THE POST-GRADUATE MEDICAL JOURNAL

VOL. V.

SEPTEMBER, 1930.

No. 60.

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THE COMPLICATIONS OF PROSTATECTOMY.

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IN spite of the advances made in the technique of prostatectomy during the last fifteen years, the operation is still one that is full of danger for the patient and anxiety for the practitioner responsible for the post-operative treatment. This is partly because the patient is an elderly man whose powers of recuperation are small, but also because the nature of the operation is such that complications like hæmorrhage and sepsis can never be excluded. Up till comparatively recently prostatectomy has been a blind proceeding carried out by sense of touch alone. Indeed, in many respects the prostatectomy of ten years ago reminded one of the lithotomies of pre-Listerian days. Once the incision had been made the

surgeon relied on digital dexterity for the completion of the operation, and on irrigation with hot lotions for the control of hæmorrhage. Nowadays an attempt is being made to bring prostatectomy into line with modern surgery and to substitute visual for tactile control. At the discussion on "The Diagnosis and Results of Prostatectomy," held at the Royal Society of Medicine in May of this year, it was almost the unanimous opinion of those present that the open operation first advocated in this country by Sir John Thomson-Walker was the ideal one, since it allowed of bleeding vessels being ligatured, torn shreds of tissue removed and the field of operation thoroughly inspected before the abdominal wound was closed. But although, by this substitution of an open operation for a blind enucleation the dangers of hæmorrhage and sepsis have been diminished they are by no means eliminated even when circumstances permit of the open method being carried out, and for this reason it is useful to discuss how the chief complications of prostatectomy may best be avoided and, should they unfortunately occur, be treated.

POST-OPERATIVE HÆMORRHAGE.

This may be divided into reactionary and secondary. To a great extent the first can be eliminated by proper attention to hæmostasis at the time of operation. Bleeding may come either from the vesico-prostatic shelf separating the cavity of the prostate from that of the bladder, or else from the walls of the prostatic cavity itself. Bleeding from the shelf is easily controlled by ligature of oozing vessels, or else by placing a continuous suture around the whole posterior half of its circumference. Bleeding from the depth of the cavity is more difficult to deal with, and the majority of operators have ceased to spend more than a few minutes in attempting to ligature vessels that are difficult to reach and rely on pressure either from packing or from the use of a hæmostatic bag. Authorities differ in their opinion as to the relative merits of these two methods of applying pressure. The chief advantages claimed for bags over packing is that they are more easily removed and that more efficient pressure can be applied owing to the fact that they do not tend, as does packing, to work out into the bladder. Whichever method be used it is always necessary to take special precautions against the bladder becoming septic, since the presence of a foreign body in a wound of necessity increases its liability to infection. To counteract this, therefore, some such powerful germicide as mercurochrome should be instilled into the bladder at frequent intervals.

Secondary hæmorrhage is more likely to occur in septic cases. For this reason it is less common after the open operation than it is after the old Freyer enucleation in which no attempt is made to carry out a toilet of the prostatic bed. However, even in comparatively clean cases, secondary hæmorrhage may occur. In dealing with this serious complication the first essential is to make sure that the bladder and the prostatic cavity are not becoming distended with clots since distension and the spasm it

provokes invariably increase the bleeding. Should the large suprapubic drainage tube have been removed, it must be re-inserted and the bladder washed out through it with a hot solution of silver nitrate (1 in 8,000). At the same time the patient must be kept strictly quiet and, if he be of a nervous, excitable disposition, under the influence of morphia. Personally, I have ceased to employ coagulants, since it is my opinion that unless given in such large quantities as to be dangerous they have little or no effect in stopping bleeding. If in spite of what has been done the hæmorrhage continues, it is unwise to postpone too long more radical measures, and pressure to the bleeding point must be applied by packing or the use of a bag. In serious cases I do not wait for a general anæsthetic. It is comparatively easy to ram down ribbon gauze into the prostatic bed through the suprapubic wound or to pass a silver catheter out of it and pull the bag into position. If much blood has been lost and the patient's condition is serious, blood-transfusion is invaluable. Indeed, if this be used early, it may eliminate all necessity for the employment of pressure since the giving of fresh blood may in itself have a marked hæmostatic action. One of my own patients who had two severe secondary hæmorrhages within the space of a week was entirely saved by the prompt use on each occasion of transfusion, and I cannot speak too highly of it as a remedy for this emergency. The most common period for secondary hæmorrhage to occur is between the seventh and fourteenth day. Not only does sepsis predispose to it but so also does inefficient drainage with the resulting tendency on the part of the patient to pass urine per urethram at an early date. I have recently had an example of severe secondary hæmorrhage as long as three weeks after the operation, but this is unusual.

