dix invaginated into the cæcum in such a way that only a very small portion of its distal extremity was visible. Its wall and the wall of the cæcum over a circular area around it were hard and indurated. The appendix except for this was apparently healthy and contained no concretion; it was removed and the abdomen closed.

After-History.—The wound was dressed and the stitches removed on September 7th, and the boy was discharged on the 21st, having had no pain since the operation.

The case is of interest in relation to (a) the mildness of the symptoms and (b) the invagination of the appendix. The boy had attacks of pain for four weeks before admission, and only on one occasion was there any discharge of blood or mucus from the bowel. The invagination was never found to reach the splenic flexure, and at the operation the swelling of the apex was not extreme, rather a hard induration than a marked congestion; there was never in fact any real strangulation. If the variety of intussusception is to be named according to the portion of gut which forms the apex of the intussusceptum, such a case must be called appendico-cæcal. There are now a sufficient number of similar cases recorded to justify their grouping as a distinct variety; their number, as far as I have been able to discover, being eight.

In none of the above 4 cases were injections given a trial, and though it is not proper to argue from one or two examples, the reasons for this course of procedure may be given. After the use of injections, however apparently successful, the complete reduction of the intussusception must remain to a certain extent in doubt. The frequency of relapse after recorded success with this treatment is evidence of this. To leave a child whose limit of endurance has been probably almost reached in this questionable condition seems to me an unsatisfactory course to pursue. The operative results in the simple easily reducible cases are now good and are gradually improving; in the cases where reduction is difficult or impossible operation is the only chance. In what cases, then, is it worth while spending valuable hours waiting to see whether the treatment by injections has been successful or not?

A CASE OF APPENDICITIS WITH ABSCESS PERFORATING INTO THE BLADDER : RECOVERY.

By A. PERCY ALLAN, M.D., B.S.LOND.
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THE following case—from all I can gather, one of extreme rarity—is of peculiar interest owing to the complete recovery the patient made. Dr. Pye-Smith has thought a similar case, which also recovered, worthy of mention in Fagge's *Principles and Practice of Medicine*:

F. E., aged 16 years, an electric workman, I saw first on June 23rd, the day after his symptoms had begun.

History.—I learned that he had had a similar attack some seven years before, which had been diagnosed, the mother informed me, as "inflammation of the bowels."

Present Attack.—This commenced with abdominal pain, sickness, and diarrhoea. The sickness started after well-marked rigors the previous afternoon, and it had continued on and off all night. When I saw him the vomiting was frequent and the vomit thin and bile-stained.

Condition on Examination.—The abdomen was full and tender, especially in the right iliac region, where dullness was uniform and well marked. McBurney's tender point was very obvious. The temperature was 102° F.

Treatment.—The patient was given a mixture of bismuth carbonate, a dose every two hours, and as soon as possible got under the influence of opium, ext. opii. gr. j being given every 4 hours. Ice poultices were constantly applied to relieve the pain. For a week he was on small quantities of milk and somatose. In a day or two the patient was fairly comfortable, but I continued the opium as before.

After-History.—He complained of great difficulty at times in passing water. The temperature never remained high, the maximum being 103° F. on one or two occasions, but it was frequently normal or nearly so, though rising at night to 100° to 101° F. There were no more rigors, nor were there any exacerbations of pain. The dullness continued as before, being very sharply defined internally, but shading off indefinitely at the lower part. As the case developed I noted a very tender process, feeling like a mass of scybala, deep down, extending

towards the inguinal region, about an inch above Poupart's ligament, and continuous apparently with the general mass. After a week the patient's bowels were moved by an olive-oil enema, the motion being passed with a small quantity of slime and a little blood. The temperature some days afterwards being normal or but little raised, no pain being present, I gradually cut down the opium, and added small quantities of beef-tea, jelly, and custard to his milk diet. The general dullness in the iliac region gradually diminished, but the tender prolongation above mentioned still remained unaltered.

Rupture into Bladder.—On July 4th I left the case to my locum tenens, Dr. Sear, having drawn his attention to the tender mass. Three days after I left home the patient was seized with much pain and total inability to pass water. The tender mass had disappeared and the iliac region was more resonant. A catheter was passed and a quantity of putrid urine drawn off. A rectal examination revealed nothing. Dr. Sear called in a local consultant, and the conclusion was come to that an abscess had formed round the appendix, which, burrowing downwards and inwards, had ruptured into the bladder. They decided to drive the patient up at once to a London hospital. There, owing to some mistake, he was kept waiting three hours in the surgery, and sent home again, a distance of twelve miles. He arrived back in a very exhausted condition.

