ARREST OF HAEMORRHAGE AFTER PROSTATECTOMY: A HAEMOSTATIC CLAMP.

BY

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THE surgeon who can perform an operation with the least damage to the tissues, with the least loss of blood, and with least sepsis gives his patient the best chances of successful recovery. The operation of prostatectomy, in whatever way it is conducted, leaves much to be desired in respect of each of these three ideals.

Access to the prostate by the suprapubic route always involves some disturbance of part of the peritoneum; from this and from the drainage of the bladder a local peritonitis results; usually this is unimportant, but sometimes it is severe enough to be a factor in the development of troublesome meteorism. Again, the incision through the abdominal wall has the effect of impairing temporarily the function of the recti abdominis. This is of consequence because, as accessory muscles of respiration, they have a part to play if the diaphragm is to function fully.

Admittedly, approach to the prostate through the perineum spares the patient injury to these two important structures, but there are other disadvantages to this method of prostatectomy which cause it to be less often employed. Damage to tissues necessarily accompanies the removal of the prostate by enucleation, for however skilfully it is carried out, and whether the gland is reached from above or from below, this is essentially a forceful manoeuvre and therefore shock is often produced.

In prostatectomy sepsis is inevitable, primary union is impossible, and healing can only be by granulation; and the sepsis accompanying this often places a severe tax upon the patient's powers of recuperation. If, then, there are means by which the third ideal can be reached—namely, the avoidance of loss of blood—it is certainly desirable to adopt them, and most surgeons endeavour to effect this in some way or other. To be sure there are some who declare that it does old men good to bleed, but it seems unlikely that those who hold this view will object to the arrest of haemorrhage from their own prostatic cavities, if ever these have to be emptied of an adenomatous enlargement. It is true that patients do not often die of haemorrhage after prostatectomy, though it is equally true that this not uncommonly gives cause for much anxiety. But it is obvious that the patient who has to recover from shock, and has subsequently to withstand sepsis, will do so with difficulty if he has lost much blood; and it is certain that when sepsis, renal failure, cardiac failure, and bronchopneumonia kill patients after prostatectomy this is often because their vitality has been seriously impaired by haemorrhage.

In prostatectomy there is trivial bleeding when the abdomen is opened, and there is often more when the bladder is incised, but though this may be considerable the vessels are easily ligatured. It occurs most while the prostate is being enucleated, and though this cannot be prevented, yet it should be noted that it may be unnecessarily large if the surgeon takes a long time to remove the growth, and does not do so skilfully. During the formation of granulations some bleeding continues, and the urine is commonly tinged for the first few days after

the operation. But the most serious haemorrhage, after the completion of the operation, is that which occurs during the subsequent five or six hours. This is almost always considerable, and it is not possible to predict with any certainty that it may not be quite serious.

There are various methods of controlling the haemorrhage. Freyer used to flush the prostatic cavity with lotions at 120° F. In the open operation of Thomson-Walker the suture of the periphery of the inlet to the prostatic cavity does much to stop bleeding, for this occurs chiefly from beneath the torn vesical mucous membrane. Sometimes, in spite of this procedure, packing is necessary, and this is because in these cases there is haemorrhage, often arterial, from the lateral walls of the prostatic cavity; the bleeding points can sometimes be identified, but to secure them by transfixion and ligature is occasionally impossible, and in any case involves a further prolongation of the operation.

The prostatic cavity can be packed with ribbon gauze, and if this is properly done haemostasis is secured, though this is not quite so easily obtained as might be expected, the reason being that it is difficult to bring pressure to bear upon the circle of torn vesical mucous membrane from beneath which, as has been said, most of the bleeding occurs.

If the packing is left in for forty-eight hours its condition on removal shows the state of sepsis which has arisen

round about it, whereas if it is taken out after twenty-four hours, and indeed at whatever time it is removed, there is some risk of again starting enough bleeding to be of consequence—for the process of withdrawing the gauze involves always a disturbance of the tissues forming the prostatic cavity and especially the mucous membrane at the prostatic inlet. The removal of the packing is also a cause of pain, and this is often bad enough to necessitate the employment of nitrous oxide anaesthesia.

