TWO UNUSUAL CASES OF MASTOIDITIS IN CHILDREN.

By WILLIAM WILSON, B.Sc., M.D.,

HONORARY ASSISTANT SURGEON, ST. JOHN'S EAR HOSPITAL, MANCHESTER

It is, of course, not unusual for the mastoid region to show signs of suppuration before the tympanic membrane perforates. In the following case, however, there was no bulging and no attempt at perforation of the membrane, which, to the naked eye, was apparently normal:

CASE I.—*Primary Mastoiditis?*

I was called to see a child, aged 2 years, who had been suddenly attacked by mastoid pain, with slight oedema above and behind the auricle. The tympanic membrane was practically normal. Temperature and pulse were slightly raised, but the general condition was good. There were no infected adenoids, but slight reddening of the pharyngeal mucosa was noticed. Owing to the absence of marked constitutional signs and the possibility of the condition being non-suppurative, palliative treatment was adopted.

Three days later, however, without any change for the worse in the general state, fluctuation was obvious above and behind the auricle.

Operation.—The usual incision was made and a subperiosteal abscess was found communicating with the antrum through a fistula in the outer antral wall; the superficial cells extending through the squamosa, above the antrum, were entirely full of pus. The middle ear was, of course, left intact.

Healing was rapid and uneventful. The tympanic membrane throughout was normal.

In every way this case suggested a case of primary mastoiditis. That the superficial air cells of the squamosa should to a great extent be infiltrated with pus, without any signs or symptoms of middle-ear suppuration, is rather unusual. Absence of pain in the ear itself was a noticeable feature throughout. Other members of the family had just recovered from "influenza." There was no preliminary stage of middle-ear inflammation before the mastoid cells were attacked.

CASE II.—*Primary Extradural Abscess?*

A child, aged 8 years, presenting slight mastoid oedema of one side, but no severe constitutional symptoms except slight pyrexia, was sent to me by a doctor who had only the same day been consulted. The child was recovering from a mild attack of whooping-cough. There was some thin watery yellow pus in the external meatus, but on cleansing and packing this did not recur in quantity. No evidence of any perforation of the membrana tympani could be obtained by inspection, by suction, or by the use of hydrogen peroxide after cleansing. The whole external meatus was, however, sodden. No indications of intra-cerebral involvement could be obtained.

Operation.—The usual mastoid incision was made. There was marked congestion of superficial tissues, but no pus in the antrum or middle ear. The mucosa of the antrum was a little oedematous. The lateral sinus was exposed and found to be pulsating. Part of the bridge was removed, but no pus could be obtained from the middle ear. On account of these negative findings, it was decided to open up the posterior fossa. This was done through the posterior antral wall. After removing bone which was apparently healthy, the pus-searcher suddenly perforated what seemed to be the tense wall of an abscess in the posterior fossa. Immediately the operation wound was flooded by the spurting up of about two ounces of thick white pus under pressure. The opening was then sufficiently enlarged to pack the cavity with iodoform gauze, but no attempt was made at any other treatment owing to the copious haemorrhage from the vascular granulations lining the cavity. The mastoid wound was sutured, leaving a space sufficient for the packing of this abscess cavity backwards through its narrow neck. The antrum itself was not packed.

Recovery was rapid, only a small amount of pus being found on the packing gauze, the remainder of the wound healing up cleanly. Hearing was perfect one month afterwards.

Neither before nor after operation was any evidence discovered of perforation of the membrana tympani, nor of pus in the antrum. The only pus ever seen, with the exception of that in the posterior fossa, was in the external meatus before operation, and this never recurred.

During the operation no fluid could be syringed either way through the membrane, nor at any time was there any reaction to hydrogen peroxide in the meatus. The pus present in the meatus on admission was quite different in appearance from that in the posterior fossa. The former was yellowish, then watery; the latter was thick and milky white.

There are two possible explanations: (1) Either the perforation in the tympanic membrane was so small or was so situated that it could not be demonstrated by the

methods employed; or (2) the whole tract from external meatus and tympanic membrane to the dura mater was simultaneously affected by an acute infection (probably pneumococcal, from the whooping-cough); this spread by the lymphatics around veins to the posterior fossa, and was there cut off from the surface by lymphangitis occurring in the bony channel.

The pus in the external ear was probably an accumulation from a mixed infection through atmospheric exposure; it is to be remarked in this connexion that there had been no treatment of the ear by syringing. The conditions found and the rapid and complete return to the normal with such simple treatment support the second explanation.

INTRAPERITONEAL RUPTURE OF THE BLADDER.

By NORMAN FLOWER, M.A., M.B., B.Ch.Oxon.,

ASSISTANT SURGEON, YEOVIL HOSPITAL.

STATISTICS show that intraperitoneal rupture of the bladder is more common in men than in women, and nearly 90 per cent. of recorded cases occurred in adult males.

The operation for the relief of intraperitoneal rupture necessarily has a high mortality. Dambrin and Papin put it at 43.5 per cent. in 78 cases, but early operative interference and improvements in technique have in recent years reduced it to 20.5 per cent.

