Temperature 101° F., pulse 140, and respiration 32. The tongue was dry and furred. The abdomen was held rigid, with no respiratory movement whatsoever. On palpation there was board-like rigidity of the upper abdomen, with great tenderness. Palpation revealed slight increase of liver dullness. The diagnosis of a posterior perforation of a gastric ulcer into the lesser sac was made, and immediate laparotomy was decided upon. Upper abdominal section was performed, and the peritoneal cavity was found to contain a moderate amount of clear blood-stained fluid, some of which was collected for pathological examination. The gall-bladder was normal, but emptied slowly, and there was no ulcer on the stomach or duodenum. The great omentum and transverse mesocolon contained large distended areas of an opaque, greyish, jelly-like material, and the peritoneum of the posterior abdominal wall was bulged forward with a large collection of a similar mucinoid substance. The pancreas was greatly enlarged and oedematous, and was entirely surrounded by this jelly-like substance. The gland itself gave a peculiar granular and at the same time "soggy" feeling on palpation. Two small areas of fat necrosis were found, one in the gastro-hepatic omentum and the other in the great omentum. No drainage was performed, and the patient was sewn up and put back to bed. The following day the urine showed 200 units of diastase. Within a week the diastatic index had dropped to 100, and on discharge on the seventeenth day it had dropped to 30. Recovery was completely uneventful.

CASE II

Female, aged 36. For three weeks she had been suffering from pain in the epigastrium referred to the back and to the point of the right shoulder, with frequent attacks of vomiting. On the day of admission she had a very severe attack of pain similar in situation, but enough to cause collapse. Her temperature was 98°, pulse 120, and respiration 32. There was no jaundice. The abdomen exhibited extreme tenderness and rigidity all over, most marked in the hypogastrium and right hypochondrium. The liver dullness was normal. At operation there was a very grossly enlarged gall-bladder containing a number of calculi. The omentum exhibited areas of distension with a greyish mucinoid material, which separated the layers into large blebs. The peritoneum of the posterior abdominal wall was similarly affected, and the pancreas lay in a mass of the same jelly-like material. There were no areas of fat necrosis. The gall-bladder was emptied of stones and muco-purulent fluid, and drained. The common duct was patent. The lesser sac was drained by a large tube passing through the transverse mesocolon, and the abdomen was closed. The tube in the lesser sac was removed on the third day as no discharge was being evacuated through it. The gall-bladder tube was removed on the sixth day. Recovery was uneventful, the patient being discharged well on the fifteenth day. Unfortunately the urine diastase was not estimated.

CASE III

Male, aged 54. For one month he had been suffering from vague dyspepsia, with pain in the abdomen referred through to the back. Two days before admission the pain had become much more severe, and was accompanied by vomiting. On the day of admission all the symptoms were increased, and there was slight jaundice present. The patient's temperature was 99.6°, pulse 130, and respiration 40. Abdominal respiration was absent. The abdomen evinced board-like rigidity in the upper half, with marked tenderness all over. On laparotomy the gall-bladder was found to be distended, and there were several small calculi present. The common duct was dilated, and one small stone, with a large amount of biliary mud, was found. As in the two other cases the great omentum was distended into blebs with the greyish mucinoid material. The pancreas itself was surrounded by similar material, and the peritoneum of the posterior abdominal wall was also raised by a collection of the jelly-like material behind it. There were three small areas of fat necrosis. The gall-bladder was drained, the common duct opened and cleared, and also drained. No drainage of the lesser sac was carried out. The diastatic index in this case was 180, which fell in eight days to normal. Recovery was uneventful, the patient being discharged on the sixteenth day.

