Cases of stretching of the facial nerve for tic convulsif ; Cases of intussusception treated by operation ; Case of rare fracture of the radius / by Rickman J. Godlee.

CASES OF STRETCHING OF THE FACIAL NERVE FOR TIC CONVULSIF.

CASES OF INTUSSUSCEPTION TREATED BY OPERATION.

CASE OF RARE FRACTURE OF THE RADIUS.

BY

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Cases of Stretching of the Facial Nerve. By J. Rickman Godlee, M.S. *Read June* 1, 1883.

In the fourteenth volume of the *Transactions* of this Society, at p. 44, there is a paper by Dr. W. Allen Sturge and myself reporting a case of *Tic Convulsif*, for the cure of which stretching of the facial nerve was practised. The operation, at the time our paper was written, had been performed about four months, and we were then able to give a very favorable report, but even at that comparatively early period we had noticed (although the patient herself was quite unaware of it) the very slightest tremor in some of the fibres of the orbicularis oris. She remained, however, practically well for nearly nine months after the operation, and although on one or two occasions conscious of a slight return of the twitching, had almost reached the point of forgetting it, when on April 29, 1881, she was very much affected by a severe nervous shock (a man, who had forced his way into her house under false pretences, suddenly declaring himself a bailiff who had come to distrain the property of a lady who was living with her). She said that immediately the whole of her face became violently convulsed; and though with rest and tonic medicines the spasm disappeared more or less for some time afterwards, still it gradually increased until it had regained all its former intensity. Her general health varies, being sometimes very good, at others rather indefinitely poor; she still feels a painful spot at times near the top of her head at a part where, years ago, she received a severe injury; and she suffers pretty constantly from neuralgic pains of varying intensity in different places, but principally in the position of the right supra-orbital nerve, for which she obtains most relief (out of all the drugs and external applications I have suggested) from the use of menthol paste. She remembers with gratitude the period of

respite she enjoyed, and is very painfully conscious of her present trouble, but is unwilling to purchase relief from the complaint by submitting to a permanent paralysis of the affected side of her face; not so much, I believe, from a dread of the consequent discomfort (which she allows was insignificant) as from a dislike of the very obvious nature of the deformity.

At the end of that paper I mentioned, in an appendix, that I had stretched the facial nerve in another patient, and the man was shown at a late meeting of the Society in the session 1880-1881. I now bring forward the complete account of this case, and am also able to add a pretty inclusive table of all the reported instances of the operation, a study of which will enable us to arrive at a conclusion with regard to the present state of knowledge on the subject.

Henri P., a cellarman, æt. 36, admitted into University College Hospital on July 24, 1880; noticed three years previously a spasmodic closure of both eyes, lasting five or ten minutes, and coming on at intervals of an hour, without assignable cause. It gradually increased from that time, the left side being always the most affected. The twitching was made worse by exposure to a bright light and to a cold wind, or by exercise and excitement, so that it was relieved by rest, by keeping in the dark, and by sleep. He was not kept awake at night, but it was noticed that when a candle was passed close to his face during sleep some slight twitching occurred. He had once been kept in a dark room for fourteen days (I believe with blue-glass windows) and had then been completely relieved for a time. Still, a careful examination of all possible sources of reflex irritation—ear, eye, &c.—by most competent observers, revealed only some stumps of teeth (all of which have, I regret to say, not yet been removed) and a little tenderness over the left supra-orbital nerve.

He had had a gonorrhœa in 1862, but there was no history of syphilis, nor any sign of it about him; still he was treated thoroughly with anti-syphilitic medicines on the chance of this disease being at the bottom of the trouble, as well as with all other imaginable remedies. My friend, Dr. de Watteville, who kindly handed the case on to me, had also applied electricity to him after the most approved methods, but all had been as unavailing as the treatment by nerve stretching afterwards proved to be.

His face presented a curious and somewhat grotesque appearance, the eyes being usually more or less closed, the

angles of the mouth drawn downwards and outwards, and the whole head bent forwards. At times by a strong effort of will he was able to stop the spasms temporarily, and the same effect could be produced by exerting pressure behind the condyles of the jaw, but the result was always to cause a more severe attack directly afterwards.

The history and the symptoms of the case are thus seen to be very like those of most others which have already been reported, with the exception that an affection of both sides appears to be rare. But even here, although the double affection led us to suspect a more extensive lesion than usual, the facials only appeared to suffer, which I suppose may be taken to support the view put forward in the paper by Dr. Sturge and myself, that the mischief, whatever it is, lies somewhere in the region of the medulla oblongata. For any other centres for the facial nerve of which we have any cognizance are either upon the surface of the brain, round the upper end of the fissure of Rolando, or possibly in the region of the corpora striata. Now, it is difficult to conceive of any affection which could exert an influence on both centres, either on the surface of the brain or in the great central ganglia, being so circumscribed and so symmetrical as to affect both sides so nearly equally and yet leave parts belonging to the same physiological system untouched. On the other hand, it is quite comprehensible that a comparatively small lesion in the medulla might exert an influence on both nerves almost or quite equally. I am afraid that little or nothing is accurately known about the pathology of the affection, except in those cases where a very definite lesion, such as an aneurysm of the vertebral artery* or other severe intracranial mischief, has been found post mortem; these facts are therefore only brought forward as tending to support the views indicated by Dr. Sturge in our paper.