Death is due to peritonitis, shock, or haemorrhage. The earlier the operation the better the prognosis. Of 13 cases observed by Zuckerkandl, operated upon in the first twelve hours, 8 recovered, but in 21 cases after twelve hours there were only 6 recoveries.

The case here recorded presents several features of interest. First, the age and type of the subject, together with the associated difficulties to be contended with. Secondly, the operation, which, in itself unorthodox, was performed full twenty-four hours after the accident. Thirdly, it demonstrates the ease with which a rupture of the viscus may be produced in an individual subject to alcoholic excess, a condition which predisposes alike to the neglect of micturition, over-distension of the bladder, and relaxation of the abdominal muscles, whose protective influence is thereby lost.

On May 5th, 1914, I was asked to see a man, nearly 70 years of age, of pronounced alcoholic tendencies, with arteriosclerosis and emphysema and weighing 19 st. The story was that at 9 p.m. the previous night he was returning home when he tripped over a stone and fell upon his face. In the early hours of the morning he was seized with intense pain in the abdomen, and an urgent desire to pass urine, but repeated attempts to void any were ineffectual.

At 5 a.m. he was seen by his medical attendant; a soft rubber catheter was passed and four or five ounces of blood-stained urine drawn off. Two hours later it was passed again and a similar quantity of perfectly clear urine obtained.

He was transferred in the sitting position by motor to a nursing home, and the operation was performed at 9 p.m., that is, precisely twenty-four hours after the accident. I have mentioned that the patient weighed 19 st., and the picture which he presented upon the operating table filled me with misgivings. The diagnosis was that of rupture of the bladder, and, in view of the fact that the patient was so bad a subject, I decided merely to drain the abdomen thoroughly to relieve the fast spreading peritonitis and tie in a catheter rather than delay by trying to find and suture the collapsed bladder. The abdomen was opened and two very large tubes introduced, one to the left flank, whither the urine was tracking, and one down to the bladder. For some hours both tubes drained well, but latterly all the urine came from the pelvic one, and next to nothing from the catheter.

The patient's general condition improved so much that it was decided to look for the bladder and repair the damage. This was done on the fourth day after the first operation. It was by no means easy, even by the suprapubic route, to effect an entrance into the collapsed and, by this time, retracted bladder in so adipose an individual. When once this was accomplished, I was very agreeably surprised to find that the lower end of the pelvic tube had found its way through the small tear at the fundus of the bladder into its interior, thereby affording the most complete drainage possible. This tube was gently withdrawn from the abdominal wound above, and the edges of the tear seized and sutured in the ordinary way. The bladder was temporarily drained by a small suprapubic tube and a Hamilton-Irving's box. In the abdominal wound a short tube was left for forty-eight hours. There was a good deal of sloughing of skin and fat around the tubes, and, as the result of infiltration with urine of the pre-vesical areolar tissue, a

left-sided scrotal abscess and a good deal of oedema of both scrotum and penis developed. These were incised under local anaesthesia. The patient left the nursing home on June 16th, and I have since heard that his progress is satisfactory.

The signs of intraperitoneal laceration of the bladder are in nearly all cases immediately manifested, but here, as in rare instances, the patient passed a few hours after the accident in comparative freedom from urgent symptoms. The explanation of this, of course, lies in the fact that he was probably too anaesthetically intoxicated to be conscious of his condition.

In the treatment of intraperitoneal rupture, the adequate drainage of the peritoneum is obviously of prime importance, but the orthodox method of combining this with the second stage of the operation—namely, the discovery and accurate suture of the laceration—would have occupied time, the expenditure of which, in such a subject, would have been only to court disaster. Even so, during the shorter operation, the continuous administration of oxygen throughout the latter period of the anaesthesia, became imperative.

Yet again it may be urged that at the second operation the suprapubic wound might have been completely closed and a catheter tied in, or catheterization every six hours resorted to. It was found, however, after the preliminary operation, that the patient was particularly intolerant of the presence of the instrument. There was, in addition, some prostatic enlargement, and the bladder itself, friable with fatty infiltration of its walls, demanded very free drainage for the conservation of the intraperitoneal closure. With due regard to the varied complications, I am still inclined to the view that, on the whole, the plan of procedure ultimately adopted was the best.

A SIMPLE METHOD FOR DETERMINING THE AMOUNT OF GLUCOSE IN DIABETIC URINE AND OTHER LIQUIDS.

BY

A. F. DIMMOCK, M.D.,

HARROGATE.