REMARKS

Only two small fat necroses of typical appearance were seen in Case I, and three in Case II. In all three cases the retroperitoneal tissue round the pancreas, in the great omentum, and upon the posterior abdominal wall showed large, focal, or diffuse expansions occupied by an opaque, greyish jelly-like substance. In Case I the mesocolon was similarly affected, whilst the pancreas was greatly swollen and oedematous. Professor Turnbull tells me that he and his colleagues have not observed this gelatinous substance at necropsy, but have found in similar positions masses of an opaque pultaceous or putty-like substance containing fibres, suggesting a soft plaster mixed with hair. The colour has been in general white, yellow, or grey, but to a greater or less extent dirty grey, brown, black, or brown-red from altered blood. This putty-like substance containing fibres is obviously digested adipose tissue in which the digestion of the fibrous stroma is incomplete. This substance found at necropsy might be described as butter, but not as jelly. It is possible that the appearances shown during life alter after death. This, however, appears to be an unlikely explanation, because Professor Turnbull remembers cases in which masses of pultaceous substance were removed from the lesser sac during dressings after laparotomy. It is more probable that the gelatinous condition seen in these three cases during life represents a preliminary stage in digestion. Although the symptoms had come on acutely, and there was severe interference with pancreatic function, all three patients recovered. It is impossible, therefore, to know whether complete digestion ever occurred.

My thanks are due to Professor H. M. Turnbull for his kind help with the post-mortem description of this condition, and to Mr. Russell Howard for permission to publish the details of these cases.

TOTAL HYSTERECTOMY FOR NON-MALIGNANT CONDITIONS

BY

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The very valuable paper on total abdominal hysterectomy for myoma of the uterus by Dr. Herbert Spencer in the *British Medical Journal* of June 25th, 1932, prompts me to make an addition to it which I consider of importance. No one has done so much as Dr. Spencer in calling attention to the real danger of cancer attacking the cervix which is left after subtotal hysterectomy. In the *Medical Journal of Australia* of June 23rd, 1917, I published a short series of such cases, and have known of many others. I think it is generally admitted all over the world that 2 per cent. would be a conservative estimate of such untoward happenings. Notwithstanding Dr. Herbert Spencer's irrefutable arguments in favour of total hysterectomy, I am convinced that it will never be as popular as the subtotal method until the Doyen technique (which I have seen both Doyen and Dr. Spencer perform, and which Dr. Spencer still advocates) gives way to one infinitely simpler, safer, and with much better ultimate results. Such a method I published in the *American Journal of Obstetrics and Gynecology* for December, 1917.

My first operation by this method was performed on June 14th, 1914, and my 532nd on July 29th, 1932. There have been three deaths—two due to accidents from the disorganization of the Sydney Hospital staff during the war. The third was due to acidosis, in a drug addict. This patient lived out of the city, and her case was

insufficiently studied prior to operation. The mortality rate is thus 0.563 per cent. as compared with Spencer's 1.8 and Lockyer's 1.58, which Spencer says has never been surpassed. If my technique be closely adhered to it is impossible to wound bladder or ureters, except in the case of cervical myomata, or where there is subserous development.

I have had the privilege of demonstrating the operation to three surgeons of very large experience—namely, W. I. Mayo, Franklin Martin, and Alfred Smith. Dr. Mayo's comment was: "That is a very pretty hysterectomy." Dr. Masson of Rochester and Dr. Geo. Gray Ward of New York have written to me to say they were favourably impressed, and would give the method a trial. My colleagues here and in Melbourne have, generally speaking, adopted this operation. It will be a pity if a method which has been proved to be an advance should not be made known to, and tried out by, British surgeons.

The operation originated in my dissatisfaction with the results of subtotal hysterectomy, not alone because of the not uncommon tragic development of cancer, but because of the frequency with which women after this operation still complain of discharge and general ill-health due to the septic focus. As a consequence the after-results are comparable to those following successful prostatectomy; the patient seems to take a new lease of life. A factor in this sense of well-being is that the ovaries are always preserved unless the woman has passed the menopause.

In this series I have included every hysterectomy for non-malignant conditions of the uterus, whether myoma or "bleeding uterus," but I have not included eighteen performed in the course of operation for pelvic suppuration. I have alluded to these in my address on pelvic suppuration to the American College of Surgeons, which was published in *Surgery, Gynecology, and Obstetrics* for 1925. All the patients recovered. It may perhaps be not irrelevant to say here that inasmuch as radium, in addition to the impossibility of diagnosing all contraindications to its use, atrophies the ovaries, leaves untouched the septic focus in the cervix, and affords no security against the subsequent development of cancer, it must be held to be altogether inferior to the modern total hysterectomy for myoma and the condition known as fibrosis or "bleeding uterus."