Treatment.—Dr. Sear continued to wash out the bladder daily with a solution of Sanitas for four days, until my return, and gave him a mixture containing hyoscyamus. I found the patient much altered on my return, very thin, weak, and sunken round the eyes. I continued to wash out the bladder daily, using a solution of chinosol, and gave him hexamethylene tetramine, gr. v, t. d. s. After a week the urine became less foetid, and I then washed out the bladder on alternate days. Finally the urine became quite normal, and all pain and physical signs disappeared. I got the patient up each day until July 28th, when he was again seized with rigors, and the urine became again as foul as ever. I concluded from this that the opening had temporarily closed, and that the pus had again collected.

Convalescence.—After daily washing out, I got the urine into a normal condition. His appetite was good all the time, and I kept him well fed, so that he gained strength and put on flesh. He made an uninterrupted recovery, except that two weeks after I had given up attending he developed double orchitis after a long walk which he injudiciously took. In a few days the testicular swelling went down under treatment, leaving the patient perfectly well. There have been no relapses since, nor are there signs that any mischief remains.

OPERATION FOR SEVERE HYPOSPADIAS.

By R. HAMILTON RUSSELL, F.R.C.S.ENG.,
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THE operative treatment of the severer forms of hypospadias has always been a source of despair to surgeons. Various methods have been from time to time designed for the purpose of improving the lamentable condition of the unfortunate subjects who have been born with this hideous deformity; but the success that has hitherto attended all such efforts has been so meagre, and the results of operation in even the most successful cases so unsatisfactory, that it is not surprising to find many authorities holding the opinion that operation in bad perineo-scrotal hypospadias is not worth attempting. On the other hand it has been suggested that, in view of the hopelessness of providing the subject with an effective sexual organ, it would be a wise and humane proceeding to perform castration during childhood. I need make no apology, therefore, for bringing before the profession a new method of operating which appears to me to hold out a prospect of benefit such as has never been offered by any method previously devised. Let me first set forth the difficulties with which we are confronted in a case of severe hypospadias such as is depicted in Fig. 1.

While the urethra opens in the perineum at A, there is seen extending forwards from the orifice for a short distance a sulcus (A, B) lined with mucous membrane, which for convenience of description I will designate the "perineal urethra."

At the extremity of the perineal urethra the glans penis is bound down, so that erection of the organ in the straight

Fig. 1.

position is impossible. There is no vestige of a urethra throughout the penis, and the glans penis is imperforate. It would, of course, be possible to close the perineal urethra and so prolong the urinary channel for an inch or so, but such a proceeding alone would be valueless, for neither of the two great objects of operation in hypospadias would be accomplished. These two objects are (1) to so alter the penis as to render it effective as a sexual organ; and (2) to enable the subject to perform the act of micturition in masculine fashion.

It is essential for both of these objects to, in the first place, release the glans penis from its attachment to the extremity of the perineal urethra, severing the structures that bind it down until the organ can be straightened. When this is done, however, there will be created a lengthy interval between the extremity of the perineal urethra and the end of the glans (Fig. 2, B C). The problems that now confront us

Fig. 2.

are, first, to form a urethra which shall traverse this distance; secondly, to so manage that this penile urethra shall be continuous with the perineal urethra when the latter is closed; and thirdly, to close the perineal urethra.

The only method hitherto devised that is said to have been attended with anything like an approach to substantial success is the method of Duplay. Without going into a description of Duplay's operation, I may point out that it consists of three stages, of which the first comprises the straightening of the organ and the formation of a glandular urethra which is not lined by mucous membrane; in the second stage the penile urethra is formed from lateral flaps of prepuce, but this channel is not directly continuous with either the perineal or the glandular urethra; while at the third operation the two urethrae, the perineal and the penile, are joined. The great drawbacks and difficulties imposed by the break in the continuity of the channel at the junction of the perineal and penile portions are evident, while the glandular urethra made in Duplay's way must surely be very unsatisfactory.

The method of operating I am about to describe obviates all

these troubles; by its means a mucous-lined urethra is provided which extends without any break in continuity from the perineal urethra to the meatus, and the length of penile urethra that has to be formed in this way will be found to present no difficulty.

The operation, which I consider it desirable should be divided into two stages, is performed as follows:

FIRST OPERATION.

A thread is passed through the glans penis to serve as a tenaculum and the glans drawn upwards.

