

TWO YEARS' (MAJOR) OPERATIVE GYNÆCOLOGY IN THE ROTUNDA HOSPITAL, DUBLIN—A RECORD OF PERSONAL EXPERIENCE.

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[Read in the Section of Obstetrics, December 15, 1905.]

A BRIEF review of work accomplished in any special hospital is seldom devoid of interest, and for this reason I desire to give a short *résumé* of our work in the gynæcological department of the Rotunda Hospital for the two years ending November, 1905, during which time I have held the Mastership.

The total number of major operations performed in this period amounts to 227; 15 of these were performed in my absence by my assistants, and include a successful Cæsarean section; as, however, I had no personal responsibility for these, they will not at present be considered.

The 211 cases that remain are made up as follows:—36 ovarian cystotomies (29 by the abdominal route and 7 by the vaginal); 30 operations for uterine myomata; 14 operations on pyosalpinx; 32 ventro-fixations; 18 vaginal fixations; 2 anterior colpotomies (undertaken for conditions not specified in this list); 4 removals of parovarian cysts; 8 hysterectomies for uterine cancer; 11 salpingotomies; 15 operations for tubal pregnancy; 3 ovarian resections; 9 operations for ventral hernia; 7 radical operations for procidentia; 1 operation for tubercular peritonitis; 2 hysterectomies for painfully retroverted uteri not amenable to other treatment; 2 removals of retro-peritoneal fibro-sarcomata; 1 operation for inversion of the uterus with prolapse; 1 for ovarian fibroid; 3 ovari-

otomies for dermoids; 7 abdominal myomectomies; 4 Cæsarean sections; and 1 enterostomy for congenital malformation of the large intestine.

It may be gathered from the above list that my definition of a major operation (as it affects the gynæcological specialist) is one in which the peritoneal cavity has been opened either through the vagina or through the abdominal wall, or else one in which a sub-mucous myoma is extracted by *morcellement*.

The number of deaths in this list was eight; of these, three occurred after hysterectomies undertaken for cancer, two after abdominal and one after vaginal hysterectomy. In the last of these cases death resulted from hypostatic pneumonia three weeks after the operation; the woman was old and enormously stout, weighing twenty-two stones, and was so helpless that it was impossible to keep her from rolling over on her back. In another death occurred on the third day after the radical abdominal operation suggested, and practised with so much success by Mackenrodt. To my mind this is the most extensive operation performed by the present-day surgeon, and the transverse incision, which is one of its essential features, extending almost from the anterior superior spine of one side to that of the other, impairs the integrity of the abdominal walls and increases shock to a degree incommensurate with its supposed advantages, viz.—a better view and a more extended field of operation.

Wertheim's brilliant results presented at the Leicester meeting of the British Medical Association encouraged me to attempt his operation. The patient died of sepsis on the second day, the origin of the infection not being far to seek. The cancer had converted the uterus into a mere shell and had involved the bladder to an extent not even guessed at before the operation. Whilst manipulating the uterus my

gloved forefinger passed through its walls in a most unexpected manner, and shortly after this calamity the bladder also was burst into while peeling it from the uterus. These untoward accidents could hardly have had any other than a septic ending. Our pathologist, Dr. Rowlette, by whom the autopsy was performed, informed me that a considerable amount of malignant disease had not been removed, and that this was particularly apparent in the bladder wall.

I do not feel that the eminent author of this operation has succeeded in establishing it as a permanent one. Neither in respect of its simplicity in performance nor its extensiveness can it be considered anything but a stepping stone to what we look forward to as the classical operation of the future.

It will be observed that hysterectomies performed for the removal of uterine cancer have been comparatively few and the results most disappointing. Operations were only undertaken in about fifty per cent. of the cases seen by me, and one woman is still alive in whom eighteen months ago I considered that the disease had advanced too far to justify operative interference. In another of my cancer patients the bladder was extensively involved, and was opened during the performance of a vaginal hysterectomy; a permanent fistula remained, and the patient died six months later from the recurrence of the disease. Recovery was uneventful in all the other hysterectomies for cancer, and these patients, together with the patient from whom an ovarian carcinoma was removed, are up to the present, I believe, free from disease.

