INDICATIONS FOR OPERATION IN SPREADING PERITONITIS OF POSTABORTAL AND POSTPARTAL ORIGIN*

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POSTPARTAL and postabortal peritonitis originates in the pelvis, from the inoculation by infective organisms of wounds in the genital tract or by extension of endometrial inflammations along the tubes or through the parametrium to the pelvic peritoneum. Because of the peculiar anatomy and lymphatic distribution of the female pelvis, the infection usually remains confined to the serous coats of the pelvic structures and the parietal peritoneum.

From an extended study of the autopsy findings in patients dying from postabortal and puerperal conditions, as well as from many observations made at the operating table in cases of postpartal and postabortal pelvic inflammation, we have been impressed with the complete anatomic isolation of the pelvis which generally obtains. This is favored by the routine employment of the elevated trunk posture of Fowler, which has become so universal in the conservative treatment of pelvic infection.

The similarity of the anatomic findings has been constant in every case where the uterine fundus did not reach out of the pelvis beyond the confines of the loop of the sigmoid. It mattered not whether the inflammatory reaction was confined to the true pelvis, or had extended upward into the general cavity. Nature's attempt at isolation was always present, varying only in its completeness. Peritonitis of postabortal or gonorrheal origin generally remains confined to the pelvis unless the infecting bacteria are particularly virulent, or the tissue resistance is low, or unless Nature's plan of isolation is disturbed by meddlesome manipulation on the part of the attendant. There are several reasons why this pelvic localization of the inflammatory process takes place. First, because the infection reaches the peritoneum through either the tubes or parametrium, and consequently the peritoneal reaction is either due to the leakage from the abdominal ostium of the tube, or the exudative infiltration which takes place through the serous coat of the tube or of the parametrium. The tubes through which much of the infective material escapes because of their increased weight, early drop into the culdesac of Douglas, and therefore deposit their infective material and exudate low in the pelvis, and necessarily the most active peritoneal reaction is at or near this point. Second, the peritoneal reaction usually remains localized when the uterus is within the confines of the pelvis, for the sigmoid falls over the infected area and becomes adherent to the uterus, bladder, fundus and parietal peritoneum, thus isolating the infected pelvis from the general cavity. (Figs. 1 and 2.) On the other hand, in puerperal peritonitis, the primary seat of the infection is in the uterine endometrium which in turn is drained by the uterine and parametritic lymph channels. These pass along through the uterine wall to the

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perimetrium or in the cellular tissue of the broad ligament and excite a parametritic reaction and empty into the iliac and lumbar glands. If the infecting organism is virulent but little localization is produced and the infection rapidly reaches the peritoneum, but when a parametritis is excited, there is a subperitoneal edema of the overlying serous coat. This distorts and displaces the peritoneal endothelium and allows the inflammatory exudate to be poured out between the cells into the peritoneal surface. These surfaces owing to the high

Fig. 1.*—View of viscera through abdominal incision, showing isolation of the pelvis by inflammatory adhesion of the sigmoid, omentum and cecum to the fundus of the bladder.

position and the size of the puerperal uterus come in contact with intestinal coils, and furthermore, the pelvic brim is blocked by the ball-valve action of the enlarged uterus and gravity drainage is interfered with. Hence the exudate as it is poured out, instead of gravitating downward into the true pelvis, is poured out into the spaces between the intestinal coils forming adhesions; or if the exudate is virulent, ascending into the general cavity. Therefore it will be seen that there is a distinct difference in the pathology in postabortal and gonorrheal peritonitis with the uterus well within the confines of the pelvic

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brim, and the pathologic changes which may take place in the peritonitis complicating the puerperal state.

Ordinarily when the infection reaches the peritoneum a tissue reaction takes place in this structure and a plastic exudate is poured out. This usually seals off the general cavity from the infected area by the formation of adhesions with the adjacent viscera. During this reaction there is always an elevation of temperature, and an acceleration of the pulse rate, a leucocytosis and a relative increase in the polymorphonuclear percentage with more or less abdominal distention, abdominal tenderness and local tension directly over the inflamed area.

Under proper treatment such as the Fowler posture, an ice-bag over the abdomen, morphine and proctoclysis, the general symptoms gradually subside, unless the pelvic isolation is incomplete as is the case when the puerperal uterus with its perimetritic exudate is well out of the true pelvis, or the bacterial invasion is so overpowering as to overcome the leucocyte and plastic reaction. In which case instead of the abdominal symptoms subsiding, evidence of extension

Fig. 2.—Schematic sagittal section showing relations in Fig. 1.

becomes apparent. This is manifested by an increase in the abdominal pain due to peritoneal reaction and increased peristalsis, and an increase in the area of abdominal tension and distention.

There is also an increase or a persistence of the temperature reaction and an increase in the rapidity of the pulse rate. But far more important than these clinical evidences of extension is the increase in the polymorphonuclear percentage. This is always increased in spreading peritonitis no matter how high the leucocytosis may be. When this symptom-complex; namely, the increase in abdominal pain, tension, distention and polymorphonuclear percentage is present, conservative treatment should cease and drainage should be promptly established. Whether this drainage should be made through the culdesac of Douglas or through

a stab-wound incision, must be determined by the type of case with which we are dealing.