To overcome the disadvantages inherent to the use of packing Hagner devised a haemostatic rubber bag which was placed in the prostatic

cavity and then distended. Pilcher has improved upon this, and uses a bag which is held in position by a tube, which traverses the urethra, tension upon this being maintained by strapping it to the thigh. With the same object, Hamer has devised a metal frame based upon the pubic arch, to which the tube is attached; and more recently Millar has suggested a method of weight extension. I employ a different method, which is designed to do away with any need for traction upon the bag, by providing a fixed support above and counter-pressure below. Occasionally incontinence of urine has followed the use of the Pilcher bag, and it is due to the compressor urethrae becoming stretched because the apex of the bag has been drawn into the membranous urethra. To avoid this, V. A. Hunt arranged for a traction upon the base of the bag by silk threads through the tube. The bag which I use is slightly modified from Pilcher's pattern, and is mounted upon part of a special clamp, one arm of which descends into the bladder; counter-pressure is obtained by another part of the instrument ending in a small plate, which supports the area around the central point of the perineum (Fig. 1). In this way two fixed points are obtained, and between them the rubber bag is held and there distended to the necessary amount. When once in position it is secure, and does not get out of place if the patient moves about and turns on to his side, or even on to his face. Fig. 2 shows that the dimensions of the clamp can all be varied at will, so that it can easily be adjusted to suit any size of patient. The structure of the rubber bag is shown in Fig. 3. It is made in two sizes.

FIG. 1.—The haemostatic clamp and bag in position after removal of the enlarged prostate.

Method of Using Clamp and Bag.

The silk web catheter through which the bladder has been distended is left in position during the enucleation of the prostate, this being usually done through a 4-inch incision and without the use of a finger in the rectum. If a preliminary cystostomy exists a catheter is passed before the operation starts. After the prostate has been removed and the cavity explored to ensure that no portions of adenomatous gland remain, the end of the catheter is drawn up into the bladder until a stout piece of catgut can be threaded through its two eyes. The bag has been previously distended lightly and mounted upon the bladder arm of the instrument, which it fits tightly, and where it remains ready in

FIG. 2.—The haemostatic clamp.

position. One end of the catgut is now passed through the hole at its apex and knotted to the other near the catheter. This is then withdrawn from the urethra by an assistant, thus pulling upon the bag while the operator pushes it into the prostatic cavity. One strand of the catgut is then cut, and all of it pulled away from the bag through the urethra. If for any reason no catheter is employed, the operator can introduce the bag without the help of traction from below, but it is not quite so easily done.

The patient's scrotum, penis, and groins, which have been included in the area "prepared" for operation, are now uncovered for a moment. As a further precaution the operator covers his left hand and forearm with a sterile towel. Through this he holds the perineal half of the instrument and places it in position, while his assistant, having, if necessary, moved the scrotum and

FIG. 3.—Sectional diagram of the haemostatic bag.

penis with holding forceps, now tightens the two screws, thus fixing together the two halves of the clamp. The bag is distended with water to the required extent, and its tube is then clamped with pressure forceps. It will be found that it is firmly fixed in position between the arm within the bladder and the counter-pressure afforded by the plate. Haemostasis is thus secured. A drainage tube is inserted, and the wound closed round it and the arm of the instrument along which lies the tube leading to the bag. The pressure is sometimes lessened after four or five hours, but if haemorrhage recurs it is again restored. More usually it is maintained for about eighteen hours. Then, or rarely forty-eight hours after the operation, the screws are undone, and when the drainage tube has been withdrawn the instrument and bag are removed. This is effected without difficulty, and there is no need for any anaesthesia, for the empty rubber bag slides out of the prostatic cavity very easily, and in a manner contrasting markedly with the painful process of removing packing. A small drainage tube is placed in the bladder, which is then irrigated.

