CASE OF SPINA BIFIDA UNSUCCESSFULLY TREATED BY EXCISION AND THE TWISTED SUTURE.

By THOMAS DORRINGTON, Esq., Surgeon to the Manchester and Salford Lying-in Hospital.

In the twelfth volume of the British and Foreign Medical Review, p. 546, there is a notice of a new method of treating spina bifida, by M. Dubourg, extracted from the Gazette Médicale de Paris, for July 31, 1841, and two successful cases are reported, to illustrate it. So fatal is this malformation under the ordinary modes of treatment, that any new plan that has been attended with success, is deserving of trial; and I accordingly determined to adopt M. Dubourg's method in the first case that I met with, in which there seemed any probability of its succeeding. Since I made this determination, I have met with several cases of this affection, but none of them seemed suited for the operation, owing to the great width of the bases of the tumours, excepting the one which is the subject of this communication. Although my attempt was unsuccessful, I think it desirable that I should record it, since the value of new modes of treatment can be ascertained only by the honest publication of our failures as well as our successes.

On the 26th of April, 1844, I was consulted respecting Mrs. B.'s child, who was the subject of a spina bifida. It was a small female infant, and had been born early in the morning; it was apparently healthy in other respects, and there was neither paralysis of the arms, legs, nor sphincters of the bladder or rectum. The tumour was situated over the upper dorsal vertebrae, and was pediculated, being about two inches and a half in circumference at its base, and double that measurement at its largest part. The integuments were prolonged on to it for more than half an inch, and the bladder-like membrane, of the usual purple colour, which covered the most distant part of the tumour, was already in a state of ulceration.

April 27th. I punctured the swelling a little below the edge of the prolonged integuments with a very fine trocar, of about the calibre of a stocking needle, but the puncture being too small to let off any fluid, was enlarged with a fine-pointed bistoury. About half a drachm of very yellow serous fluid then escaped *guttatim*, and by gently squeezing the tumour, a little more followed. It occurred to my mind, that I could not have penetrated the sac connected with the theca vertebralis, otherwise more fluid would have come away, and that more rapidly, and the part would have been more collapsed than it was. I dressed the ulcerated surface with common adhesive plaster, and fastened a compress of lint upon this, by means of straps of the same material. The child bore the operation very well, not seeming to suffer pain except during the time of the punctures.

This operation was repeated on the 28th, and again on the 30th instant, and by this time the size of the sac had diminished nearly one half, but the ulceration of the thin membranous covering had continued, and the parts now began to assume a greyish-white sloughy look.

May 2nd. My friend and colleague, Mr. Hunt, saw the case with me to-day, and agreed with me in opinion that the case was a favourable one for M.

Dubourg's operation, and that it should be performed at once, before the sac was laid open by sloughing of its coverings, which seemed likely enough to take place in a very short time.

I took the tumour in my left hand, and putting it on the stretch, shaved it off with a sharp scalpel at its base, exactly on a level with the general integuments. Owing to the yielding nature of the tumour, I found that I had left a small portion of the integument, forming the parietes of the sac, on the side nearest to me, which I now removed with a pair of knife-bladed scissors. I now fully expected to see the spinal canal laid open, as Dubourg describes it to have been in his cases; this however, was not the case, for the surface which presented itself simply consisted of a quantity of cellular tissue, infiltrated with gelatinous serum, on a level with the general surface of the skin. The tumour that I had just removed presented a surface exactly corresponding in appearance with this, though when examined with the finger, there were perceptible in its centre several small bodies that felt cartilaginous. There was a pretty free hæmorrhage, which proceeded chiefly from the vessels at the border of the wound close to the common integuments. Its edges were now approximated as nearly as possible by means of two of Liston's hare-lip pins, and the twisted suture applied, on which the hæmorrhage ceased. The parts were then covered with straps of transparent plaster. The length of the wound was about three-quarters of an inch, and its width about five-eighths of an inch. The child cried a good deal during the operation, but as soon as the wound was dressed, became quiet, and took the breast freely.

May 4th. I removed the dressings to-day, and after sponging them gently, re-applied the plaster. As far as could be seen the parts looked well; there was a slight blush on the integuments round the wound. The child has been very well since the operation, and as quiet as before. It looks rather pale, and has the yellow tint of skin that is common at its age.

May 6th. I dressed the parts again to-day, and found that the pins had ulcerated out, and the edges of the wound had not united by the first intention. The surface of the wound looked nearly, if not quite, as large as immediately after the operation, and was covered with yellow dead cellular tissue; suppuration was also going on. The child had been uneasy for the last twelve hours. To-day I dressed the parts with straps of adhesive plaster, crossed in different directions, over these spread lint and above all a roller.

May 7th. I dressed the wound again to day; it looked much the same as yesterday, but there was some appearance of granulation on one or two parts of the surface. The child, since about five o'clock yesterday afternoon, has been fretful, and has refused the breast; the bowels being constipated and the motions greenish. It has an expression of suffering about its mouth, looks feeble, and cries if moved.

Compound spirit of ammonia	12 minims.
Powdered rhubarb	12 grains.
Bi-carbonate of magnesia	16 grains.
Aniseed water	1 fluidounce.

A teaspoonful to be taken night and morning.

