but be of great interest, as bearing on the actions of a group of muscles which have at all times been looked upon with the liveliest interest, and have, moreover, been the subject of many controversies. The subconjunctival fascia, like the subcutaneous fascia of the neck, the groin, and other regions, presents many degrees of density in the different subjects in which it is examined. It is present in all, but in the young subject it is very delicate. It is composed of condensed cellular tissue, and possesses elasticity. From its intimate connexion with the muscles of the eye, added to its elasticity, it keeps them expanded, and enables them to produce those varied and delicate movements of which the organ is capable.

When it is considered that the muscles of the eye are long and delicate, and have, with one exception, to pass from the depth of the orbit to its circumference, the advantages of their being supported and kept in an expanded state becomes obvious. If this were not the case, the eye would be abruptly pulled about in the orbit, and that steady, uniform, and perfect movement which it enjoys, would be more or less limited. We have numerous other instances in the human body, of delicate and long muscles being supported in their movements by special fasciæ; thus the delicate and long muscles of the neck, as the omo-hyoid, the sterno-hyoid, the thyro-hyoid, &c., are bound to their regions by what has been properly called cervical fascia; and when this covering is removed from them, and the muscles are, as it is termed, "dissected clean," the most erroneous opinions are often formed by the novice in anatomy, of their uses and relative positions.

In some cases of strabismus in which I operated, I found the subconjunctival fascia very dense and adherent to the conjunctiva and the muscles, and in more than one instance I traced this condition to the persevering application to the eye of powerful collyria. In one case, which I have mentioned elsewhere, the strabismus took place in the adult suddenly, and, besides many other remedies, stimulating collyria of various kinds were assiduously persevered in for months. When I divided the inner rectus muscle in this case, I had afterwards to divide freely the fascia again and again, until the eye was restored to a proper position. A surgeon, whose opportunities of operating in strabismus has been limited, might readily mistake the subconjunctival fascia for the conjunctiva itself, after the incision of this latter membrane has been made; for, on dividing the conjunctiva, its edges separate, and on dividing the fascia, its edges also retract. In some cases, it is necessary to divide freely, and even to remove portions of the subconjunctival fascia; in no case is it necessary to deal with the conjunctiva after this fashion; it is therefore of importance to have a test by which we can distinguish the one from the other; this test will be found in the extreme sensibility of the conjunctiva, if it should be seized in the forceps, and the absence of pain when the fascia is thus laid hold of. I have repeatedly cut away a portion of the subconjunctival fascia, sufficient to cover half my thumb nail, without the patient being sensible of my proceedings.

The submuscular fascia is very elastic in the recent eye, and is attached behind to the sclerotica, at the point of entrance of the optic nerve, and

anteriorly it is connected to the same membrane at the points of attachment of the muscles. It is not in intimate relation to the muscles until it arrives near to their insertions. This fascia also possesses a high degree of elasticity, and forms rather a membranous sheath for the sclerotica, than an expansion for the muscles; it takes the form of the eye-ball, and acts the part of a membranous cup for the organ to move in, separating it from the bellies of the recti muscles, and covering the ciliary nerves as they pass onwards to pierce the sclerotica. In the dead eye, more or less fluid will be found to exist between this cup-like membrane and the eye-ball, which always enables the anatomist to separate one from the other with the greatest facility. That effusion to a considerable extent sometimes takes place between this membrane and the eye-ball, there can be little doubt; and how far in such cases the surgeon would be justified in giving it exit by puncture, is a question that must be decided by future experience, but about the propriety of doing which I at present entertain the highest opinion as to utility and practicability.

ON THE CURE OF SPINA BIFIDA,

BY A NEW OPERATION.

By M. DUBOURG,

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In order to obtain a radical cure of the disease called spina bifida, two conditions must exist; it must be simple, and not the result of rickets; and, second, it must be of small extent. On reflecting upon the method employed by Sir A. Cooper for the cure of this intractable affection, I thought that a better mode might be adopted, and the following were the reasons on which my theory was founded. Recent observations have shown that the soft parts contiguous to osseous parts which have been arrested in their developement, exercise considerable influence on the bringing together of these latter; we have an example of this in division of the maxillary and palatine bones. In cases of cleft palate, &c., when the soft parts are brought together by suture, they have a constant tendency to approximate the divided bones, and do eventually effect this object whenever the deformity is not very considerable. From analogy, then, we may conclude that by bringing together the soft parts over the divided spine, (after removal of the sac,) in cases of spina bifida, we may favour the approximation of the osseous parts, and finally obtain a radical cure. The great difficulty in this undertaking is to prevent the introduction of air into the cavity of the vertebral canal, and the escape of the cerebro-spinal fluid, accidents which are generally regarded as extremely dangerous; besides, it has been thought that the tendency of the cerebro-spinal fluid to escape through the wound would prevent the complete formation of any cicatrix. Reflecting, however, that even wounds of the head, by which the substance of the brain was exposed, occasionally healed, I thought that the above objections might be overcome; I determined on seizing the first opportunity of putting my ideas in practice. As a mea-

sure of precaution, it seemed to me prudent to embrace a considerable depth of soft parts in the ligatures, and that the twisted ligature, which I used, should be much thicker than the one commonly employed.