In the postabortive and gonorrheal type, free culdesac incision usually results in the escape of thin, cloudy, blood-stained serum; for when the uterus is not sufficiently enlarged to block the pelvic brim, the Fowler posture will allow

Fig. 3.—Elevated trunk posture, using the ordinary bed.

this virulent exudate to gravitate into the lowermost part of the peritoneal sac; namely, the culdesac of Douglas, and consequently culdesac drainage will relieve the patient from absorption of toxins by the lymphatics of the peritoneum. Such drainage is usually sufficient to give nature the necessary assistance in isolating the pelvis from the general peritoneal cavity.

Fig. 4.—Harris drip with patient in Gatch frame showing level of fluid in reservoir and sigmoid.

In other words, in an early spreading peritonitis of this type, by early culdesac drainage we are able to change what is becoming a general involvement into a local pelvic peritonitis or pelvic abscess.

On the other hand, in puerperal peritonitis with these same evidences of extension if the pelvic brim is blocked by the ball-valve action of the large puerperal uterus, culdesac drainage does not offer the same advantages.

While we have felt for years that but relatively few puerperal deaths were due to peritonitis, yet there is a sufficient number of these infections in which the peritoneum is involved, in which there is a distinct place for the employment of the surgical principles of drainage. The expectant treatment of puerperal peritonitis has such a high mortality, owing to the peculiar physiologic and anatomic changes which take place in the blood and lymph channels during the pregnant state, that the absorption of toxins and the resulting toxemia both from within and without the intestines play havoc with the individual resistance and deprive the patient of nourishment, fluid, and oxygen. The heart muscle

Fig. 5.—Technic of posterior vaginal section. Cervix drawn forward with tenacula, showing dimple at point of incision.

is likewise poisoned so that the blood pressure falls and there is general disfunction of the emunctories. Consequently any procedure which offers an improvement in our results should be tried with courage and conviction.

During the past two years we have treated twelve cases of spreading peritonitis of postabortal and puerperal origin with abdominal drainage. In the first two we were not sufficiently clear as to our indications and the drainage was resorted to rather later than in our subsequent cases. One of these patients died. In the next ten, where the significance of the symptom-complex already referred to was more fully appreciated, drainage was promptly established on

the demonstration of the high polymorphonuclear percentage. Six women recovered and four died. This gives us a total recovery of seven out of the twelve cases treated, which is certainly more encouraging than that of any previous method of treatment.

Our general plan of management of these cases has been as follows: On admission to the hospital after a careful history has been taken which always suggests the origin and course of the infection, the patient has a detailed physical examination which includes inspection of her general appearance, tongue, facies, peripheral circulation and abdominal contour. The heart and lungs are next examined and the blood pressure and pulse pressure taken. The abdomen

Fig. 6.—Posterior vaginal section, showing incision through the mucosa.

is next palpated to determine the degree of distention, tension and local areas of tenderness. A complete blood count is made, and likewise a blood culture. The patient is then placed in the high Fowler (Fig. 3) position; one or more ice-bags applied to the abdomen and a proctoclysis by the Harris method (Fig. 4) of glucose-bicarbonate of soda solution begun. The pain is relieved by a routine morphinization, small doses being given hypodermically at regular intervals, and the pulse, temperature, respiration, leucocyte count, and polymorphonuclear percentage recorded. If the patient's resistance is capable of taking care of the peritoneal invasion, in twelve to twenty hours there will be a definite recession

in the severity of the symptoms and a fall in the polymorphonuclear percentage. On the other hand, if her resistance is insufficient, or the virulence of the invading organism greater than the protective reaction; the pulse, temperature, and local abdominal symptoms will remain stationary or increase in severity; and most important of all, the polymorphonuclear percentage will rise. In the presence of these conditions drainage is imperative. One does not need to find a palpable exudate in the culdesac before making a posterior vaginal incision through the fornix. (Figs. 5, 6, 7, and 8.) Such an incision in the presence of the symptom-complex such as already described in postabortal cases will usually

Fig. 7.—Colpotomy incision widened by fingers.

be rewarded by the liberation of a pint or more of thin, flocculent blood-stained serum which on culture returns numberless streptococci. This is also the case if the uterus is reasonably well involuted and within the confines of the pelvis. If the uterus is large, extending beyond the brim, stab-wound drainage just above the pubis and the introduction of a tube or cigarette drain behind the uterus, which is brought out through the abdominal incision, with stab-wound incisions and drainage in both loins, just external to the ascending and descending colon, will frequently give prompt relief by the release of the peritoneal exudate. After these incisions have been made the usual treatment of peritonitis, namely,

Fig. 8.—Schematic section of pelvis showing introduction of gauze into culdesac between two retractors.

Fig. 9.—Showing site of suprapubic stab-wound drainage.

posture, proctoclysis, starvation, lavage and intestinal rest by morphinization must be continued until the tension is relieved, the intestinal distention subsides, normal peristalsis is established and the temperature, pulse, and polymorphonuclear percentages fall. When this has been accomplished, our drainage has succeeded, and not until these clinical evidences are apparent should any food or nourishment be allowed by the stomach.

From our observations in the clinical study of postabortal and puerperal peritonitis we have drawn the following conclusions: First, that nature is competent to localize the lesions in the large majority of peritoneal extensions. Second, that advancing peritonitis has a definite symptom-complex which is constant when the inflammation is spreading. Third, that in the presence of this symptom-complex drainage is necessary and definitely lowers the mortality.

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