I was loth, however, to operate in this case, thinking that the double affection implied, at all events, a more profound lesion than in the last; he was therefore kept under observation for some time. He was admitted into University College Hospital, and whilst there, as he was kept perfectly quiet, he apparently improved, and in fact said that he was better than he had been for long. It was ascertained that he was not suffering from any other serious complaint, and that his secretions were normal. He was then sent to Walton for a time. But after watching him from July 24 till the early part of

* Schultze, *Virchow's Archiv*, Bd. 65, S. 385.

October, it was decided that the left supra-orbital nerve should be divided, as it was always, as has been said, somewhat tender to pressure. This was done subcutaneously on October 13. For two days afterwards he suffered from rather severe neuralgic pains on the left side of the head which quickly passed away. He considered, at first, that the twitching on the other side was a little diminished; but this was the only effect noticed, and if it did actually occur, the improvement was only temporary. Accordingly, it was decided to give nerve-stretching a trial; his condition was very miserable, and he considered himself quite unable to follow his calling. So, on Nov. 10, the left facial was stretched. It is needless to dwell upon the steps of the operation, which have been carefully described before. It must only be mentioned that he took chloroform very badly, and caused us some anxiety by stopping breathing during the process; but beyond this the operation was accomplished without any material difficulty. The result, as in my first case, was to cause complete paralysis of that side of the face, and for three days considerable neuralgic pain in the face and the pinna of the ear. Two days afterwards, some very fine tremors were observed on the left side of the middle line about the mouth (though they were not seen on subsequent occasions), the nervous influence for the production of which must have been transmitted through the opposite facial. Another point was noticed which, I believe, is not unusual in cases of facial paralysis, but for which I have not seen any explanation offered; viz. that when an attempt was made to close the eyes, the left eyelid moved downwards to a considerable extent. This does not seem explicable on the theory that the lids are moved by the movements of the eyeball, for in closing the eye it is well known that the ball rolls upwards. The only explanation which I can offer is that when the relaxation of the levator palpebræ occurs, the lid is drawn down by the tonicity of the orbicularis, the same tonicity which, in a child or young adult, prevents any marked inequality of the face at rest when the facial is paralysed; for it is scarcely conceivable that the weight of the eyelid should be sufficient to produce the effect, which it may be observed takes place whether the patient be in the erect posture or recumbent.

He left the hospital on November 22. The wound had not completely healed till the end of six weeks after the operation.

On January 15, 1882, a feeble contraction of the muscles was obtained when a current was passed through the nerve.

On January 29 a little deepening of the wrinkles about the mouth indicated, it was thought, a slight return of power; but it was not till February 5 (twelve weeks and three days after the stretching) that any return of voluntary movements about the mouth was noticed. Meantime a fine tremor of the orbicularis palpebrarum was noticed at times.

On February 9 the eye could be completely closed, the fine tremors were diminishing.

By February 23 it was noticed that the left eye occasionally closed spasmodically, sympathetically with the right, but no coarse twitching was noticed.

By March 9 the paralysis had much improved, and the fine tremors seemed to have disappeared.

On March 23 the patient reported that though during some mild weather he had been almost well as far as the left side was concerned, the right remained as before. A short time previously some cold winds had set in, and then the left eye became spasmodically closed, though there was no twitching in other parts of the face.

On March 24 the right facial was stretched. The sequence of events was very similar to that after the first stretching; but this time there was no difficulty with the anæsthetic, and the wound healed in about ten days.

I may briefly sum up the end of the case by saying that as the paralysis disappeared the twitching gradually returned, first on one side and then on the other; and that in the course of a few months the condition of things was in no way relieved by the various operations that had been undertaken. There was not, as in the last case, a nervous shock to account for the return of the twitchings; but it appeared that the spasms were in abeyance only as long as the nerve was completely or considerably paralysed, but that as soon as the conductivity of the nerve returned to any extent the spasms set in and became more severe in proportion to its increase.

The patient now made a desperate effort to return to work, and was pleased to find that he could somehow manage the duties of a cash collector at an eating-house, which he has continued to discharge ever since. I should add that there are still a few old stumps which he jealously preserves.

The literature of the subject is not very large, for the number of cases which have been reported is at present small; still there are papers to be found by the various physicians and surgeons concerned in these cases, most of which I have

consulted, and references to which I have given in the table appended to this communication.

Briefly it may be said that there are thirteen cases on record, in one of which, reported by Southam, of Manchester (his second case), no late account is obtainable, the patient having been lost sight of. Of the others, with one notable exception (Southam's first case, which remains quite well after two years), all exhibit a more or less severe return of the previous symptoms. Not a very favorable account truly to give, nor a very encouraging one. Still, it must be added that in some of the cases (Baum's, Schüssler's, Eulenburg's, and two of Bernhardt's) there appears to have been some amelioration of the trouble, and even allowing for an almost unavoidable tendency to take the brightest possible view of such cases after the operation, the definite reports of such distinguished men deserve our consideration. The remaining five cases, two of Putnam's, one of Bernhardt's, and two of my own, though all obtained relief for a time are now reported to be as bad as ever.

In two of the cases operated upon under Bernhardt's supervision, one by Langenbeck and the other by Hahn, I venture to think the stretching must have been very imperfectly performed; for in one no paralysis followed, and in the other only a few branches (and, therefore, obviously not the whole of the nerve) were stretched. Still the former case appears to have been relieved, though very slightly. This case is rather akin to that of Baum, in which the paralysis lasted only half an hour (indicating that but little injury was done to the nerve), and in which the symptoms, when they returned, did not reach their former intensity.

