cases following embolism than in paralysis from rupture of vessels, and it indicates, in nine cases out of ten, a clot in the vessels rather than an effusion of blood.

You ask the cause of the tremor: Why should the man have a trembling hand, a tremor that has been termed post-hemiplegic chorea? It is extremely difficult to give any definite information upon this point. The tremor with the spasm that may complicate it is due to a deficient blood supply in the motor centers in the brain, either of the cortex or elsewhere. Disturbance of nutrition is followed by disturbance of function, and under certain circumstances by structural change and degeneration. While this explanation is not easily proved, yet we know that a certain amount of blood-supply is necessary to maintain a condition of healthy nutrition, without it, an altered nutrition with tremor and spasm occurs. Now, you may ask where this lesion was located. Considering the hemiplegic and hemi-anesthesia on the left side, it affected the right side of the brain and points to the internal capsule involving the posterior thoroid.

Let me briefly speak of the treatment of this case. The patient is to be kept as well-nourished as possible. Keep the bowels acting and watch the kidneys. In the early stage of the disease possibly iodid of potassium may do good; but where it has existed as long as it has here, we can not expect very much from it. We will give him the syrup of hypophosphites. He shall have gentle massage and good diet. We will caution against exertion and advise rest. Otherwise no special treatment is needed as there is no way of repairing these damaged valves which involve, by their ultimate effects, far more serious consequences than their original attack.

ORIGINAL ARTICLES.

NOTES ON RETENTION OF URINE FROM URETHRAL STRICTURE.

Read before the third district branch of the New York State Medical Association.

BY JOHN W. S. GOULEY, M.D.

SURGEON TO BELLEVUE HOSPITAL, NEW YORK.

The purpose of these notes is to recall attention to some of the ready and simple methods of relieving sufferers from the distress caused by retention of urine due to urethral stricture. This kind of urinary retention is seldom sudden; it is ordinarily preceded by difficult urination, whose increase—from month to month, from week to week, from day to day—is proportionate to the diminution of the urethral caliber at the diseased point, and also to the degree of muscular spasm of that part of the canal. For several weeks prior to complete retention, although urination be very frequent, the bladder is not emptied; this constitutes incomplete retention of urine which, from its stagnate state, soon gives rise to cystitis. At length the urine ceases to flow; there is then complete retention. This urine, accumulating for thirty-six or forty-eight hours, begins to slobber involuntarily, when the complete relapses into incomplete retention.

The laity often regard involuntary escape of urine as cause rather than effect, and endeavor to repress the "undue flow" by sundry processes which, fortunately, prove ineffectual. Meanwhile the vesical dis-

tension increases, and unless the patient invokes a physician's assistance without further delay, the urethra is likely to burst behind the stricture and give issue to the urine, which infiltrates and destroys the connective tissue of the perineum and scrotum. In rarer instances of inordinate vesical distension, a fall, a sudden movement of the body, or a violent struggle during anesthesia has been known to cause rupture of the bladder.

Long-standing incomplete retention of urine with spasm of the bladder is much more serious than the retention which becomes complete in the course of a few weeks, for, in the first-named condition, the upper urinary organs are often irreparably damaged and the prognosis is generally unfavorable. It is before the advent of these untoward effects that the greatest good is to be accomplished. Therefore, experienced physicians recommend the early treatment of stricture as preventive of retention of urine and its ill consequences; but their instructions are seldom followed, and the responsibility rests with all unruly patients who are too apt to seek advice at the last moment, when the bladder is distended to its utmost degree and the suffering is more than can be longer endured, even by the most stolid of men, after divers nostrums have been tried and found wanting in efficacy.

It is too common in such cases to resort to cutting operations, which are indicated only after failure of careful catheterism with filiform bougies, or after repeated supra-pubic capillary puncture of the bladder and aspiration of the urine. In ordinary cases it is possible to give prompt relief by making some preliminary dilatation of the stricture; beginning with a No. 1 soft, olive-pointed bougie, and continuing the dilating process by passing successively Nos. 2, 4, 6 and 8, after which it will be easy to use a No. 7 curved web-catheter that serves to allow the urine to flow slowly until about two-thirds of the amount contained in the bladder shall have escaped. The catheter is then plugged at its free extremity, is fastened in position, but is not retained more than thirty-six hours, during which time some urine is drawn off every three hours, and the bladder finally emptied a few moments before the instrument is withdrawn. After this the stricture is gradually dilated by using bougies of increasing size every third or fourth day until the normal caliber and suppleness of the urethra is restored. Without preliminary dilatation by means of small bougies, it is usually difficult and often impossible to introduce a necessarily small web-catheter by reason of its undue flexibility as soon as it is warmed in the ureters. The insertion of a metallic stylet in a small web-catheter is not prudent on account of the possibility to perforate the instrument and the urethra, even when the manipulations are carefully and gently conducted.