Step I.—An incision through the frænum which binds down the glans. This incision may be carried at once right round the penis, so as to divide the prepuce on the dorsum by a circular sweep, not too close to the corona. The tip of the left index finger is inserted into the gaping wound in the concavity of the penis, and the structures which bind it down are felt and divided by successive cuts with scissors. In this way will be divided a number of dense fibrous bands and portions of the sheaths of the corpora cavernosa, and the scissors must be freely used until the penis is quite released and can be drawn out straight. There will now be a great length of raw surface exposed between the extremity of the perineal urethra and the glans, and the median sulcus between the corpora cavernosa may be deepened by a little careful dissection, and removal of the remains of the longitudinal fibrous bands that have been divided (Fig. 2; the shaded portion shows the shape of the raw surface exposed).

Step II.—Perforation of the glans for the reception of the glandular urethra: A tenotomy knife, with the edge turned towards the dorsum of the organ, is thrust through the substance of the glans, close to the under surface; the structure is incised freely towards the dorsum, leaving a capacious channel through its substance.

Step III.—The incision indicated by the dotted lines EE', Figs. 2 and 3, starting near to the extremity of the perineal

Fig. 3.—Dorsal vein of penis after the incision E E' has been made.

urethra, about one-third of an inch or less from the cut margin of the skin, the incision is carried, always parallel to the cut margin, over the dorsum of the penis to the corresponding point on the opposite side. By this incision a strip of prepuce will be marked out which surrounds the penis in a manner closely resembling a clergyman's stole (Figs. 2 and 3). This

Fig. 4.

loop of skin is then detached from its connections everywhere except at its extremities, and slipped over the end of the penile urethra, exactly as a clergyman removes his stole. The loop of prepuce is then simply manipulated so that the cutaneous

surfaces are placed in apposition, the raw surfaces being turned outwards; a sinus forceps is passed through the channel in the glans, the loop seized and pulled through (Fig. 4). The redundant portion of the loop is then cut off and the two lateral portions of the new urethra fixed in position by one or two stitches at the meatus (Fig. 5).

Fig. 5.

Step IV.—Adjustment and suturing of the preputial flaps. On the dorsum of the penis this is just a simple procedure as in circumcision. On the under surface of the organ, where the prepuce is made to cover over the two edges of the new urethra, these edges should be included in the sutures, so that in each suture four cutaneous edges are brought together, namely, two of prepuce and two of new urethra (Fig. 4). Before finally tying these sutures inspection should be made of the spot where the perineal urethra becomes continuous with the new penile urethra; a nipple-like projection of skin is likely to be present at this place and should be snipped off with scissors. Fig. 4, which illustrates this stage of the operation, is not entirely satisfactory. The two strips forming the new urethra will appear edge on to the observer, and not as depicted in the diagram. Also the sutures will not directly pierce the new urethral walls as represented, but will catch them on the raw surface close to the edge, and will be, in fact, similar in plan to very fine Lembert sutures, so that the edges of the new urethra will be somewhat inverted. The posterior (or dorsal) edges of the new urethra will be adjusted in the mesial sulcus between the corpora cavernosa, and will not require any suturing. The sutures having been tied, a narrow bandage of iodoform gauze may be then wound round the organ, and left undisturbed for several days. The result, when completed, is portrayed in Fig. 5. It is scarcely necessary to remark that no rod of any kind should be inserted in the new urethra. Should there be any defect in the success of this operation it would be wise to remedy it before finally proceeding to the closure of the perineal urethra.

SECOND OPERATION.

Suprapubic Cystotomy and Closure of the Perineal Urethra.—This last is really by far the most difficult part of the whole procedure, and demands care, skill, and experience in this kind of plastic work. To the operator who brings these qualities to the task, however, success will come easily. There is one point of paramount importance to the success of this part of the operation. It is necessary to define accurately the ridge where the urethral mucous membrane merges into the skin of the perineum; the separation between the two must be made exactly at that ridge, and it is best accomplished by taking a delicate pair of scissors and cutting off the crest of the ridge all the way round. It will be necessary to incise the skin of the perineum posteriorly to a small extent in order to expose the hinder margin of the urethral orifice. The reason for such great precision on this point is that if any of the perineal skin be left attached to the urethral margin at any spot, the attempt at closure will certainly fail at that point; while if, on the other hand, the incision is so made as to leave any portion of urethral wall attached to the perineal skin, that will be a sacrifice of urethral wall which can by no means be afforded. The edges of the urethra should now fall naturally together when the thighs are approximated, and they need

not be sutured. The perineal skin should be undercut slightly and approximated by a few sutures, and the wound dressed with a layer of gauze and collodion. Should healing have taken place throughout, the bladder drain may be removed in a fortnight.