In most of the cases the effect of the operation appears to have been a practical solution of continuity of the nerve at the part stretched. And this, I think, places this method of stretching a small nerve on a hook on a completely different footing from that of pulling a large nerve, like the great sciatic, with the finger; for which reason, amongst others, I have omitted all reference to the latter class of cases in this paper. If a large nerve be pulled, the effect, whatever it may be, is probably produced either by dragging upon the point of origin or else by loosening it from its sheath; but in the case of a nerve such as the facial, it hardly requires demonstration to prove that no amount of pulling upon the trunk outside the skull can have any tangible effect upon the medulla. I was led, however, to examine this point rather closely, whilst investi-

gating the effect of stretching the spinal accessory nerve. If the brain be removed and the two nerves dissected out in the neck, a comparatively slight pull upon the spinal accessory produces a very obvious movement of the part which has been divided in the skull, as we should be led to expect from the shortness of the jugular foramen; but pull as hard as you please, even to tearing the nerve across, not the slightest movement is observed in the cut end of the facial. In cases, then, like these under discussion, the nerve is stretched tightly over the comparatively sharp edge of the hook, and is thus more or less disorganised or broken, but with the certainty that restoration or union will take place; thus we generally find a complete paralysis as the primary result, lasting for a variable time, often for three months; after its disappearance the twitching has sometimes recommenced immediately, but oftener a respite for some time has been observed, and then either with or without some obvious exciting cause, it has again set in and has gradually regained, in part or altogether, its former intensity. We must, therefore, it seems to me, give up the idea of the profound effect upon the nerve centres (or at least allow that if such do occur it is only of a temporary nature), and recognise that the *modus operandi* is simply that of breaking a bad habit, which must be taken for what it is worth.

In discussing the question of recommending the operation to a patient, we must not forget that the risk, with due cure is almost *nil*; that a certain immunity from the trouble may be safely promised for a time, and that this period may be very considerably prolonged, and while Southam's remarkable case remains completely well, there is always the hope that the relief may be permanent. Were it not for this, however, I am afraid the general verdict would be that the time had come when this small chapter of surgical therapeutics, in the writing of which several of us have taken part, and which opened with a good deal of enthusiasm, must be closed.

In conclusion, I beg to thank those gentlemen, at home and abroad, who have most kindly afforded me by letter particulars of their cases, and allowed me to place these in the table, which adds so materially to the value of the record of this case. And I would especially refer to the very interesting papers on this question by Dr. Bernhardt in the *Zeitschrift für klinische Medicin* (Frerichs and Leyden), Band iii, 1881, Seite 96, and in the *Deutsche Medicinische Wochenschrift*, No. 9, 1882, and No. 29, 1882.

I can add nothing at all to the pathology of the disease either from my own observation or from reading, and, indeed, it appears that any knowledge we possess, if there be any worthy of that name, is purely hypothetical.

TABLE OF CASES OF TIC CONVULSIF TREATED BY STRETCHING THE FACIAL NERVE.

No	Reported by	Date.	Sex and age.	Nature of case.	Duration of paralysis.	Return of symptoms if it occurred.	Result.	Where reported.
1	Baum	July 20, 1878	F., married, 35	Delicate all her life; menstruation irregular; a widow, with hard work. Six years previously had a sort of epileptic seizure, after which the twitching of the face began, affecting eyelid first and spreading to the rest of the left side of face; at first lasted for one month, then intermitted for two, then became chronic; the right side of mouth occasionally affected	Paralysis disappeared in half an hour	Slight return of spasm in 9 months; later a second relapse, but not so severe as before	Two years afterwards there remained a decided improvement on the original condition. In a letter to Dr. Bernhardt, the writer says, "at all events the condition two years after the operation was not at all comparable to that which existed previously"	*Berliner Klinische Wochenschrift*, 1878, p. 595
2	Bernhardt (Hahn)	Nov., 1878	M., 36	Violent pain in right side of face during campaign of 1870-71; twitching of eyelids in summer of 1873; the whole of the right side of face affected in 1874; some crackling in right ear, made worse by reading by gaslight; the right side of the head felt heavy	No paralysis followed the operation	Twitching returned on the following day	As the result of this and other methods of treatment employed, he was supposed to be a little better two years afterwards	*Zeitschrift für klinische Medicin* (Frerichs, Leyden), 1881, p. 98

No	Reported by	Date.	Sex and age.	Nature of case.	Duration of paralysis.	Return of symptoms if it occurred.	Result.	Where reported.
3	Schüssler	Jan. 23, 1879	F., single, 39	Very good health; tic convulsif without known cause in summer of 1871; a curious feeling being first felt about the left eye, and afterwards spreading to the whole left side of face; no accompanying pain; sleep interfered with. All manner of treatment proved ineffectual. Worse at menstrual periods, and then apparently very severe and accompanied by migraine; worse in summer	Paralysis reduced to a slight paresis by Mar. 4 (6 weeks after operation); this had disappeared by April 12 (about 12 wks.)	Slight return of twitching after 6 months, which became worse later	Improved. In a letter to Dr. Bernhardt, the writer says, "But the twitching never reaches, or has reached, anything approaching the same degree which existed before the operation"	*Berliner Klinische Wochenschrift*, 1879, p. 684
4	Eulenburg (Hüter)	Dec. 2, 1879	F., single, 27	A very severe case of blepharospasm (tic convulsif). Began suddenly, without known cause, two years previously, and affected some muscles supplied by spinal accessory and part of the flexors of hand and finger, but principally left orbicularis palpebrarum and left side of face; it extended slightly to right side of face; tenderness over many branches of 5th. All other remedies—subcutaneous injection of morphia, atropia, curare, electricity, stretching and dividing of the supra-orbital nerve, had previously been tried in vain. Patient had enlarged glands in neck when a child	Paralysis complete, lasting 3 months; then gradually and slowly disappeared	The author writes to me under date Feb. 10, 1883, "In proportion to the disappearance of the paralysis the spasm returned, but was never quite so violent as before, so that the patient felt in some degree relieved"	Somewhat relieved	*Centralblatt für Nervenheilkunde*, 1880, No. 7