One patient suffering from myomatous uterus died of sepsis, the result of a supra-vaginal operation; this case will be again referred to. Another arrived at the hospital in a dreadfully exhausted and septic condition, suffering from a large putrefying sub-mucous myoma. She died

under the anæsthetic just as I had completed the removal of the sloughing mass by *morcellement*. A patient was lost through the bursting of the sac of a pyosalpinx with consequent escape of septic matter into the abdomen during operation—by abdominal section. A very deplorable death resulted from an erroneous estimate of the depth in which a sub-mucous myoma was imbedded in the uterine wall; at the autopsy it was found that a hole existed in the uterus from which the myoma had been excavated. The last death should not fairly be considered an operative fatality; the wretched woman was admitted to our maternity hospital in labour, her vulva surrounded with horribly foul-smelling venereal sores. She was immediately placed in an isolation ward, and she delivered herself by natural efforts and without interference of any kind. Within twenty-four hours the most virulent form of sepsis had developed, with frequent and repeated rigors, temperature 104.4° , pulse 150. It was so obviously a case of inevitable death that I decided to give her the faint chance of an endeavour to stay the septic absorption by ligaturing the pelvic veins. On opening the abdomen the tubes and uterus were found bathed in pus on their outer aspect, and it became apparent that these structures should be removed. This was rapidly done, and the last stitch had been fastened in the abdomen when the patient's respirations became shallow, and death followed in a few minutes.

It will be observed that the two patients whose deaths are recorded as having occurred whilst under anæsthesia were both in a profoundly septic state, and they impress on us the special danger of anæsthesia in such cases.

The two retro-peritoneal lipo-fibro-sarcomata were enormous growths. In the first I removed a portion of the tumour as large as an Association football, but was unable

to pursue the operation further. The patient for some time was much relieved, but died three months later from recurrence without experiencing any pain. The second tumour I enucleated in its entirety; in doing so I tore the capsule of the right kidney, as it had been displaced by the growing tumour to the left hypochondrium; the renal structure was also torn. In spite of this the patient made an uneventful and apyrexial recovery, and she is at present in sound health.

Of over thirty-two ventro-fixations only thirteen were performed on patients who did not suffer from adhesions or whose displacements were not complicated with tubal or ovarian diseases; many of them were also sterile.

Exactly how far a gynæcologist should venture in the operative treatment of sterility has up to the present received no adequate expression of opinion. To conclude that all that can be done has been done for a woman when her uterus has been curetted and her cervix split reflects but slight credit on our art, nor is there much gained if, in addition, the uterus is replaced and kept in position by a pessary or by the shortening of the round ligaments (Alexander's operation).

In these cases it seems to me that ventro-fixation is the operation of election; the incision necessary for its performance enables one directly to inspect the tubes and ovaries. It is astonishing how often these structures are diseased without any indication of the fact being furnished by bi-manual examination, and my invariable custom has been to make a systematic attempt in every instance to improve the diseased condition. Adherent and twisted tubes are loosened, the fimbriated extremity is opened, if possible, and a fine probe is passed through its lumen to cause the passage to become patent. At times it is necessary to form a new os in the tube, and either to

hem round the raw edge in an endeavour to prevent its subsequent closure or to adopt a plan which I prefer—namely, to stitch the ovary into the mouth of the tube and so ensure the latter remaining open. I have been told that such an operation would lead to menstrual pain, but personally I have never had any reason to believe that this is so.

It is impossible to say definitely how far these operations succeed in effecting a cure; of a certainty pregnancy could not have taken place in many of the cases in which I considered them justifiable, and the direct inspection of the appendages seems an advance in the right direction.

The round ligaments are occasionally shortened, particularly in the case of young married women who suffer from replaceable retro-deviations. It is a neat and scientific procedure, and one that can be almost absolutely depended upon to accomplish its object—namely, the keeping the uterus in its normal position. In the light of my present experience, however, I cannot but believe that a pathological condition of tubes and ovaries is the commonest factor that makes for sterility. The apprehension of danger from childbirth following on ventro-fixation appears to have little foundation in fact, and I personally have never observed the least complication to ensue.