CASE I.—Child eight days old—*spina bifida*—excision of the sac—twisted suture—cure.

In the spring of 1837, I was summoned to examine a little girl eight days old, who had a tumor on the lumbar region, which two medical men had been unable to characterise. At first sight, the nature of the tumor seemed doubtful; it was not larger than an apple, slightly flattened, firm to the touch, and attached by a pedicle of about five and a half lines in diameter; covered with a net-work of turgid veins, it had the appearance of a vascular fungus. On examining the base of the tumor, we discovered two osseous edges, and in the centre a want of resistance evidently arising from defective ossification of the vertebræ; the opening might receive the tip of the index finger. The tumor was opaque, and its walls were very thick, much denser than in cases of well-developed hydrorachis; as to the seat, it seemed to occupy the last lumbar vertebræ; all the others were perfectly formed. The child presented no other deformity; the head was not large; all the organs and functions were healthy; the operation, therefore, might be undertaken under favourable circumstances.

An elliptical incision was made round the base of the tumor, but as soon as its pedicle was divided, a quantity of reddish serum escaped; the excision of the sac was, therefore, rapidly effected. To close the opening, the end of the index finger was placed over the vertebral deficiency, but it penetrated into the canal, and came in contact with the exposed spinal marrow. The edges of the wound were now brought together with four needles, and the twisted suture applied, as in hare-lip.

The child cried vigorously at the commencement of the operation, but as soon as the cerebro-spinal fluid was discharged it fell, for a few minutes, into a state of stupor. As the needles were applied it again began to cry, and when the dressing was finished, took the mother's breast as if nothing had happened. As may be well imagined, I watched this case with great anxiety: on the fourth day the needles and the sutures were removed, and the edges of the wound were found to be united by the adhesive inflammation; sticking plaster was now applied, and in fifteen days the cicatrix was completely solid, filling up the slit in the spinous processes. Since then I have frequently seen this child, whose cure remains perfect.

On examining the tumor after its removal, we found that it was a true cyst, communicating with the cavity of the vertebral canal, and composed of integuments, lined with dura mater and arachnoid; its cavity, however, was not proportionate to its size, for there were several layers of adipose and cellular tissue between the external and internal walls; hence the opacity of the tumor, which would have, probably, become thinner and more transparent as these layers disappeared.

CASE II.—Child eleven days old—tumor in the cervical region—excision—twisted suture—cure.

Early in September, 1838, a young woman gave birth to a female child, at the back of whose neck was noticed a spherical tumor as large as a middle-sized orange; the year before the mother had given birth to another child, affected with the same deformity, in the same region of the body.

The tumor, in the present instance, was of rounded form, somewhat flattened at the apex, little transparent, fixed over the junction of the last cervical and first dorsal vertebræ by a large pedicle; in the centre of this latter was felt a hard cord which led to an irregular slit or opening in the vertebræ. The general health of the child was satisfactory; its parents were healthy, and there was no other trace of anomaly or disease.

Having arranged everything necessary for the operation, I seized the tumor in my left hand, and passed a narrow bistoury through the pedicle, so as to form a lateral flap from within outwards, taking care not to penetrate into the sac, as I did in my former operation; a second incision served to remove the sac, and form the other flap; the cerebro-spinal fluid immediately issued in a limpid stream; in order to prevent the access of air and the escape of any more fluid, I hastened to introduce four needles, and to apply the twisted suture. The child exhibited marks of suffering during the operation, but took the breast immediately afterwards. On dissecting the tumor we found, as in the last case, that it communicated directly with the spinal canal, leaving an opening sufficient to admit the end of the thumb. The wound was not dressed until the fifth day, when its edges were found to be united; the little patient experienced no unfavourable symptom, and up to the present time (January 1841) has remained perfectly well.

Remarks.—From the above facts, and those which have been already recorded, we may conclude that,

1. Certain cases of *spina bifida* admit of a radical cure.
2. Although it is difficult to lay down any general rules, we may conclude that, when the opening into the vertebral canal does not exceed an inch in diameter, an operation should be performed.
3. The best operation consists in excision of the tumor and the twisted suture.
4. When the opening is small and the walls of the sac thick, we may form our flaps before opening the tumor, but under opposite circumstances we must dissect off the skin on either side.
5. The prognosis will depend on the size of the opening in the vertebræ and general health of the child.—*Gaz. Med. No. 31.*

CASE OF SPASMODIC AFFECTION

OF

THE LARYNX AND ITS APPENDAGES,

CURED BY THE

EXTERNAL APPLICATION OF VERATRIA.

By JAMES TUNSTALL, M.D.

(Read at the York Meeting of the Provincial Medical and Surgical Association.)

As it is of the first importance that each successful application of a new remedial agent should