5	Putnam	April 24, 1880	M., 25	No cause assigned. The usual symptoms are said to have been present for 3 years. The patient was otherwise in excellent health	Paralysis began to disappear after 1 month, and there was none remaining at the end of 9 months	Tonic contraction at the end of 9 months as before	Unrelieved	*Archives of Medecine*, New York, Feb., 1881
6	Bernhardt (Langenbeck)	June 18, 1880	M., 21	No hereditary disposition; perhaps some exposure to cold might be the exciting cause; sudden onset of convulsive movements at Easter time, 1876; left side only affected; movements observed during sleep	Only the branches to the eye and the upper part of the face pulled; paralysis began to disappear on the third day, but had not quite gone at the end of 3 months	Considerable return of spasm at the end of 3 months, which became as bad as before the operation	Unrelieved	*Zeitschrift für klinische Medicin* (Frerichs, Leyden), 1881, p. 99
7	Sturge, Godlee	July 20, 1880	F., married, 72	Some tendency to nervous disease in family. Had good health till a few years ago, except occasional fits of depression; then left a widow; then twitching began on right side of face; at one time, after complete rest, it almost entirely disappeared; for 2 months previously getting much worse; no local irritation; no branches of 5th tender at time, though some became affected later; first symptom a little pain at the side of nose	Paralysis complete; began to disappear in 2 months, and had almost gone in 3 months	Very slight twitching noticed at end of 3 months (not, however, observed by patient); obvious twitching began as the result of a severe nervous shock 9 months after operation, and gradually reached the same intensity as before	Unrelieved	*Transactions of the Clinical Society of London*, vol. xiv, p. 44

No	Reported by	Date.	Sex and age.	Nature of case.	Duration of paralysis.	Return of symptoms if it occurred.	Result.	Where reported.
8	Southam	Mar. 28, 1881	F., 59	Has enjoyed good health all her life; the tic seemed to follow a sudden severe fright 2 years previously; it had resisted all manner of treatment	Paralysis began to disappear 5 weeks after operation, and had completely gone in 16 weeks	None 25 months after the operation	Mr. Southam writes to me under date Apr. 7, 1883, "The cure has been complete and permanent; there is not the slightest indication of any tendency to return of the spasm"	*Lancet*, Aug. 27, 1881
9	Hoffmann	Mar. 28, 1881	F., married ?	Unilateral	Slight paralysis present in May, 1881, which apparently lasted, at least, till autumn of the same year	In May, 1881, there was already slight return of the spasm; during the autumn of 1881, while the patient was pregnant, and after confinement, the spasms became more severe, but afterwards returned to the condition observed in May	Improvement. Dr. Hoffmann writes to me under date April 10, 1883 (25 months after the operation), "Accounts up to the present date confirm the continuance of the favorable result."	Exhibited at the Neurologenversammlung in May, 1881
10	Southam	Aug. 1, 1881	F., 32	Clonic spasm of muscles of whole of right side of face; first manifested itself about 4 years previously, but had become much worse during the 6 months previous to the operation	Paralysis still present 3 mos. after the operation, but disappearing	—	In a letter Mr. Southam states that he has failed to trace the patient, and cannot give the result	Not reported
11		August, 1881	F., mar-	Following lupus, which caused contraction of eye-	Paralysis began to disappear 7	Twitching began to return after 7 mos.	Improvement. At time of last report,	*Deutsche Medicinischer*

			ried, about 35	lids; began early in 1878, affecting left orbicularis palpebrarum, and extended over face; all sorts of previous treatment ineffectual	or 8 weeks after operation, and power had completely returned in 5 months		10 months after operation, there was considerable return of spasm, but not so severe as before the stretching	*Wochenschrift*, No. 9, 1882, and No. 29, 1882
12	Godlee, de Watteville	Left nerve, Nov. 10, 1880. Right nerve, Mar. 24, 1881	M., 36	Good health otherwise; twitching began on left side in 1877 and extended to right side; eye first affected; made worse by exposure to light, cold, and by excitement; no cause discoverable; twitching, though bilateral, confined to parts supplied by facial nerves; tenderness of left supra-orbital nerve, which was divided; all other methods of treatment tried, but ineffectual	Paralysis on both sides complete; power began to return on the left side 12 weeks after the operation; on the right side in about the same time	The twitching on both sides began to reappear as soon as the paralysis had disappeared, and increased proportionally to its disappearance, gradually regaining all its former intensity	Unrelieved	The present case
13	Putnam	June 1, 1881	F., 45	Unilateral; began 9 years previously, without any known cause; eyelid alone affected at first, mouth a year later. All muscles, including the platysma, strongly contracted. All kinds of treatment, including galvanism, section of supra-orbital nerve, subcutaneous injections of morphia, &c., were used in vain	Paralysis severe; lasted two months or more	Immunity for several months after disappearance of paralysis; then reappearance of symptoms	Unrelieved	Not yet reptd. Information by letter to author

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Three Cases of Intussusception treated by Abdominal Section.