There are no special points about the subsequent treatment of the case. Pilcher has pointed out that another advantage which the haemostatic bag has over packing is that it always brings pressure to bear upon the circle of torn vesical mucous membrane, as can be seen in Fig. 1, and it is from here that much of the bleeding occurs; the sides of the bag which I use are sloped to secure this (Fig. 3). But it does more than this, for it carries the vesical mucous membrane down into the prostatic cavity, and encourages it to adhere there, thus lessening the risk

of formation of a ring of scar tissue which may subsequently contract and cause obstruction.

It will be seen, then, that by means of the haemostatic bags which Hagner and Pilcher introduced haemorrhage can be stopped with more certainty than by other means. It is cleaner than packing, and it is more easily removed. The clamp which is here described ensures that its position and the tension which it exercises shall be unvarying until such time as the surgeon wishes to make any alteration, and that this is effected without any possibility of damage to neighbouring structures.

I am indebted to Mr. Schranz of the Genito-Urinary Manufacturing Company for the skilful construction of the instrument, and to Dr. Georges Dupuy for the illustrations.

AIDS TO PALATAL SUFFICIENCY AFTER CLEFT PALATE OPERATIONS.

BY

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EVERY operator on cleft palates is familiar with the difficulty of restoring speech after closing the cleft. Where the child is reasonably young, careful training is often all that is required, and about such cases I have nothing new to say. But there are many in which, while the operation turns out as good as could be hoped for, yet the distance between the palate and the pharyngeal wall is too great for any effort the muscles are capable of making.

When the patient is old enough to understand, the best preliminary step is to teach him or her to practise before a looking-glass so as to get voluntary control of the constrictors of the naso-pharynx. This exercise develops the muscles, and as they strengthen, it sometimes happens in a moderate case that complete voluntary closure may be counted upon, after which good speech is only a matter of teaching. But there are others in which no amount of training overcomes the difficulty of shutting off the nasal cavity; nevertheless, improvement is often possible.

When the opening left after the post-nasal sphincter has contracted is small, I have had good results from injections of paraffin wax behind the sac of the pharynx. This forms a cushion or boss against which the soft palate makes a contact, which it just failed to make before, thus eliminating the nasal quality from the labials and dentals. For this purpose I have used Mahu's paraffin syringe, the end of the needle being turned upwards at about the angle of a post-rhinal mirror. The operation is painless under local anaesthesia. I assume there is some risk of infection during injection, but it has not happened in the few cases in which I have employed the method.

It is, however, concerning the worst cases of this kind that I want more particularly to write—cases where a good and successful operation has been performed, but where the hiatus behind the palate is so great that they look quite hopeless. Though I have but one case to place on record, it was one in which the gap was so bad, and the result so good, that I think myself justified in suggesting that in the future few should be abandoned without giving the method a trial.

In 1925 I was consulted by a lady, aged over 30, on whom quite a good operation had been performed, but the opening behind the palate was literally huge. She felt her disability very acutely, and was most anxious that something should be done, so I consented to try. I thought that by snipping away the mucous membrane of the naso-pharynx at the level of the palate, so as to form a linear wound, there might be some hope that, after cicatrization when the scar contracted, the defect might be so reduced that she could supplement it by training the muscles. I accordingly snipped away a ring of tissue, but the result was most disappointing, and as a remedy proved quite futile. The wound healed with the most aggravating rapidity, leaving her neither better nor worse for the attempt.

I next tried diathermy. This produced a slough of the superficial tissues of the sides and back of the pharynx and the edge of the soft palate, including the uvula. The throat was very sore for some days, and deglutition was, of course, difficult. She suffered no rise of temperature, and after a week or so the wound cleaned off and contraction began. This continued until, about three months later, the opening was reduced to the size of the tip of a small finger. I found then that it was quite easy for her to close it completely by an effort of will. She thus had all the physical conditions necessary for normal speech.