favour of the vaginal plug, but its action is more far-reaching, I believe, than Dr. Smyly has contended; for it acts not alone in the manner he states, but also, and above all, as a tourniquet to the uterine arteries.

If the cervix is fixed, and at the same time forcible pressure exerted on the vault of the vagina in the region of the lateral fornices, the uterine arteries become acutely bent and their blood flow impeded. This is probably brought about by the drag exerted on them through their cervical branches.

On the pregnant cadaver I have had but one opportunity of verifying this statement, and here shortly after death I easily induced this bending by exerting firm pressure in the lateral fornices. Other proofs, however, are forthcoming in support of my contention. Hysterectomy by Doyen's method furnishes us with an example of the complete manner in which the uterine circulation can be controlled by a down drag exerted on the cervix. And finally, there is abundant clinical evidence to show that blood to any serious extent does not form above a properly fitted tampon.

I am aware that this statement will not meet with universal assent, for, as a matter of fact, many cases of death have been recorded where this treatment was employed. But was the tampon properly applied in these cases? I think not.

In the discussion which followed the reading of Dr. Smyly's paper, one gentleman of great eminence stated that he carried a boiled sponge in his bag for the purpose of plugging the vagina, another stated that he preferred his silk pocket handkerchief. In other cases I have seen tenax, dry cotton wool, dry iodoform gauze, and a torn shirt used for the purposes of a tampon. With examples such as these before me I trust I shall not be considered presumptuous in assuming that the proper material to use or the proper mode of its application is not universally known.

To accomplish this little operation in a satisfactory manner many pieces of sterilised cotton wool are required, each the size of a small closed fist, and should be placed in a weak antiseptic solution. The patient is then brought out to the edge of the bed, put lying on her left side, and when the vulva and vagina have been aseptically, and the bladder emptied, the pieces of cotton wool are taken one by one, squeezed of their superfluous fluid, compressed into a comparatively small compass, and inserted without the aid of a speculum in such a manner that the entire cervix is surrounded by pledgets before the os is covered. Each piece is packed as tightly as possible, and then the vagina is filled to its utmost capacity down to the urethra, a diaper placed between the thighs, and a tight abdominal binder complete the operation.

It is simply astonishing the amount of cotton wool that can be introduced in this manner, and how hard and incompressible such a plug becomes, and it is in favour of such a tampon only that I contend.

Hæmorrhage ceases when it is thus inserted. The cervix safely and rapidly dilates in a manner much to be preferred to that accomplished by hydrostatic bags. Labour pains, moreover, are induced quickly. This latter effect is probably in great part to be accounted for by the inevitable accumulation of carbonic dioxide gas which must form in the uterine muscle in consequence of the obstruction in its vessels caused by the tampon.

The cervix, though becoming dilatable, does not always dilate, nor is it drawn up until the plugs have been removed, and so markedly was this a fact in one of my cases, that though the os when first felt while removing the pledgets did not appear to have a greater diameter than a two-shilling piece, it had nevertheless fully dilated before the end of the operation, a period of not more than two minutes having elapsed between the two observations. In fact, it seemed to spring open when once the restraining pledgets were taken away.

Nor is the tampon applicable to those cases alone in which the membranes are intact, for the circulation in the uterine vessels is still controlled even after their rupture.

I have not seen any case in which hæmorrhage continued in spite of this treatment, though one woman unfortunately died shortly after I had inserted the plugs. Her history is briefly this, the case occurring in the out-patient maternity department of the Rotunda Hospital. She was at first attended by the night students on

duty, who promptly summoned the clinical clerk, and when eventually I saw her she was in a condition of extreme collapse, with blood still freely flowing through an inefficient tampon. This was immediately removed, and a new one placed in position; then an intravenous injection of several pints of saline solution was administered. She died suddenly two hours later, from shock, no hæmorrhage having either passed through or been extravasated above the tampon, and this in spite of the large quantity of saline solution injected. How could the hæmorrhage have ceased in this case were the circulation in the uterine vessels not directly interfered with?

The conclusions arrived at here are as follows:

1. The vaginal tampon, when properly applied, is the most suitable treatment we possess for the worst forms of accidental hæmorrhage.

2. It may be relied on as sufficient in the majority of cases not amenable to other treatment.

3. It controls the circulation in the uterine arteries, acting in much the same manner as does a tourniquet.

4. It dilates the cervix partly by exercising a peripheral force on that structure, and in part by exciting uterine contractions.

5. These latter are induced not alone as a consequence of cervical dilatation, but are chiefly attributable to the power the tampon possesses in bringing about an accumulation of carbonic acid gas in the uterus.

A CASE OF PLASTIC OPERATIONS FOR BURNS.*

By RODERICK MACLAREN, M.D.,

Senior Surgeon to the Cumberland Infirmary, Carlisle.

USUALLY a surgical operation means one proceeding for a definite object, which either succeeds or fails; but occasionally, though rarely, it may involve a series of steps not all directly conducing to the ultimate result, some even apparently leading away from it. Such cases are generally of considerable interest, and the story of one which has just passed from my care seems worth telling.