By Rickman J. Godlee, M.S. *Read December* 8, 1882.

In the present paper I propose merely to put on record an account of three cases of intussusception, in which resort was had to abdominal section for the reduction, and in one of which a successful result was obtained. The whole subject, and especially that part of it which deals with the circumstances under which such an operation should be undertaken, has been so often and so exhaustively treated by other writers, particularly by Mr. Jonathan Hutchinson in his elaborate paper in the *Medico-Chirurgical Transactions* for 1874 (vol. lvii), that it would be useless for me to enter into a detailed discussion of the question; I will therefore give, as briefly as possible, the facts of the three cases, adding little or nothing in the way of comment.

Case 1.—W. T. D., æt. 9 months, was admitted into University College Hospital, under my care, on March 9, 1881, when the mother gave the following account of her child's illness. It appeared quite well until the afternoon of the 5th (four days previously) when it was suddenly seized with a pain, apparently very severe, in the abdomen, which caused it to scream out and draw up its legs, and tighten its abdominal muscles; and this was followed on the same afternoon by the appearance of some blood with the motions. The usual course of events then set in—the child always more or less in pain, though of varying intensity,—blood and mucus unmixed with motion passed at frequent intervals, and the strength gradually becoming exhausted, till, on the morning of the 9th, a tumour was discovered in the rectum and the child was sent to the hospital. The mother, however, asserted that on the morning of this day the child had passed some natural motion, and had taken the breast more freely than it had done since the onset of the mischief. She also said that the bowel protruded at the anus the day before admission. The child had been retch-

ing and vomiting more or less since the commencement of the attack.

When it was admitted, in the afternoon, the symptoms of intussusception were obvious; the piece of bowel which protruded from the anus being of a dark-purple colour, but shining, and without any appearance of sloughing. There was a little brownish blood and mucus on the napkin. Some anodyne had been administered before admission, probably morphia, as the pupils were somewhat contracted, and the child did not therefore appear to be in much pain. The pulse was about 200 in the minute, and the child was evidently in a very weak state. It appeared to me, indeed, to be so much exhausted that I was doubtful whether much should be attempted for its relief. I tried, however, the effect of inflating the bowel with air by means of a Higginson's syringe, and afterwards of inflating it with water, while the patient was held up by the legs; but both escaped as quickly as they were blown in, in spite of all our efforts. No anæsthetic, however, had been administered while this was being done. Thinking that no good result was to be expected from this line of treatment, without doing more than the child in its enfeebled condition could bear, I at once placed it under the influence of chloroform, and proceeded to open the abdomen. The surrounding parts were first cleaned with one in twenty carbolic acid lotion (special care being devoted to the umbilicus), and all the steps of the operation were conducted with antiseptic precautions; but in order to prevent too great a chilling effect from the spray, the upper and lower parts of the body were wrapped in a thick layer of cotton wool. The incision was not quite four inches long, and extended for an equal distance above and below the umbilicus, and, as soon as a small opening had been made in the peritoneum, the remainder of this membrane was divided upon a broad hernia-director. A flat sponge was placed at the right side of the incision, by which means the small intestines were prevented from protruding; but this was also greatly helped by the fact that the wound was almost completely plugged by the finger and thumb of the left hand and the forefinger of the right hand, which were inserted to seize and manipulate the bowel. There was no difficulty in tracing the colon, with the intussuscepted portion contained in it, up from the rectum to midway between the splenic flexure and the umbilicus, at which point the entrance of the small intestine into the large could clearly be felt. This portion of the bowel was then drawn out into the

wound, and the intussuscepted portion was gradually reduced without any material difficulty. The small intestine was grasped by the left hand, and the large intestine was unrolled for a short distance from it with the right hand; as soon as about an inch of small intestine had been thus exposed, the finger and thumb of the left hand were shifted so as to grasp it and prevent it from receding, and then the manœuvre was repeated. The last portion to appear was the cæcum with the vermiform appendix, which were placed as nearly as possible in their natural position, and then the abdominal wall was brought together with three carbolised silk sutures, after the manner of an ovariotomy, three or four superficial stitches of catgut being added to ensure a close approximation of the skin. A large mass of iodoform wool was placed over the wound and secured firmly with a flannel roller.

The child vomited just before the bandage was applied but did not retch for long. It was somewhat chilled by the operation, and at the end was almost pulseless; it did not begin to take notice till half an hour after it was taken from the theatre. During the night it was given five minims of brandy in a little milk every hour; it was not sick and did not appear to be in much pain, though it occasionally screamed and strained a little. The following morning it looked lively; it had a temperature of 104° and a pretty full pulse of 170, and it appeared to be in a little pain.