The accompanying photograph shows the result obtained

by this method in a boy aged 9, on whom I operated in February, 1899. A probe is introduced into the urethra. The ink marks that I have made on the perineum indicate the limits of the perineal urethra, so that the urinary orifice was at the hindmost mark (A), and the glans penis was bound down at (B). The urethra from (B) to the meatus has been quite successfully made with the exception of a small hole about the middle of the penile urethra. By drawing lightly upon the organ during the act of micturition the sides of this opening are approximated so that none of the urine escapes there, but is all passed freely through the meatus. This imperfection, though really of no importance to the patient, has been mortifying to me, for it is the result of an error of judgment of which I was guilty in the first instance, and can hardly occur in any future case. The error consisted in the attempt to carry out the whole procedure in one operation, instead of dividing it into two as recommended above. Theoretically, no doubt, it might be done in one operation, and I think it probable that with the experience I have gained I should succeed on another trial, but I do not intend to try. It would seem distinctly the wiser course to get the penis portion of the operation completed first, thus leaving as little as possible to be done with the aid of bladder drainage. In my case we became involved in a vortex of troubles through being obliged to make the suprapubic opening a second time when, owing to impaction of the peritoneum in the old cicatrix, that membrane was incised. The silk suture used for repairing the opening in the serous membrane subsequently gave rise to a urinary fistula which persisted for three or four months. Healing has, however, long since been complete, and the result of the operation has been to accomplish the two aims of it—namely, to confer on the boy an organ which will undoubtedly render him sexually potent, and enable him to micturate like other males. Thus the small defect in his urethra is an artistic blemish rather than a defect of serious

importance; it is obvious also that it can be easily guarded against in any future case submitted to operation.

In conclusion, it is not necessary for me to dilate upon the strong points of this method of operation, which will be obvious at a glance. Seeing that it can be performed aseptically, it is inconceivable that the formation of the penile urethra should present any difficulty; the very elements of failure are not present.

As to the age at which the operation should be undertaken, its simplicity and ease of performance render it quite unnecessary to wait until puberty, and I should suggest the age of about 8 years as being the most suitable. The great benefit of such early operation will be appreciated at once when we consider that the time intervening between 8 years and puberty might well be a period of great unhappiness and mental injury to a boy afflicted with such a deformity.

I confidently submit to the profession this operation, which I honestly believe will be found to have inaugurated a new era of hopefulness for the relief of the unfortunate victims of this dreadful malformation.

The illustrative diagrams have been executed from my description by a skillful and intelligent lay friend. For the photograph of my patient I have to thank my colleague, Dr. Herbert Hewlett.

A CASE OF SEVERE SUBCRANIAL HÆMORRHAGE: OPERATION: RECOVERY.

BY

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History.—S. S., a married woman, aged 56, of intemperate habits, was found on the night of September 8th, 1899, lying unconscious outside a public-house, and was removed home in a barrow at about midnight. The following morning she regained consciousness, and with the assistance of her husband was able to walk to the closet. On returning to bed she complained of pain in the head, and gradually became very drowsy. During September 10th this drowsiness passed into unconsciousness. As the unconsciousness supervened it was noticed the left arm and then the left leg became impaired as regards movement. These facts were elicited from the husband by Dr. Proudfoot, who was summoned to see the patient on the evening of September 10th. Dr. Proudfoot held a consultation with Mr. Farmer, and on both agreeing that it was a case of subcranial hæmorrhage, the patient was transferred to the Radcliffe Infirmary for immediate operation.

Condition on Admission.—Well nourished; slightly obese. Well-defined bruise over right parietal eminence. No fracture to be felt. Some slight bruising over right shoulder and hip. (No evidence as to how she came by these bruises.) Completely unconscious. Breathing deep, slow, and stertorous. Pulse full, regular, 107 per minute. Paralysis of left arm and leg; no facial paralysis discernible. Pupils equal and dilated, giving no reaction to light. No paralysis of ocular muscles to be made out. Temperature 97.2°.

Operation.—The patient was at once prepared in the usual way for the operation of trephining and removed to the theatre. Chloroform having been administered, a large semicircular flap was made on the right side of the head. This flap measured about 3 inches by 3 inches, the centre of the base being approximately 1 inch above the external auditory meatus and included the bruise. Everything down to the bone was reflected in the flap. It was noticed that the tissues were distinctly ecchymosed, but on examining the underlying bone no trace of fracture could be found. A $\frac{1}{2}$ inch trephine was then applied, its centre corresponding to a point about $\frac{1}{2}$ inches above the zygoma in a vertical line running immediately in front of the external auditory meatus. On the removal of the crown of bone (which was placed in sterilised saline) a large clot bulged into the wound. Almost instantaneously the stertorous character of the breathing ceased. The clot on exploration was found to extend beyond the trephine hole in all directions but one, namely, the lower. The whole of it was easily scooped away without enlarging the opening. A large depression in the convexity of the brain presented itself and the dura did not bulge to its normal level. Hæmorrhage was very free coming, not from any single vessel, but from several. Where possible, these were picked up with fine pressure forceps, and tied. Some vessels had to be tied by passing fine sterilised silk with a curved Hagedorn needle through the thickness of the dura mater. There was still some oozing, however, and, as the depression showed no signs of bulging out, the hole was gently packed with sterilised gauze, and the edges of the skin brought together by means of temporary silk sutures without replacing the bone. A plain sterilised dressing was then applied, and the patient removed to the ward.