Any stricture amenable to the method of treatment above described may be regarded as an easy case. The physician is, however, liable to be called to minister to cases that are not manageable with regulation bougies. Like cases have been related with the paradoxical title: "The way to pass impassable strictures," or "How to pass a bougie when it can not be passed." These surgical bulls have come forth from time to time during the past three decades. The meaning sought to be conveyed seems to be, in the first case—how to pass strictures that are impassable by ordinary instruments; and in the

second case—the kind of bougie to use when the common sort fails. These ideas could have been more briefly expressed by—catheterism in difficult cases.

The difficult cases are those of very narrow, eccentric, tortuous, dense and resilient strictures, which are accompanied by inordinate spasm of the muscular layers and are seated in the perineal region of the urethra. A second narrowing in the penile region is generally a troublesome complication which often necessitates internal urethrotomy.

A debauch, in wine or venery, is commonly the excitant of complete retention of urine. In such a case the urethral mucous membrane is likely to be swollen and sensitive, and to bleed freely as soon as a bougie is passed. As a general rule, when catheterism is not deemed expedient, the bladder is punctured above the pubes with a hollow needle, through which the urine is aspirated and, if necessary, the operation is repeated until suitable instruments can be used to treat the stricture.

One of the simple and ready methods of entering a narrow stricture, whose lumen is eccentric, is by means of a filiform probe-pointed whalebone bougie, elbowed at its extremity. This instrument is used as an explorer of the narrowed canal and is quickly passed through the stricture in nine out of ten difficult cases, and serves as a conductor for a No. 1 or a No. 2 conical curved steel staff, grooved along its convexity, and having a canal or tunnel two or three millimeters in length, beginning at the blunt point of the instrument and ending in its groove. Through this canal is threaded the bougie, which guides the staff into the stricture, dilating it sufficiently to permit the introduction of a larger tunneled sound, then a third, fourth, fifth, and so on, until divulsion occurs. After this a tunneled catheter is substituted and enough urine is drawn off to relieve the distress caused by distension. The bladder is not completely emptied until the second day. The object of delaying to empty the bladder is to guard against vesical hemorrhage, which is so likely to occur after the sudden withdrawal of all the urine in cases of long-standing distension of the viscus, particularly in elderly men.

It sometimes happens that stricture is so dense that it can not be dilated by the tunneled sound beyond No. 2 or 3. In that case a tunneled catheter No. 2 or 3 is substituted, and through this instrument the urine may be aspirated if necessary. Then a small web-catheter is passed and fastened in position for forty-eight hours, during which time the urine is allowed to trickle out, partly through and partly beside the instrument. On the third day it is generally possible to carry on dilatation with less difficulty and, if needed, the process of continuous dilatation may be repeated until the stricture shall admit a bougie of the size of the normal caliber of the urethra. When, however, a stricture seated in the perineal region can not be entered with any kind of bougies, after repeated trials, it is proper to resort to its external division, with the double object of curing it and of relieving the distended bladder.

For some years past there has been a pernicious fashion of dilating the strictured urethra to an excessive extent and of using the dilators with undue frequency. In the many cases so treated the consequence has been a total loss of the urethral suppleness due to sub-acute urethritis, with extensive infiltration of round cells and their subsequent transfor-

mation into scar tissue, so that the canal, although greatly increased in caliber, is in a state of permanent contracture.

Men of dissolute habits, like the cases presently to be stated, seldom return for radical treatment until they are again suffering from retention of urine. Narrow resilient strictures are not permanently cured by any method of treatment whatsoever, unless the treatment is followed by the persistent use of dilating instruments, once every week or ten days, for at least three years. Some patients need the use of such instruments for many years, if not for life.

The following recent cases may serve to illustrate the efficiency of tunneled sounds and catheters in difficult cases of urethral strictures with complete retention of urine.