In the afternoon of this, the day after the operation (March 10), the temperature continued to rise, reaching 105 at 4 P.M. The bowels were constantly and freely opened, and the child was very restless and appeared to be suffering a good deal of pain, for which reason a drop of laudanum was given; the five-minim doses of brandy being continued every hour as the pulse remained about 200, and was still weak. In the course of the night the child was sick several times; the temperature, however, gradually fell, reaching 101° at 11 A.M. on the 11th March, while the pulse continued of the same frequency, namely, about 200. In the afternoon of this day the temperature remained the same, but the child was less restless and apparently more comfortable. Two more minim doses of laudanum were administered in the day and one during the following night. The bowels were only opened once during the day, and there was little or no sickness. During the night it slept well at intervals, and on the morning of the 12th the pulse had fallen to 140, the temperature still ranging from 100·8° to 101·2°.

On the morning of the 13th the appearance of things had decidedly improved, but as the bowels were still opened rather frequently, a drop of laudanum was ordered every four hours; and in the afternoon, as a little discharge had run down under the dressing, this was changed while the patient was under the influence of chloroform. It was then found that the condition of the wound was enough to account for a good deal of the child's discomfort, for a little matter had formed in the track of each of the deep stitches, though the edges of the incision were uniting very nicely, except at the lower part, where a little superficial gaping had occurred. The stitches were all removed and the dressing was reapplied as before, with the exception that an extra strapping was placed outside the wool, and a piece of oiled-silk protective was laid next the wound.

The temperature on the evening of this day fell to 99°, and afterwards it only reached 100° on one, the following, day.

On the 14th the opium and the brandy were discontinued.

On the 16th the dressing was again changed, this time without chloroform, and though some pus was found on the dressings none could be squeezed from the places where the sutures had been. Beyond this there is nothing in the case to relate, except that when the dressings were finally changed on March 20, that is, eleven days after the operation, the wound was found to be completely healed, and the child was in perfectly good health.

I am afraid I was unduly influenced by the successful result in this case, which at first looked very unpromising for an operation; so that when another child was brought to the hospital within a few days, with a much more recent and smaller intussusception, I did not have recourse to inflation, which might very likely have proved successful, but proceeded at once to the abdominal section. I cannot acquit myself of thinking too lightly of the danger of setting up peritonitis by the operation, if carried out antiseptically, but I am still disposed to think rather gravely of the exhausting effects, and often futile result of prolonged attempts at injection and inflation. In both cases we made the spray as small as seemed consistent with safety, but it must in fairness be said that, in the second case, I think it was too small, for, at the end of the operation, it was noticed that our fingers were remarkably dry; and though, no doubt, many will observe that the utility of the spray, in what is now called "abdominal surgery," is, by high authorities, considered problematical, and though some weight

must doubtless be given to this opinion, still in the presence of a spray one is less careful about the constant cleansing of fingers and instruments, and may thus perhaps be less conscious about other antiseptic details than are those who have discarded the spray altogether. I do not wish to make too much of this point, but merely mention it as one of the possible causes of the fatal peritonitis which ensued. The case is as follows:

W. H., æt. 7 months, who was previously in good health, was seized on the morning of March 21 with sudden pallor, followed by vomiting, which was frequently repeated, and in the afternoon by the passing of blood from the bowel. At first there did not seem to be much pain. He was given a dose of castor oil.

On the following day, March 22, the child was worse, suffering from frequent attacks of painful straining, and the bowels acted several times, the motions containing fæcal matter as well as blood; there was, however, less sickness. On the 23rd the condition was worse, the symptoms being the same, and he was brought to the hospital.

The child lay at times apparently quite free from pain, but at intervals it was seized with pain of a very severe character, which caused it to arch its back and cry out until the spasm had passed off, when it again became quiet. Nothing abnormal was found on examining the rectum. When the straining occurred some pinkish mucus, apparently containing a trace of fæcal matter, was passed. A distinct moveable, sausage-shaped tumour was felt to the right of the umbilicus. The child was watched for four hours after its admission, and then it was placed under chloroform and the tumour was examined more carefully. It was about three inches long and very moveable, especially from above down; it was firm, and could be grasped readily between the fingers and thumb, when the abdominal muscles were completely relaxed. I thought at first that after squeezing it a sudden diminution of size occurred, but as a considerable mass remained I decided to open the abdomen in order to effect a reduction. This was done precisely as in the previous case, except that the incision was scarcely more than two inches long. The finger was at once passed into the right iliac fossa and the mass was easily reached; the ilium was then grasped as it entered the tumour and drawn towards the wound, in doing which reduction took place. When drawn out in order to examine it, it was found that

both the cæcum and ilium were thickened, uniformly red, and the surface of the latter especially had lost its polish. The rest of the intestines were natural in appearance. But little exposure of the other intestines took place, as they were retained in position by sponges. The sutures and dressings of protective, carbolic gauze and iodoform wool were applied and secured by a flannel roller. The temperature before the operation was 99·4°.

The child was restless during the night, and a minim of laudanum was accordingly administered at 11 P.M., another being given at 5 A.M. The effect of this was to make it more quiet, but it was sick four times during the night, and next morning the temperature had risen to 104·2°, the pulse being 200 and full. Throughout this day there was but little pain, and apparently no tenderness; the bowels acted twice, on the first occasion the motion consisting only of mucus, and on the second a very little fæces. It took the breast well till the evening, but during the night of the 24th it became sick and did not sleep at all. Another drop of laudanum was given at 11 P.M., but there did not seem to be any great pain; the temperature, however, gradually rose to 105·2°, and the child died with a slight convulsion at 9 A.M. on the 25th.