In performing vaginal fixations I have always employed the modern modification adopted by both Mackenrodt and Dührssen—namely, the closure of the vesico-uterine fold of peritoneum before the uterus is finally fastened by its fixation suture. Neither in ease of performance nor certainty of success does this compare with ventro-fixation, and the limitation of the field of vision makes it greatly inferior to the latter procedure in respect to the thorough exploration of the tubes and ovaries. The indications for its performance are with us, nevertheless, precise. It is

adopted in the case of a parous woman with retro-displacement complicated by rupture of the perineum and perhaps of the cervix, in whom an operation is undertaken for repair of these lesions.

We advise almost all patients who suffer in any way as the result of myoma formation to submit to operation. An exception to this rule is made in the instance of young unmarried or recently married women, where such operation would involve the loss of the uterus. The small sub-peritoneal tumours are removed by vaginal myomectomy, if of larger size than a hen's egg by abdominal myomectomy. In 24 cases the uterus had to be sacrificed, and in these, with very few exceptions, we preferred sub-total to pan-hysterectomy.

To revert to the fatal case of operation for myoma—a case in which the supra-vaginal method was adopted—septic infection arose as the result of an unfortunate accident, for which I am much to blame. The operation took place some two months after the date of my appointment to the hospital, at a time when experience was somewhat lacking as to the limitations of rubber gloves. Our hands had been severely burned by the prolonged action of antiseptics within the gloves. In this instance I discarded the use of antiseptics entirely, and during the progress of the operation my assistant, while fastening a clamp, caught my forefinger and tore the glove badly; a cursory glance did not reveal this fact, and it was not until a considerable time had elapsed that I became aware that my forefinger protruded through it. From the time of this calamity dates our present method of hand disinfection.

Two of my other operative fatalities had occurred prior to this one, and indeed within three weeks of my taking over the charge of the hospital. The peculiar circumstances of the position render it necessary for a new Master

to work at first amongst unaccustomed surroundings, with nurses, sisters, and assistants to whom his methods are entirely strange, and this placed me at such a great disadvantage that at times I am disposed to think that one, if not more, of these patients might have been saved had the operation been conducted under present conditions.

Our ventral hernias furnished two cases of extreme interest. In none of them was the original operation performed by me, nor has this accident happened so far as I am aware to any of my patients. On woman, on whom an operation had been performed in Egypt some years before, on the day of admission to our hospital burst her abdominal wall during a fit of coughing. The intestines lay on her abdomen and on her pubic hair for nearly an hour before relief could be obtained, and notwithstanding this her recovery was uneventful. The other case was that of an infant eighteen hours old, in whom the intestines protruded as a large mass from the umbilicus, covered only by a thin capsule of a greatly stretched out umbilical cord. This capsule was very firmly attached to the intestines, and during the process of separation the latter were badly torn. Fine silk sutures repaired the laceration, and the infant's subsequent progress towards health was all that could be desired.

We failed to find the aponeurotic covering of the recti muscles in one very fat and alcoholic patient, and in her case a relapse has taken place.

Amongst the abdominal operations there were five cases which showed some suppuration in the wound. In two the staphylococcus albus was found, in one the pneumococcus, in a fourth bacterium coli commune, whilst the germ in the fifth was not ascertained. In three of these the suppuration was slight and entirely superficial. In a fourth healing followed in a few days on the pulling out

of a small piece of the continuous silk suture that united the edges of the fascia. In the fifth case a small sinus remained six weeks after operation, and the patient, refusing further treatment, left the hospital.

This infection also had involved the fascial suture, and could have been perfectly easily cured by a procedure similar to that adopted in the other case.

Only four of our six Cæsarean sections (all of them successful) are included in this list. When due care is taken in selecting cases suitable for Cæsarean section this is amongst the easiest and safest of abdominal operations. In every instance the uterus was stitched by interrupted sutures of fine silk, and the abdominal wall closed in three layers by the same material. We never failed to notice the thickening process that continuously went on, and could be observed in the uterine incision during the time it was being sutured. This retraction force has no connection with uterine contractions and proceeds when the muscle is in a flabbily relaxed state. I have had occasion recently to perform Cæsarean section for the second time on one of my patients, and was interested to note that within an interval of eighteen months all traces of silk sutures had disappeared not only from the abdominal wall but from the uterus; the scar in the latter formed no adhesions, and indeed was discernible with difficulty. It was felt, however, as a slightly thickened portion of the uterus when it was grasped by one finger placed inside and the other outside that organ.