Five years ago R. M., a girl aged 10, was admitted to the Cumberland Infirmary. Six weeks previously her clothes caught fire, and she was severely burned over the area to be described presently. She had been carefully treated outside by my friend Dr. MacLachlan, of Longtown. All charred skin had separated and the burnt surface was covered by healthy granulations. This granulating surface extended round the whole right arm and forearm from the middle of the deltoid to near the wrist; it involved the right side of the chest from the axillary line above to the margin of the ribs below, and from within 3 inches of the sternum in front to the same distance from the spine behind; the entire axilla was denuded and raw. The whole thickness of the skin appeared to have been destroyed over a considerable part of this area; the burning was greatest in the neighbourhood of the elbow-joint, and the tip of the olecranon was slightly bared. It was a matter of doubt when so large a surface would heal and whether the child's strength would support the drain from such an extensive suppurating area. The advisability of amputating the arm just below the shoulder was given due consideration. The arguments in its favour were that a large part of the suppurating surface was got rid of at once, and that the limb looked as if it would be of little use, even if healing occurred. However, as there seemed a possibility of getting a better result, it was decided to attempt this in the first instance. For the sake of diminishing the raw surface I had the arm bandaged to the side. Quick adhesion occurred, binding the arm to the thorax, thus diminishing the raw surface by a third.

The case progressed rapidly, and in four months healing had taken place except in a small area over the point of the elbow. In nine months complete healing had occurred. The arm was adherent to the side, and the cicatricial skin was continuous over the thorax and arm. I then proceeded to carry out the second stage of her treatment.

Two skin flaps were dissected from the wall of the upper

* Read before the Border Counties Branch of the British Medical Association.

thorax, one before and one behind, where the skin was uninjured. They were left attached at their ends and dressed underneath with glass slides for a fortnight (Croft's method). The arm was then separated from the side right up to the axilla; each flap was next cut across at the end farthest from the axilla; a bed was made for each in the armpit; they were turned and sutured together, so as to form a broad tape of healthy skin at the fold of the axilla. In cutting the arm from the side the incisions were not made where they joined, but at some little distance on the thorax, so as to get covering for the arm at the expense of the skin of the trunk; indeed, when sutured the arm was entirely covered in. Angular incisions were next made in the normal skin round the thoracic cicatrix; a good deal of subcutaneous dissection was done near these incisions, and they were sutured from the apex towards the base. This method utilised the natural elasticity of the normal skin to remove tension from the cicatrix, so that when the bare area in the mid-axillary line was drawn together with sutures a very small surface was left uncovered (Fig. 1). In two months the whole thing was

Fig. 1.—A diagrammatic scheme of the various incisions for transplanting and liberating skin: the dark lines representing incisions, the dotted lines the position subsequent to suturing. Back and front were almost identical.

nearly healed. She had a free arm with a fixed elbow. During the next two years she occasionally reported herself at hospital; her arm remained pretty much in the same condition. It was usually entirely healed, but occasionally the cicatrix broke down at the elbow. The limb was much hidebound, and as it grew in length became more so; the elbow was quite rigid.

The third stage of the treatment was then undertaken; this consisted in removing subperiosteally an inch and a half of the shaft of the humerus at the junction of the middle and lower thirds. The reasons for this were that the bone growing normally seemed unduly to stretch the hidebound tissues, and that the operation of shortening the shaft allowed the removal of bone at the elbow (when it came to be excised) to be very small, thus giving breadth and stability to the new joint. An incision 3 inches long was also made on the outer

side of the arm near the insertion of the deltoid through the deep fascia to liberate tension. Thiersch grafts were applied but failed to take. Healing was slow but in four months it was complete, and the final stage was reached by excising the elbow, which was done by the usual posterior excision. Exceptionally little bone was removed and subsequently the case ran an average course. The condition now is as follows:

The movements of the shoulder-joint are nearly normal. The elbow admits of almost complete flexion and extension; rotation of the forearm exists to only a very small amount; the wrist has always been normal; the arm, of course, has not much power, but it is gaining in that respect, and also in freedom of movement. The cicatricial skin is gradually approaching nearer to the natural state; it is becoming less glazed and more pliable. The girl is being trained for domestic service.

Fig. 2.—From a photograph taken in January, 1898.

Fig. 2, reproduced from a photograph taken by Dr. Duncan, gives an excellent idea of her present state. It shows the amount of movement possible in one direction; it shows also the band of transplanted skin in the axilla and the extent of the cicatrix.

TWO CASES TREATED WITH INJECTIONS OF ANTISTREPTOCOCCUS SERUM.

BY

ALEXANDER GREGOR and WILLIAM A. CARDEN,
M.B., C.M. Aberd., L.M. Dubl., M.R.C.S., L.R.C.P. Lond.,
Sutton-on-Trent, Nottinghamshire.

The following cases, which have been under our care lately, are interesting, as showing the utility and harmlessness of the serum treatment:

APPENDICITIS FOLLOWED BY ACUTE PERITONITIS.

W.R., aged 32, formerly a brewer's drayman, with a previous history of dropsy (?), was first seen on February 19th; he gave