In considering hæmorrhage in general, it must always be remembered that even if this complication comparatively seldom kills

a patient through sheer loss of blood, it is a potent contributory factor in many fatal issues. Most commonly the patient dies of a combination of hæmorrhage, sepsis and renal failure. Loss of blood lowers his resistance to infection, and infection acting on already damaged kidneys ends in renal failure. For this reason it is important to guard against all avoidable bleeding, and should it occur, to replace the loss by early transfusion.

SEPSIS.

Sepsis, although less dramatic than hæmorrhage, is as serious in its influence on the welfare of a prostatectomized patient. Indeed sepsis and hæmorrhage always form a vicious circle, the patient who has lost blood having a lowered resistance to infection, and the septic patient being prone to secondary hæmorrhage. The open operation, by removing such damaged tissue as is likely to provide a nidus for organisms, reduces the chances of severe sepsis. Efficient drainage and frequent washings are supplementary measures. Pre-operative treatment is also of great importance in prophylaxis. Should the bladder be found to be badly infected before operation, prolonged pre-operative drainage through a suprapubic catheter must be carried out. All septic foci such as infected teeth must at the same time be dealt with and the patient's resistance to organisms raised by diet, attention to the bowels, and in some cases vaccine therapy. According to Cabot, the presence of some infection previous to operation is of assistance since it allows of the patient gaining some immunity previous to the infliction of his operation wounds. Fortified with this he is less likely to be bowled over by a sudden absorption of virulent organisms from the raw area left after the enucleation of the prostate. These arguments may be theoretically sound but it does not diminish the necessity for careful preparation whenever the patient shows signs of pre-operative sepsis. In the presence of an infected bladder any sign of renal

deficiency becomes of great importance, since a damaged kidney is handicapped in its resistance to infection. As has previously been stated, the commonest cause of death after prostatectomy is renal failure associated with hæmorrhage and ascending infection of the kidneys.

The question of drainage of the bladder and of the prostatic bed after prostatectomy has been much debated. It has repeatedly been pointed out by the protagonists of perineal prostatectomy that a suprapubic tube is wrongly placed for satisfactory drainage, and for this reason Mr. Andrew Fullerton has recommended that in very dirty cases a stab wound should be made in the perineum and an additional tube inserted so that it drains the prostatic capsule. Other surgeons, however, rely for additional drainage on an indwelling catheter which, twenty-four hours after the operation, is withdrawn, so that its eye lies within the prostatic cavity. Unfortunately this catheter does not always work efficiently as a drain owing to blockage at first with blood-clots and at a later stage with sloughs, but it is an undoubted fact that if the catheter can be kept patent and continuous irrigation instituted through it and out of the suprapubic tube the field of operation can often be kept remarkably clean. Of all the disinfectants I have tried I have obtained the best results from the use of mercurochrome, and even if an indwelling catheter has not been used, frequent instillations of a 1 per cent. solution through the small tube attached to a Marion's suprapubic tube is of great service in reducing post-operative infection. If a bag or packing has been used as a hæmostatic agent this measure is especially indicated. As has previously been stated an extension of infection to the kidneys is the most dangerous complication arising out of sepsis. Less serious but still important are infection of the pre-vesical space (with, as a possible complication, pelvic cellulitis and thrombosis), acute epididymitis, and infection of the abdominal wound.

Where the operation has been performed in two stages, infection of the cave of Retzius is not likely to occur, but even when primary prostatectomy has been undertaken, the risk of this is diminished by avoiding opening up the pre-vesical space as much as is possible. Epididymitis, although of less serious import, is not only an annoyance to a patient, but it may seriously retard his convalescence at a time when he should be gaining strength after having passed through the worst of his ordeal. In all probability the organisms reach the epididymis from the infected prostatic cavity via the lymphatics running in the outer coat of the vas. Consequently the spread of infection can be prevented by vaso-ligation and a great many surgeons carry this out at the time of operation as a prophylactic measure. Should the prostatectomy be carried out in two stages vaso-ligation may conveniently be performed at the time of the first operation.

CHEST COMPLICATIONS.

These play an important part in post-operative risks. At one time it was hoped to diminish their frequency by avoiding the use of general anæsthesia and relying on a spinal injection. It has been shown, however, that chest complications are as common after intra-theal anæsthesia as after the use of a general anæsthetic, since in all except low spinals some interference is occasioned to respiration. It is therefore impossible to eliminate the risk of pulmonary complication, but much may be done by propping the patient up in bed immediately he has recovered from his shock, seeing that the bandages do not interfere with respiration, dealing efficiently with sepsis, particularly with oral sepsis, and by avoiding exposure before, during, and after operation.