Having now dealt briefly with some of the more interesting cases, I shall pass to a consideration of our methods.

The hospital contains two small, well-lighted theatres suitable for the carrying out of the aseptic principles of surgery. In one all minor operations are performed, and in addition to these nearly all the vaginal colpotomy opera-

tions. For the latter the vulva is shaved and thoroughly washed by an assistant while the patient is under the anæsthetic.

Gamgee wool is held in a forceps, soaked in soap solution, and inserted into the vagina, and the latter is thoroughly scrubbed out, the action of the soap being aided by a douche; when this process is completed the vagina is well plugged with lumps of cotton soaked in biniodide of mercury solution. The patient's legs are placed in sterilised bags, and these are connected together by an abdominal apron, which enables the operator at any time to make a bimanual examination without touching the skin of the abdomen.

A piece of waterproof sheeting specially prepared to withstand repeated boilings is stitched to the perineum just above the anus, and serves admirably to protect the field of operation from contamination. Gloves have been worn almost without exception in all vaginal work for the past twelve months.

Theatre No. 2, as originally designed by Sir William Smyly, consisted of an exceedingly small room that might almost have been called a box. It was lighted by a northern light, and was entered from another room where all the disinfecting processes took place, and where, from a large elevated platform, the students viewed the operation through a plate glass screen. This screen, cemented into the lateral walls, and reaching from floor to ceiling, completely divided the rooms.

The extended use in surgery of the Trendelenburg position necessitated the turning of the patient's abdomen to the light and away from the view of the students. This resulted in much dissatisfaction, and continuous complaints reached me that it was impossible for lookers-on to follow the various steps of operations. For this amongst

other reasons, and acting on the suggestion of Sir William Smyly, I determined on its alteration. The screen has been pushed back so as to provide ample room in the theatre proper, and students now enter by a door other than that placed in the glass screen. They stand on raised platforms with their backs to the windows, and they obtain an exceptionally good view of the operation. Doors are bolted at the beginning of the operation, and late comers can as heretofore look through the screen.

One basin with hot and cold water connections worked by elbow levers is fixed in the theatre for the purposes of hand washing during operation; its waste-pipe passes through the wall of the theatre and opens into the air unconnected with any trap or sewer pipe.

All the sterilising apparatus is separated from the theatre proper by the screen, and in this screen is placed a small lift-up window to enable disinfected instruments to be handed into the theatre during an operation. Our city water supply is very pure, and we have not seen any necessity for its special sterilisation before employing it for hand washing. It is our invariable custom to fill the abdomen with saline solution at the termination of all abdominal sections, and to use a similar solution in which to soak "wipes" before they are placed within the abdomen. For these solutions the tap water is submitted to a special process of sterilisation which deserves a passing notice. The cold water is passed through a Pasteur's filter, and is discharged into a large sealed tank, from which a copper pipe, passing through the screen, conveys the filtered water to the theatre; a second pipe running parallel to this one carries water from a copper receptacle, beneath which a gas burner is placed, and the hot and cold taps for sterilised water lying side by side enable a nurse to obtain very readily water of any required tem-

perature. To filter the hot water by a Pasteur's apparatus would be an easy matter, but this has not seemed necessary.

Since January, 1904, we have worn gloves without intermission for all abdominal sections; their employment seems in no way to hamper, whilst the satisfaction of feeling that one cannot infect one's patient adds immensely to the confidence of the operator.