THERE are many methods now in use for estimating the sugar in urine, and many others have been suggested from time to time. The ordinary method by Fehling's solution seems one of the best, but requires apparatus and needs a good deal of experience and skill to arrive at accurate results. The fermentation test is extremely accurate, but it takes a long time to obtain results. An objection to the picric acid test recommended by the late Sir G. Johnson is the fact that creatinin produces a colouring similar to the glucose. The following simple method can easily be used without much apparatus, and gives a quick result:

The urine is diluted twenty times, that is, 10 c.cm. of urine is measured and poured into a 200 c.cm. flask; this is made up to the 200 c.cm. mark, and the whole well shaken. A solution of potassium carbonate (K_2CO_3) 2 oz. to 6 oz. of distilled water, is filtered and made up to 8 oz. To 20 c.cm. of the diluted urine 10 c.cm. of the potassium carbonate solution is added in a small flask, and this is boiled carefully for three minutes, and when cool made up to a definite amount, say 50 or 100 c.cm., with distilled water. In order to estimate the amount of sugar present, a solution of pure glucose is prepared, 1 gram in 200 c.cm. of distilled water; 20 c.cm. of this and 10 c.cm. of the potassium carbonate solution are boiled together in a small flask for three minutes, and when cool made up to 50 c.cm. or 100 c.cm. The two solutions are then compared by holding the glass tubes over a piece of white paper at an angle of 45 degrees. By pouring the liquid from the known solution into a measure glass until the tints of both are alike, and observing the amount of the known glucose solution used, the percentage can be readily determined; for example, if 27 c.cm. of the pure glucose solution were required for the solution, then, multiplying by two, we obtain 5.4 as the percentage of glucose in the urine.

I am quite aware that it is a little troublesome to prepare two solutions, and attempts will be made to use some other method of comparison. Coloured glass seems to offer the best solution of the difficulty. Experiments have been made with various iron solutions (ferric acetate and ferric and ammonium citrate), but none have come up to expectations.

Allen says in his *Chemistry of Urine* that, using normal liquor potassae B.P., when equal parts of this and urine

are boiled in a flask or test tube, the test does not indicate with certainty the presence of a small amount—say less than 2 per cent.—of glucose. Albumin should be removed by acetic acid and heat. The colouring matters in urine do not seem to have any effect, but these could easily be removed by lead acetate or subacetate, taking care not to use excess, filtering or allowing to stand; any slight excess of lead is easily soluble in the potassium carbonate solution. The colouring matter of rhubarb and senna becomes reddish-brown with alkali before heating, and samples containing catechol (pyrocatechin) acquire a brown colour on exposure to air.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

A MODE OF RETRO-CATHETERISM.

SOME months ago a stockbroker's clerk came to me suffering from retention of urine. All the usual plans failed to relieve him; even that useful expedient of passing an endoscopic tube to the stricture, so as to widen out its face and thus find the aperture. I then used the following method, which I had thought out years ago:

The apparatus required consisted of a long, narrow, fully-curved trocar and cannula, scarcely 6 mm. in thickness, with a round and smooth proximal end, and a filiform 18 in. long, to pass through the cannula. After aspirating the bladder suprapubically by the trocar and cannula and filling the organ with boric acid solution, I reversed the trocar, so that its round blunt end protruded from the distal end of the cannula. This end was then depressed on the trigone: then lowering the hand whilst pushing gently, the instrument slid easily into and beyond the internal meatus. The trocar was withdrawn for the second time and the filiform substituted; aided by pulling the penis forward and upward the filiform passed out through the external meatus. Had it failed to do so, at worst it would have reached the posterior surface of the stricture, and any attempt to deal with the membranous urethra from the perineum would, on account of its presence, be more exact.

After twenty-four hours urethrotomy became easy; the urine in the interval trickled freely alongside the filiform as it always does. Thus a cure was established on cheap terms. I might have used and was prepared to use a larger trocar and cannula, but that would have entailed more risk.

I think the perineal mutilation one often sees is avoidable. If a Wheelhouse operation does not immediately succeed, it is better to open the membranous urethra behind the stricture or to do retro-catheterism; even better perhaps would it be to push a very fine trocar and cannula through the stricture, the direction being aided by the finger tip, a filiform being then passed through the cannula. In any case the puncture would be harmless.

The great secret in a Wheelhouse operation is not to obliterate the little pouch left at the front of the stricture until the orifice is found; if obliterated the chief landmark is gone.

London, E.C.

JAMES MACMUNN.

OCCCLUSION OF COLON IN A NEWBORN CHILD.

THE following case was of interest in that it showed an occlusion not only of the upper part of the rectum but of the whole colon. I attended a confinement in a primipara aged 28, which, though slow, was otherwise normal, on April 25th, 1913. The pregnancy was also normal, and the baby, a female, looked well nourished and healthy. The next day the child began to vomit at intervals, then the abdomen began to show signs of distension. Urine was passed, but the bowels had not moved. Examination of the anus showed that the sphincter was normal, also the rectum for $2\frac{1}{2}$ in. to 3 in., then it narrowed and became completely occluded. The vomiting became more frequent; there were evidences of pain such as crying and pulling up of the legs.

Post-mortem examination showed that the ileum was distended in its lower two-thirds to within 3 in. of the ileo-caecal valve, where it narrowed considerably. The caecum including the appendix was small but otherwise healthy and patent, but about 1 in. beyond the ileo-caecal