CARDIAC COMPLICATIONS.

Shock in itself is not a frequent cause of death but a damaged heart may be the weak link in the chain that holds a patient to life.

In the presence of a damaged myocardium all such complications as hæmorrhage, sepsis and bronchitis take on a more serious aspect. Appropriate treatment must be instituted at the earliest possible moment.

EMBOLISM.

All pelvic operations are associated with a special risk of embolism, and in any old subject with damaged blood-vessels and poor circulation these risks are increased. Some prostatectomists try to diminish the risk of thrombosis by encouraging the patient to move about in bed as soon as possible. Since thrombosis and embolism are more likely to occur in the presence of sepsis the measures directed against that complication have a prophylactic value.

INTESTINAL COMPLICATIONS.

Enlargement of the prostate and partial retention are practically always associated with a certain degree of intestinal stasis and the prostatectomized patient not infrequently suffers severely from post-operative distension. Especially is this likely to occur if the peritoneum has been roughly treated while stripping it from the bladder, if the operation be followed by any degree of pelvic cellulitis, or if renal function is seriously impaired. The risk of it is diminished by careful pre-operative treatment, and is much less likely to be a trouble if the patient be kept in a nursing home for a week prior to operation and his bowels carefully regulated during that time. When post-operative distension does not yield to the use of purgatives it is generally necessary to supplement these with enemata. But if enemata be employed it must be remembered that the disturbance they occasion to the field of operation is conducive to hæmorrhage. Nevertheless, since distension itself increases pelvic congestion, and therefore, the risk of bleeding, enemata must be given, but given with skill and gentleness.

Of the other complications that may arise during convalescence it is impossible to

speaking within the limits of a short paper. Few cases run an uneventful course, and it may be said that no operative treatment makes greater demands on the skill and watchfulness of doctor and nurse alike than does the treatment of a patient who is recovering from prostatectomy. All that it has been possible to attempt in the above paper has been to touch on a few of the many complications and emergencies with which the medical man may be called upon to deal.

LECTURE ON GASTRIC SURGERY.

By E. GILLESPIE,

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IN no department of Medicine will you find more faithfully depicted the influence of fashion, than in gastric surgery.

The waist-line, at present high up towards the cardia, has altered frequently; with each change in site beauty is present. So statistics show that results are good, but it is difficult to assess by how much these results are better.

The stomach is the battle-ground between physician and surgeon; each with his "cry." But as usual in warfare the cause is obscure, if not unknown. Also the ranks are by no means united. Heretics there are in either camp. Compromise is the practical method. There are cases which can be treated medically, just as there are others which ought to be dealt with by surgical methods.

INJURIES.

The records of cases of trauma apart from penetrating wounds are meagre, and almost uniformly bad.

It is surprising how seldom the stomach is damaged, probably because of the protection afforded by the ribs and the costal cartilages, also the area of the stomach in

relation to the vertebral column is small and not fixed.

In my own experience I can recall one case.

A boy was standing on a stone-work balustrade, and holding on to a large stone urn, which unfortunately proved to be loose on its seating. He fell off with the urn clasped in his arms. The upper abdomen was squeezed between urn and earth. There were no external injuries. At operation a rupture was found in the lesser curvature close up to the œsophagus. The feature in the case was the difficulty in closing the tear. The boy died.

Early exploration gives the only hope. A careful watch on the temperature and the pulse is essential, the latter being the more important.

GASTRIC ULCER.

With all the energy which has been expended on research it is really remarkable how little has been discovered about the causation of gastric ulcer, or even the relationship between the acute and the chronic. What in fact do we mean by a chronic ulcer? The usual acceptance is an ulcer which has given rise to symptoms and signs for some considerable period, probably years. Yet I have had ocular demonstration of an ulcer in the stomach, with all the appearances of chronicity, and a duration of less than six months. This observation was on a youth of 18 years. Whilst carrying out an exploration of the abdomen I found an ulcer close to the greater curvature of the stomach, and opposed to the spleen. Six months later, he was again admitted to hospital. This time I found a perforation in a large saddle-shaped ulcer on the lesser curvature, an area which I had carefully examined at the previous operation, and found to be normal.

The problem is intimately bound up with focal sepsis, blood-stream infection, and local infection. The difficulty is to demonstrate the presence of organisms in the blood. After the lodgment of the infection in the