In order to avoid the injurious influence of mercurial antiseptics on the skin when imprisoned within gloves we have adopted the following plan with excellent results:—

After the usual thorough scrubbing with soap, nail brush and hot water, the hands are soaked in one in 1,000 solution of biniodide of mercury dissolved in 70 per cent. methylated spirit with 30 per cent. water. To remove this antiseptic from the skin the hands are well rinsed out in pure methylated spirit; some of this is also poured into the gloves after they have been emptied of the hot water in which they have been boiled. The methylated spirit acts as an efficient lubricant and permits the glove to be readily slipped on. The epithelium by its means is kept hard and dry, and is neither roughened nor burned by the prolonged action of alcohol. We have proved by numerous bacteriological examinations that the hands remain sterile even at the end of a two hours' operation; this being so, a needle puncture or even a slightly larger hole made in the gloves is a matter which no longer excites uneasiness, for we know that any fluid which may possibly escape from these will be sterile.

When time permits, the skin of the abdomen undergoes the usual process of preparation, and has a biniodide spirit pad of the solution above named placed over the site of operation.

We do not scrub with soap and water before the opera-

tion and while the patient is under the anæsthetic, for we believe that violent scrubbing with a nail brush at this time mechanically injures and devitalises the living epithelium, leaving it in a condition less likely to withstand the attacks of germs.

We rub the abdomen over with ether and then with biniodide solution, and finally paint the skin with tincture of iodine, or, better still, with saturated solution of picric acid in spirit. All these procedures have for their object the hardening of the epithelium and disinfection of its surface layer. It is of little consequence to us what germs may lurk within the deeper recesses of the skin if we can prevent them sweating to the surface, and this object can be attained with more or less success by following out the above procedure.

A Köcher's sheet is stitched to the abdomen to prevent its slipping from its proper position throughout the operation.

Repeated exposures of culture plates placed in different parts of the theatre have demonstrated the atmosphere singularly free from pathogenic organisms. They occurred in greatest number in the neighbourhood of the patient's chest, and obviously resulted from air-currents caused by the patient's, the anæsthetist's, and the operator's breath, together with that of his assistant's. To mitigate this evil we now place a screen on the chest of the patient to shut out the field of operation from her breath, as well as from that of the anæsthetist, whilst mouth bags are worn by operator and assistant.

Culture colonies increase in number the nearer the floor is approached, and the latter is, therefore, kept in a constantly damp condition to fix the dust and microbes that may fall on it.

Students are provided with white coats during their

stay in the theatre, but we have not made them wear mouth bags. It is evident, therefore, that in their breathing, coughing, and sneezing, and occasional talking, septic air currents to a considerable degree must arise. This being so, it has always appeared to me rational to dilute these germs by opening the theatre window. I know that such a view will obtain no general acceptance, but I personally have never been able to trace the remotest ill consequence to the course, and it certainly conduces to the comfort of those in the theatre.

If septic matter escape into the pelvis during the course of an operation, our operating table is immediately screwed into a position the reverse of the Trendelenburg position, with shoulders raised and pelvis lowered, and an assistant holds back the intestines while the infected area is douched out with copious quantities of saline solution. This position is very readily obtained in our excellent operating table of German manufacture. It is aseptic in design, can be elevated or lowered with the patient on it by a few turns of a handle, while another handle works the Trendelenburg and its reverse position in an absolutely perfect manner. The price of the table is, I believe, £13, and its efficiency is not excelled by that of any other of which I have had experience.

If there be reason to believe that septic matter has escaped into the pelvis we drain either with Keith's tube through the abdomen or with iodoform gauze through the vagina.

The head of the patient's bed is also kept raised on blocks for several days to confine infection to the pelvic region, as far as possible, and we think we have observed cases where this postural treatment succeeded in limiting the infected area.

At the completion of every abdominal section the cavity

is filled with saline solution before the abdomen is closed, as we believe that this lessens subsequent discomfort and thirst, provides a readier means for omentum and intestines to roll into normal position, and in the event of septic infection dilutes the poison and brings it into direct contact with a larger phagocytic area.

The abdomen is closed in three layers; peritoneum with No. 2 and aponeurosis with No. 4 silk, both boiled in corrosive sublimate solution. The skin wound is brought together with a sub-cuticular suture of silk-worm gut; the two extremities are passed through holes bored in a leaden plate, which latter is placed on the wound along its entire length; the ends of the ligature meet in the middle of the plate and are tied together.

