 to 1916 we performed twenty-two Caesarean sections. Of these patients, nineteen recovered, two died, and one left the hospital in a feeble condition, with chronic septic peritonitis. Probably she succumbed.

Of the fatal cases, one was a very severe puerperal eclampsia, with profound coma, and a temperature of 106.8°, in whom the operation failed to give relief, and she died the same evening.

Three typical cases may be appended.

CASE I.

B., aged 22. In labour three days. Great contraction of pelvis. Uterus very prominent. A curious transverse depression over Bandl's line. Ergotin citrate and pituitary extract hypodermically. Caesarean section. Subperitoneal rupture of front of uterus above Bandl's ring. Pus in uterus. Head firmly impacted in brim. Operation completed as described above, with suprapubic drainage. Fowler's position. Frequently repeated large saline enemata. Infant died thirty-six hours later with cerebral symptoms. Mother's temperature ranged for a month between 100° and 102°, and on the thirteenth day reached 103.2°. There was much discharge from drainage tube, and about the fifteenth day encol was found to pass through from the drainage tube to the vagina. The patient was convalescent by the thirty-sixth day.

CASE II.

B. D., aged 25. Contraction of pelvis. General dropsy. Mitral incompetence, with failure of compensation. Lips cyanosed; face pale. Urine, 18 ounces in twenty-four hours. Treated with digitalis and iron. Urine increased to over 50 ounces. Caesarean section seventeen days after admission. No drainage. Before operation the pulse-rate was between 100 and 112. Afterwards