At the autopsy it was found that a little puriform fluid separated the deeper parts of the incision, and that the omentum was firmly adherent to the abdominal wall in this situation. There was a general peritonitis, shown by an almost puriform fluid lying amongst the coils of intestine, and a little muddy, blood-stained fluid in the most dependent parts of the abdomen. There was marked thickening and redness about the cæcum and vermiform appendix, and the last two inches of the ileum. On slitting up these parts the mucous membrane was found to be much swollen and inflamed, but especially in the ileum, where small superficial patches of ulceration had taken place, the lumen of the gut at this part being very much obstructed by the swelling. The appearance of the ileo-cæcal valve was that of a ring of deep-red mucous membrane, half an inch deep, projecting into the cæcum. The condition of things corresponds very closely to that of a wax model of an intussusception in the museum of University College, which I have accordingly placed on the table for comparison. The rest of the intestines contained remarkably little material of any kind, and no blood was found in any part.

A third case occurred to me within a short time of the foregoing, in which I regret to say I committed a blunder in

the performance of the operation. It made no difference in the result, the case being, as the post-mortem showed, hopeless, but a description of it may perhaps be instructive to those who have a similar condition of things to deal with.

H. L., æt. 14 weeks, was admitted into the North-Eastern Hospital for Children, under the care of my colleague Dr. Sansom, on June 23, 1882, with marked symptoms of intussusception, the intussuscepted portion being clearly felt at the anus, and the belly much distended and very tender. The child was much collapsed, but unfortunately the notes omit to mention the length of time during which the symptoms had been noticed.

We considered that abdominal section afforded the best, if not the only, chance of relief, and accordingly the child was at once put under the influence of chloroform, and the operation was proceeded with in the same way as in the other two cases. The abdominal cavity contained a considerable quantity of blood-stained fluid, a condition of things which had not been observed in either of the other two infants. There was much more difficulty in tracing up the colon to the point at which the inversion occurred, and when it was found the reduction was not so readily effected as in the first case. This arose principally from the fact that the point of inversion was deeply situated in the splenic region, but, as might have been expected, the difficulty diminished as the bowel was drawn out. I drew out a considerable quantity of small intestine, and at last the cæcum and vermiform appendix made their appearance. They came out with a slight jerk, and this, together with the appearance of things, made me think that the reduction was complete. The cæcum was accordingly drawn over towards the right iliac fossa, and the stitches were applied as in the other cases. The child, however, never rallied, but continued to vomit and died eight hours after the operation.

A post-mortem was obtained with difficulty and was somewhat imperfectly made. It was found that while little more than four inches of bowel had been reduced, nearly seven inches more of the large intestine were still included. It was, I think, quite clear that we were dealing with only one intussusception and not a double one, such as has been noted in some cases. It thus follows that the commencement of the involution had occurred, not at the ileo-cæcal valve, but at some point in the course of the transverse colon, so that the

volvulus consisted not, as is usually the case, of an equal quantity of small and large intestine, but of a much larger proportion of the latter than of the former.

I was possessed with the preconceived idea that the involution almost invariably commences at the ileo-cæcal valve, and either that the small intestine alone passes into the colon, or (what is far more common) that the ileo-cæcal valve passes in, taking with it an equal length of small and large intestine, so that when protrusion of the intussuscepted part occurs at the anus, it is actually the ileo-cæcal valve that usually presents at this situation. I was therefore predisposed to look upon the appearance of the vermiform appendix as a sign that the reduction was complete, and have no doubt that I overlooked the fact that an involution still remained beyond it. It may seem to those who have not performed the operation that this is an inexcusable mistake, but it must not be forgotten that the investigation of the parts concerned is made as much almost by the touch as by sight, and that in such a case as this it may be very difficult to hold the small intestines effectually out of the way. Besides which, the precise point of involution is, at the best of times, not particularly easy of detection.

The lesson to be learnt undoubtedly is that a very careful examination should always be made after the vermiform appendix appears, so that the operator may be certain that there is an actual continuity of serous membrane between the part which has been reduced and that from which it has been drawn.

There was a point in this case which I confess ought to have put me on my guard against this mistake. In the usual form of intussusception, if the bowel protrudes at the anus half the large intestine must have been turned in, and the point of involution should thus be somewhere on the proximal side of the splenic flexure, as in the first case. Here it was somewhat on the distal side of the splenic flexure, as indeed would almost certainly be the case if the intussusception begin in the course of the large intestine. Some sloughing of the cæcum had occurred over a space as large as a crown-piece, so that it is clear that even if complete reduction had been effected the child could hardly have recovered.

How far should a consideration of these three cases encourage or discourage us to undertake an operation for intussusception when occurring at an early age? The last,