In the event of the lower angle of the wound requiring drainage the leaden plate is an invaluable means of keeping the upper portion of the wound dry, and of preventing its contamination by sopping-wet dressings.

My main reasons for entering into such minute details of theatre management is that I may succeed in eliciting some expression of opinion on what may be deemed the practical requirements of aseptic surgery, as we at present understand the term. I cannot attribute any of my failures to faults in theatre construction, and this, too, I feel confident will be the verdict of every impartial reader of this paper. This being so, it does not seem too much to say that our theatre, simple in its construction, and inexpensive in its fittings, with its well-tiled floor, and its smooth cemented walls painted with Rippiline enamel, satisfies the requirements of our present aseptic knowledge.

If this conclusion be granted, and it should not be set aside on mere theoretical grounds, a crushing argument is furnished against the wasteful expenditure in theatre

construction and fittings so fashionable in the present day. Tens of thousands of pounds subscribed by the charitable public have been lavished in an effort to reach perfection. Architectural extravagance has been permitted a loose rein, and allowed to run riot, with results which have converted the simple workshop of the surgeon into a show-room which might well serve as a dazzling advertisement for a quack electrical specialist. Fortunate will it be for us if future generations do not find just cause for censure in this extravagance.

I cannot conclude this paper without recording my sense of gratitude for the valuable help afforded me by my assistants, and more particularly by my nursing sister, Sister McIlroy, who has been associated with me from the first, and has devoted herself to the work with a whole-hearted enthusiasm.

DR. JELLETT congratulated Dr. Tweedy, and said he agreed with him in his views on theatre expenditure. He also approved of having the windows open during operations. He thought that the sterilising apparatus should be removed to some distance from the theatre, as the air could, at present, be contaminated by it. He was inclined to think that face bags were not really necessary if the operator took proper care of his teeth. Discussing the technique of operating in cases of sterility, especially when caused by closure of ostia of tubes, he asked Dr. Tweedy if he had any reason to think that in a case where the tubal ostium had been glued down to the intestines there was any chance of making it patent again. He himself thought the chance small, and he thought the time might be better employed in removing the fimbriated extremities of the tubes where adhesions were most likely to form. He was much surprised to hear that Dr. Tweedy washed out the abdomen in every case, and asked what his views were on the subject of drainage.

DR. KIDD asked what method of suturing was used in the cases of ventral hernia. He himself had used the three layer principle

with good results. In the case of sloughing myoma, which was removed by *morcellement*, and which ended fatally, would it not have been better to treat by removal of the entire organ? He thought that many cases of sterility were due to the condition of the male. He approved of wearing a mask, as a certain amount of sputum was kept out of the field of operation by it.

DR. HORNE agreed that the enormous expenditure incurred in making theatres was to be deprecated. He appreciated the strict asepsis of Dr. Tweedy, and suggested that the nurses also should wear masks. The fact of so many stitch abscesses having occurred showed that no matter what care was taken accidents would happen. He believed that cases of cancer frequently came for treatment when too late, owing to the fact that pain was a late symptom in the disease.

DR. PUREFOY said he had not made the use of rubber gloves a general practice. Many operators stated that their successes were not materially increased by their use, and the difficulty of manipulation was certainly increased. He asked what Dr. Tweedy considered the indications for operation in cases of recurring displacements. Many of these cases were attended with no symptoms. He utterly disbelieved in vaginal fixation, and thought that after Alexander's operation the ligaments frequently stretched again. He thought there was likely to be trouble after these fixation operations if the woman became pregnant, and supposing the ligaments were strong enough to hold.

DR. HASTINGS TWEEDY, in reply, said that he had enumerated all his bad cases. Those that remained recovered without causing anxiety. They suffered from neither excessive thirst, nor vomiting, nor flatulent distension, nor obstinate constipation. This he attributed in some part to filling the abdomen with saline. The patients would probably have recovered without the saline infusion, but he felt convinced that their convalescence would have been less uneventful. His series includes 100 consecutive abdominal sections without a death, but this is not a satisfactory record, so long as the majority of cancer cases seen are not submitted to operation. The submucous myoma removed by morcellation protruded through the vulva as a sloughing mass, and it was quite out of the question to suggest its removal by abdominal section.