In the following account of the technique it will be noted that this is not a "coning-out" method, but the reverse; as the dissection approaches the external os, instead of narrowing, it expands so as to include every vestige of gland-bearing tissue. The immunity from embolism in this series is remarkable. I am inclined to attribute it to three things: (1) The avoidance of transfixation and the substitution for it of the method of "clip and tie," which I described in the *Journal of Obstetrics and Gynaecology of the British Empire* (May, 1912). (2) The use of plain catgut instead of the silk recommended by Dr. Spencer. (3) The insistence on the patient taking five or six deep breaths every hour throughout each day, also moving the legs up and down.

TECHNIQUE

After etherization the bladder is emptied, the vagina scrubbed and disinfected, and a syringeful of freshly made tincture of iodine slowly injected into the uterine cavity. In some cases the os is closed with catgut sutures in addition.

The abdomen is opened in the median line, my reflecting retractor placed in the lower angle of the wound, and each round ligament held up, clipped, and divided. Through the space thus opened up in the anterior layer of each broad ligament the finger is thrust; the vascular arch above the finger containing the ovarian vessels is divided between clips on the uterine side of the ovaries, which are always allowed to

remain if healthy. The peritoneum between the cut round ligaments is divided and the bladder pushed down with the scissors. The uterine vessels, bared of all tissues, are clamped on each side a shade below the inner os. With a blunt scissors bent, not curved, on the flat, the musculature of the cervix is then incised all around, penetrating about halfway toward the canal; the direction of the cut is then altered from inward to downward until the external os is reached, when the circumference of the cut is expanded so as to include all the external os. The mucosa of the vagina is united to the serosa anteriorly by a figure-of-eight catgut suture; the same is done posteriorly. These two sutures are used as tractors by which to pull up the field of operation nearer to the operator. Another figure-of-eight on each side closes the lateral angles of the opening into the vagina and checks all oozing in these situations, and the tying of the two traction sutures closes the central portion of the opening. All artery clamps having been replaced by ligatures, a purse-string suture on each side closes up the broad ligaments, takes in the stump of the round ligaments, and unites these to the rim of the cervix. When tied these sutures secure the ovaries and tubes a little further out than the rim of the cervix, so that their vascular supply is not unfavourably affected.

When infection is present drainage can readily be made by not completely closing the vaginal opening. The parietal wound is closed by five tiers of sutures, including silkworm gut passed through all structures except the peritoneum and tied over a fold of gauze, which prevents all cutting.

Without any attempt at haste the procedure outlined above can be carried through in from thirty to sixty minutes, according to the absence or presence of complications.

Haemorrhage is very slight, because the cut is made inside the vessels supplying the cervix. It is also inside the attachments of the utero-sacral ligaments and endopelvic fascia. The keystone of the vaginal vault is not weakened. Subsequent examination discloses no vaginal shortening. The firm ring formed by that part of the cervical muscle which has been left is plainly felt. All glandular epithelium has been removed; there is no longer any danger of cancer development. Convalescence is easy.

MATERNITY AND CHILD WELFARE SERVICES IN THEIR RELATION TO PUBLIC HEALTH

BY

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There can be no doubt about the very great progress made in the public health, attributable to the efforts of the maternity and child welfare services. The following remarks, coming from a physician especially interested in the diseases and welfare of children but not himself in the public health service, are intended to offer some criticism and provocative observations on the present state of affairs, and possibly to suggest methods for its improvement. I think it is true to say that nothing is more potent for good than the advice of a painstaking welfare medical officer who has careful health visitors to assist him. This team can do more towards educating the mothers to a high standard of infant care, and can also get directly at the home problems more easily, than any other means we have—especially among the very poor. The modern general practitioner has a much better insight into infant feeding and care than his predecessor, and there is no doubt that he is much more capable of dealing with those cases not eligible for welfare centres.