perhaps, hardly bears upon the question, because the disease was so far advanced that, considering the exhausted state of the child, there was no chance of recovery whatever line of treatment had been adopted, not even if separation of the whole intussuscepted portion of the gut could have occurred by a process of sloughing; and I may here express the opinion that considering how rare a favorable termination in this way is, especially in very young children, it is not one that the surgeon is justified in waiting for. It is, however, so far, like the first case, encouraging, because it was clear that the actual pulling out of the included portion of gut would not have caused any material difficulty, in fact, in each of these cases this difficulty did not present itself. Instances have been recorded in which the reduction was well nigh impossible, and others in which the peritoneum covering the volvulus split transversely as the bowel was drawn out; probably I was exceptionally fortunate in this respect, but I would especially direct attention to the precise method of manipulation that was adopted, which was founded on what I gathered from reading Mr. Hutchinson's interesting account of a case in the *Med.-Chir. Trans.* for 1876. Inflation of the bowel has undoubtedly in a certain number of instances proved successful, and if it could be relied on with any degree of certainty, it would unquestionably be a less formidable proceeding than abdominal section; but if the experience of other surgeons is like mine, they will agree that for one success there are a very large number of failures, and that the immediate effect upon the child of repeated attempts of this nature is to produce a very considerable and serious amount of exhaustion. There are, I believe, some cases in which prolonged efforts have been crowned by a dismal travesty of success, in which the surgeon has had the poor satisfaction of finding the intussusception reduced post mortem, and has had to console himself with the reflection "Il est mort mais il est mort guèri." It is seeing and knowing of such examples that make me personally disinclined to do very much in this direction; though I quite allow that in a case like the second, where the intussusception is recent and the strength good, it is a better line of treatment to pursue than that which I adopted. A point has been suggested as a possible explanation of such a peritonitis as occurred in this case, namely, that in effecting a reduction a piece of acutely inflamed gut is placed freely in the peritoneal cavity which was before practically excluded from it; this may be an exciting cause of peritonitis, not only from the fact

of its being itself inflamed, but also perhaps because it may be infiltrated with organisms which from its weakened condition have been able to penetrate its substance. One thing is certain, that the affected parts are much more swollen than in the first case; even now, after the specimen has been in spirit for months, this is very obvious, and at the time it was not only clearly felt, but it was noted that the end of the ileum had distinctly lost its gloss. So great, indeed, was the thickening that even after reduction this piece of intestine formed quite a palpable tumour, which might not improbably have been felt through the abdominal walls, a fact which seems to me well worthy of recollection in cases where the reduction is being attempted by means of inflation or injection.

Fracture of the Radius and Dislocation forward of the Ulna in front of the Wrist, in which the lower end of the latter bone was removed to effect reduction. By Rickman J. Godlee, M.S. *Read March 9, 1883.*

THE following case appears to be worthy of the attention of the Society, first because of the rarity of the accident and the great difficulty which was experienced in effecting a reduction of the displacement; and secondly, because it is interesting to see how little the usefulness of the limb is impaired by the removal of the lower end of the ulna.

The subject of the accident was a strong young fellow, twenty years of age, who was exercising at a gymnasium on July 25, 1882, and whilst jumping a high jump he alighted on a mat, which gave way beneath him; his feet slipped forward with the mat, and he fell backwards, in doing which he put his hands behind him to save himself, and the whole weight of his body was thus suddenly thrown upon his wrists, his palms being directed downwards. He felt no very great pain, and only became aware that his forearm was broken by noticing that the radius was projecting through a minute opening on the outer side of the limb.

He was at once brought to the hospital, when it was found that the radius was fractured at the junction of the middle and lower thirds; the fracture was directed obliquely downwards and outwards, and the lower end of the upper fragment was projecting through a very small opening, from which a small amount of hæmorrhage was taking place. There was a very marked deformity of the limb, caused by the fact that the lower end of the ulna had been torn away from its attachments and was projecting beneath the skin on the front of the carpus, the flexor carpi ulnaris having slipped completely behind it. There was thus apparently considerable abduction of the hand, which was also turned very much backwards.

Attempts at reduction, both with and without an anæsthetic, proved absolutely unavailing, though they were

repeatedly tried both by the house-surgeon and myself, individually and together; and as it was clear that the lower end of the ulna was the cause of the difficulty I made an incision over it, an inch and quarter long, and at once came down upon the bare end of the bone, which lay immediately beneath the skin. I then passed a blunt hook beneath the tendon of the flexor carpi ulnaris (and no doubt the ulnar artery as well) and endeavoured by pulling them aside whilst extension and counter-extension were made to put the bones back in position, but without avail. I then removed the styloid process only and repeated the attempt, but again without success, so the lower end of the bone was sawn off just above the level of the surface which articulates with the lesser sigmoid cavity of the radius; after doing this there was no difficulty in replacing the bones. The wound was stitched up and a drainage tube was inserted, and the usual antiseptic gauze dressings were applied, the limb being afterwards placed in two splints reaching from the knuckles to the elbow.

The wound healed without suppuration; the stitches and the drainage tube were removed on the fourth day, and the patient was allowed to leave his bed. On August 4, ten days after the accident, the limb was placed in a plaster-of-Paris casing, in which a window was subsequently cut to allow of the dressing of the minute remaining sore, and the patient left the hospital. This was removed at the end of the sixth week, and passive motion was commenced.

It will be seen now that there is a little deformity on the inner side owing to the absence of the lower end of the ulna, and that the movements of supination and extension are not quite so free as on the opposite side, but that beyond this the limb is as good as the other; in fact the patient himself considers that it is quite as useful; he is able to use it for exercise on the parallel and horizontal bars, as well as for all the ordinary employments of life, and the amount of movement appears to be improving with the daily forcible movement to which he has been told to subject it, but which till the end of November, when I impressed upon him the necessity for so doing, it appears was very imperfectly carried out.

It may be necessary to remove the lower end of the ulna not only in rare cases such as this, but also as the result of disease; and it is therefore, I hope, not uninteresting to see how little the usefulness of the limb is impaired by such a proceeding. It should be added that the triangular fibro-cartilage had been torn across during the accident.