May 8th. Last night, the mother, in giving the med.cine, put so much into its mouth at once, that

the child was nearly choked. Soon after it had a convulsion, and has had several since. The medicine has acted slightly, the motions being of a good colour, but rather slimy. It has taken a little of the breast milk from a spoon, but seems to have little appetite. It looks pale and fretful, and its face and limbs are frequently affected by convulsive twitchings. I dressed the wound to day, with spread lint next to it, putting straps of adhesive plaster, a compress, and a roller over it in succession. More granulations had appeared: there was still a good deal of yellow dead cellular tissue on the surface, and it suppurated freely. I ordered two drops of brandy to be given in a little sugar and water every two hours; the mixture to be repeated.

May 9th. Bowels are freely opened. There have been fewer convulsions to day, but they never seemed absent last night. The child looks less haggard in the face, and takes the breast milk from a spoon more freely. The wound looks much as it did yesterday, and I dressed it in the same manner. The brandy to be continued. Repeat the mixture.

May 10th. Constant convulsions—refuses nourishment—bowels not moved.

May 11th. Constant convulsions; tonic spasm of the lower extremities, the legs and feet being in a state of extension, and the legs crossed upon each other; meteorism; constipation; refuses food. I dressed the wound to day. It looks much as it did on the 9th inst.; there is a yellow membranous slough about its centre, which seems to me to be connected with the deep-seated parts. The rest of the wound looked healthy and was granulating. The child died in a convulsion, at 4, p.m.

AUTOPSY FORTY-THREE HOURS AFTER DEATH.

Permission having been obtained to examine the parts in the neighbourhood of the wound, an incision was made through the centre of this, down to the spinous processes of the vertebræ, extending about an inch above and an inch below the wound. When this was done it became apparent that the sloughy membrane alluded to in the note of the 11th, was the upper part of a membranous sac, about the size of a hazel nut, containing some pus. This sac was formed by a prolongation of the dura mater, lining the spinal canal, and was connected with this, by a small aperture that would contain the head of a large pin; and this connexion was situated in the spot usually occupied by the spinous process of the fourth dorsal vertebra, *which was the only spinous process that was wanting*. We now cut away two or three of the spinous processes above and below this point, and when this was done, and the blow-pipe inserted into the narrow aperture before mentioned, air could be very readily blown under the dura mater so as to distend it. A fine probe was now passed into this opening, and under the dura mater, which was divided upon it, with a pair of scissors, when a large quantity of well-formed pus issued from the part. This pus was evidently in considerable quantity, for when that which issued at the first gush was sponged away, it was soon replaced by more. When all the pus had escaped, the spinal chord was examined and found to be completely softened into a pulp, along the whole extent that we had laid bare. The arachnoid of the

spinal sheath was much inflamed. Where the vertebral arch and spinous process of the fourth dorsal vertebra was wanting, the spinal canal and chord were slightly curved in an angular manner, the convexity of the curve being directly backwards.

REMARKS.

The peculiar anatomical disposition of the constituent parts of the tumour, from the first rendered the success of the operation hopeless. The low state of vitality of the oedematous cellular tissue, on the surface of the wound and covering the sac, formed by a prolongation of the dura mater, inevitably caused the part to slough, and thus prevented union *by the first intention*, on which the whole success of the proceedings depends. The structures connected with these tumours are so delicately organized, that they are incapable of bearing the process of union by granulation with impunity, for the degree of inflammation necessary for this is so considerable, that the extension of it into the spinal canal, which is sure to occur, must necessarily be fatal. The nature of the external coverings of the sac, in cases of spina bifida, differs materially in different examples of the disease. In some the tumour is covered with healthy integument, in other cases with atrophied pellucid integument; and the parts between the external envelope and the sac, generally consist of layers of cellular and adipose tissue, one or both, more or less thick. In some cases again the cellular tissue between the sac and the external coverings is extremely abundant, and infiltrated with serum. In Dubourg's cases, it is probable that the coverings of the sac were of the former kind, for he speaks of being able to pass his finger into the spinal canal after the removal of the tumour, which proves that he had cut away the bulk of the sac; and the facility with which union by first intention occurred, further proves that the edges of integument, which were approximated by the twisted suture, were in a healthy condition. The case above recorded is evidence to show, that it is not the size of the base of the tumour *alone* which must determine the propriety or impropriety of Dubourg's operation. If any oedematous cellular tissue intervenes between the sac and its external coverings, the operation should not be attempted. The diagnosis of this circumstance is easily made, by puncturing the tumour. If its fluid contents escape readily in a stream and it collapses, the case is fit for the operation; but if on the contrary they exude drop by drop, and with difficulty, we may be sure that the fluid comes from the oedematous cellular tissue outside the sac, and the operation should be abandoned.

In any case, Dubourg's method is a desperate remedy; and can be considered justifiable only when the surface of the tumour shows evidences of the commencement of sloughing. Several instances of cure being on record, where puncture and compression have been employed, one would always feel disposed to give that method a trial before resorting to the plan I adopted in the above case; but when the tumour shows a white or ashy surface, the case will soon terminate fatally if left to itself; and then few, I think, would hesitate to give it the slight chance afforded by Dubourg's operation.