REMARKS

ON

THE FLAP METHOD OF OPERATING.¹

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WHEN Victor Horsley, in the *BRITISH MEDICAL JOURNAL* of October 9th, 1886, recommended the flap method of trephining he revolutionised, in my opinion, intracranial operations. He prevented hernia cerebri; he gave us a means of safely establishing a safety valve to relieve intracranial pressure; he diminished greatly the risks of intracranial sepsis. Many patients are now alive in consequence of this simple suggestion. In October, 1892, I applied the same principle to general surgery, and have used it systematically ever since. Now, before any operation I ask myself this question: Can I apply the flap method? In opening the abdomen, in opening joints, in dividing or lengthening tendons or muscles, in shortening tendons (structures which depend for their integrity on their free mobility and non-adhesion to the skin), in tumours in which the skin is non-adherent, these were amongst the first cases in which I applied the method. Week by week the range of cases is being added to, and the result has been so satisfactory that I desire to bring it under the notice of the profession.

The advantages are that the wound in the deeper parts is at a distance from the skin wound, the skin over the deeper wound is not interfered with, it supports the deeper tissues which have been divided, rapid healing takes place. The risk of infection of the deeper parts from impure skin is reduced to a minimum. The purification of the hands and instruments is comparatively easy; the purification of the deeper layers of skin of the patient is the difficulty in aseptic surgery. Some surgeons go the length of saying that the skin cannot be thoroughly purified. Hence the great value of this method. The flap is composed of skin and subcutaneous tissue. It should as a rule be crescentic, and not horseshoe-shaped. The incision should be made as far as possible from sources of septic infection. The main blood supply should enter the base of the flap. This, however, is of secondary importance to the first essential that the skin incision should be away from sources of septic infection.

One of the first cases on which I operated by this method was in October, 1892, for the removal of a loose internal semilunar cartilage in the knee-joint. Since that time all similar cases have been operated on in the same way. In the radical cure of hernia it is a decided improvement. After the operation for strangulated hernia a truss can be applied at an earlier date. In femoral hernia a flap is turned inwards towards the middle line. In inguinal hernia a flap is turned downwards and inwards, exposing the inguinal canal. In umbilical hernia, if the skin over the hernial protrusion is of sufficient thickness, a flap is turned downwards.

In excision of the knee the apex of the anterior flap is made at a lower level than the anterior tubercle of the tibia. In the elbow a flap can be turned upwards. In the operation for fractured patella and fractured olecranon this method will become the rule. In the removal of tuberculous glands and in subcutaneous tuberculous areas Mr. Stiles has applied the flap method. The value of the flap method in tuberculosis is very great, because the risk of infecting the tuberculous area by septic skin organisms is avoided. Every surgeon knows the evil of mixed infection in these cases.

If a muscle, as the sterno-mastoid in wry-neck, or the tendo Achillis in club-foot, is thus exposed, the muscle or tendon afterwards works smoothly under the skin. No adhesions form between the skin and deeper parts.

Recently I excised an acromion with a tumour attached to

it by means of a skin flap turned up from the deltoid. I then stitched the loose end of the clavicle to the deep tissues, replacing the flap. In dislocation of the outer end of the clavicle, the difficulty of keeping the bone in position is so great that the surgeon will turn up a flap, unite with buried suture the clavicle to the acromion, and replace the flap.

In the division of a bone to remedy deformity or lameness, in the excision or division of bones in aggravated cases of club-foot, in exploring the gall bladder, kidney (by anterior incision), and in gastrostomy,² the method will be found most valuable. If in suprapubic cystotomy the surgeon intends to unite the bladder wound after exploring the viscus he should turn down a flap to expose the recti. In time it may come to be the case that in cases of tumours under muscles the flap will consist of muscular tissue along with the skin.

In stitching the deeper parts buried sutures are used, made of fine silk, catgut, or silver wire. In using silver wire use, as recommended by Kocher, several strands of fine wire rather than thick silver wire; it is much more pliable, and quite as strong.

In stitching the skin, horsehair is used. In this connection I may state that I have during the last year been gradually giving up knots to fix the stitches. The thread is simply passed three or four or five times, as in the first part of a common knot. Mr. Johnston, one of my dressers, has worked out the tension which such a method will bear. He finds that if a double horsehair is used, four turns bear a strain of 35 ounces; three turns, 24 ounces; two turns 12 ounces; one turn, $\frac{1}{3}$ of an ounce.

It will in all probability be found that the larger the loop—the greater the distance between the points of emergence—the more numerous will be the turns. In other words, all the portion of the circle which is exposed will consist of a series of turns. By this stitch the approximation of the edges is more easily attained. If on tightening the edges do not fit closely and accurately, it can easily be loosened and again tightened. Lastly, to keep the flap out of the way, it can be stitched back, it can be grasped with forceps which will keep it back, hanging down by their own weight, or leaded. It can be hooked back, fixing the hooks with india-rubber bands to a piece of lead. The simplest way is to stitch it back with a temporary horsehair stitch.

I am of opinion that the flap method is worthy of systematic application to general surgery. If surgeons will give it a trial I think that they will continue its use in suitable cases.

P.S.—After the paper was read I was informed by a distinguished ophthalmologist that the flap method had been used in operations on the eye for many years. It was from Horsley that I got the hint, and to him I give the credit. I am well aware that there is "nothing new under the sun."

² The method of opening the stomach first, I believe, devised by Professor Albert, of Vienna, was performed as follows: A flap was turned inwards towards the middle line, exposing the left rectus midway between umbilicus and ensiform cartilage. The muscle was split, the parietal peritoneum divided, the peritoneum stitched by a continuous silk suture to the anterior layer of the sheath of the muscle. The stomach was then pulled out through the wound and pushed upwards into the cellular tissue, an opening made in the skin, and the apex of the *cul-de-sac* drawn through the opening and attached to the skin edges. The stomach was also stitched to the edges of the opening in the rectus. The flap was then brought back into position. In four days the stomach was opened, a tube introduced, and the patient fed.

PROFESSOR L. MAUTHNER has been appointed to succeed Professor Stellwag as Professor and Director of the Ophthalmic Department of the General Hospital in Vienna.

AN International Congress for the Protection of Children will meet at Bordeaux, July 22nd, 1895.

PROFESSOR R. LÉPINE, of Lyons, in an article in the *Revue de Médecine*, suggests the creation of a new degree—"Doctor in Medical Biology." His contention is that persons preparing themselves for the career of teachers of medicine and surgery should be required to pass through a special course in such subjects as physiology, organic chemistry, physiological chemistry, bacteriology, and embryology to fit themselves for the duties of a professor, which, he maintains, can only be discharged in the best manner when the professor is not only a teacher but an investigator.

¹ Read at the conjoint meeting of the Edinburgh and Stirling, Kinross and Clackmannan Branches of the British Medical Association.