After-History.—September 11th. Consciousness returned. Some movement of left leg. General condition good. Temperature 98.4°, rose to 100° in the evening. Pulse rose from 68 to 104, respirations 20. September 12th. More power in leg. Plugging removed; dura well up to its proper level. Skin flaps sutured with silk. Temperature normal, pulse 80, respirations 20. September 13th. Movement in left arm began to return. September 16th.

Sutures removed. Wound healed completely. From this time the patient made a perfect recovery, regained complete power over left arm and leg; left hospital on October 14th.

REMARKS BY DR. PROUDFOOT.

I saw the case for the first time on Sunday evening, September 10th, 1899, and the points which enabled me to come to the diagnosis of subcranial hæmorrhage were the recovery of the patient from the original unconsciousness, which I attributed to the concussion caused by the injury, the gradual return of the unconsciousness after some exertion, due this time to compression, and, as has been already stated, the discovery on examination of the head of a well-defined bruise over the right parietal eminence.

REMARKS BY MR. FARMER.

The symptoms in the above case clearly pointed to hæmorrhage from the anterior branch of the middle meningeal artery rather far back, causing compression over the mid-Rolandic area, spreading upwards. The bruise practically corresponded with this region. I was thus guided with regard to the point of application of the trephine. The above case would have been admirably adapted for opening the skull by Wagner's method, namely, reflecting a flap of bone with the skin, and thus preserving the anatomical relations between the outer table of the bone reflected and the skin. My reason for not adopting this method was simply the fact that I had not a suitable osteotome at hand. I have on several occasions seen Wagner's method performed on the Continent with a chisel, and cannot help feeling that the vibration thus produced must be harmful, especially in a case of subcranial hæmorrhage. The most troublesome part of the operation was the stopping of hæmorrhage, and at one time I felt inclined to trephine over the main trunk of the middle meningeal artery. By adopting the method of passing fine silk sutures through the dura, where one could not pick up the bleeding point, I was finally, however, able to reduce the bleeding to a slight general oozing. It was obviously essential to plug the large depression in the brain, owing to this oozing; for this reason I did not feel justified in replacing the crown of bone. If the bone had been replaced it would have been resting for twenty-four hours upon gauze and covered by skin. It would then have been removed and replaced during the first dressing when the gauze was removed. I think it very doubtful whether under these conditions it would have retained its vitality. The patient was shown before a Branch meeting of the British Medical Association about three months after the operation. The trephine area was marked by a slight depression in which the pulsation of the brain could be seen and felt. There was absolutely no sign of any yielding of the cicatrix, and the patient stated that she felt as well as she had ever done in her life.

NOTES OF TWO CASES OF EXCISION OF THE GASSERIAN GANGLION FOR EPILEPTIFORM NEURALGIA.

By J. CRAWFORD RENTON, M.D.,

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THE two following cases illustrate the value of the operation for excision of the Gasserian ganglion in cases of epileptiform neuralgia. Along with the cases recorded by Mr. Victor Horsley, Mr. Hartley, Mr. Krause, and Mr. Jonathan Hutchinson, jun., they encourage us to hope that one of the most severe complaints can now with safety be relieved:

CASE I.

History.—A. B., aged 57, was placed under my care by Dr. Haldane, of Bridge of Allan, and Dr. White, of Stirling. He had suffered for seven years from increasingly severe attacks of epileptiform neuralgia of the left fifth nerve, so much so that he sometimes had as many as thirty attacks in the hour, with spasm of the left arm, and he was compelled to be kept under large doses of morphine, having sometimes 4 grs. daily. Professor Chiene and Dr. Beatson saw him also in consultation, and we were all agreed that the only operation which would permanently relieve him was removal of the Gasserian ganglion. He had the typical appearance during the attacks of pain with convulsive spasm of the facial muscles and depressors of the lower jaw, invariably covering his face with his left hand to try and stop the spasm, the left hand twitching during the attack.

Operation.—In November, 1898, assisted by Dr. Beatson, Dr. Bryce, Dr.