W. L. S., 28 years of age, was admitted to Bellevue Hospital on the 8th of April, 1895, suffering much pain from retention of urine, which had become complete thirty-six hours before. He had had three attacks of urethritis, the first, twelve years, the second three years, and third, eight months, before admission to the hospital. The first attack lasted three months, the second, four months, and the third merged into a gleet which existed at the time of his final retention of urine. During the eight months prior to admission, he had repeatedly had complete retention of urine after great abuse of ardent spirits, but was each time spontaneously relieved, except after the last debauch, which began early in April, 1895, when, on the morning of the 7th of that month, the retention persisted, but he did not apply for medical aid until the following morning, and the physician employed undue force in using the catheter, with the only result of drawing blood instead of urine. With his bladder distended to the level of the umbilicus, the patient was conveyed to the hospital on the afternoon of the 8th of April. Exploration of the urethra revealed a narrow stricture in the region of the bulb, and a false passage anterior to the stricture. The urethra having been filled with oil, an elbowed filiform whalebone bougie was passed through the stricture and, reaching the bladder, was used as a conductor for Nos. 4, 6, and 8 conical tunneled sounds with which the canal was rapidly dilated, when tunneled catheters Nos. 7 and 10 were introduced, and eighteen ounces of urine drawn. The patient was then sent to bed after he had taken ten grains of quinine. No anesthetic agent had been administered. Three-quarters of an hour afterward he passed spontaneously five ounces of urine without, however, emptying his bladder. In two days the stricture was dilated to No. 12 (English gauge); on the fourth day, to No. 13; and on the eighth day to No. 14 which has since been introduced every fourth day. The patient has experienced no untoward effect and has been able to urinate at ordinary intervals, in a large stream, and to empty his bladder. It is scarcely necessary to say that antiseptic precautions were taken in the treatment of this, as well as in the many other cases of urethral strictures received in the hospital.

E. T., 50 years of age, was admitted to Bellevue Hospital, on April 22, 1895, in a profound state of alcoholic intoxication, suffering from complete retention of urine of forty-eight hours standing. His bladder was distended beyond the umbilicus although urine had been slobbering out for twelve hours. He was an habitual excessive drinker and his final de-

bauch had lasted three days. He had had three attacks of urethritis in the course of fifteen years, and had suffered retention of urine three times during the twelve months prior to his admission. Once the bladder was relieved of its burden of urine by suprapubic capillary puncture and aspiration. There were two dense, narrow strictures, one in the penile, one in the perineal region of the urethra. Very soon after admission he was successfully catheterized with a fibroform whalebone bougie and tunneled instruments, beginning with No. 2, and carrying the dilatation to No. 6, when twenty-eight ounces of clear urine flowed through the catheter; this being about two-thirds of his bladder contents. An olivary bougie No. 5 was then passed and retained in position twenty-four hours; the urine oozing beside the bougie after a few hours. The usual dose of two grains of quinin was administered. Dilatation of the strictures was continued every second day, and at the fourth and fifth sittings No. 8 was easily introduced. In the meantime the patient urinated in a good stream at regular intervals. Dilating instruments were used every fourth day until No. 13 could be easily passed. The patient was advised to continue this treatment indefinitely, and was discharged at his own request on the 27th of May.

The writer has employed this method of treatment, in upward of five hundred difficult cases of urethral stricture, with a degree of success that warrants an earnest recommendation of its more general use. In the great majority of these cases, no anesthetic agent was administered, because the operation is not very painful, because it is of short duration, because of the danger of vesical rupture incurred during the struggles of the semi-conscious patient in the second stage of anesthesia, and because of the ill effects of some anesthetics—particularly ether—upon the kidneys. The mortality has not exceeded three per centum and has been due mainly to advanced disease of the bladder, ureters, and kidneys.

SUSPENSION OF THE UTERUS.

THE OPERATIVE TREATMENT OF RETROFLEXION BASED ON A CONSIDERATION OF 200 CASES.

BY HOWARD A. KELLY, M.D.
BALTIMORE, MD.

At the meeting of the AMERICAN MEDICAL ASSOCIATION in Baltimore in May, 1895, I made an address before the Obstetrical and Gynecological Section on the subject of the "Operative Treatment of Retroflexion," taking as a basis of my remarks the 170 cases upon which I had operated since coming to Baltimore six years ago. Since May I have added thirty more cases, bringing the total up to exactly 200. All but a few of these cases were operated upon in the Johns Hopkins Hospital; the others were patients in my private sanatorium.

The mortality in the 200 cases has been zero, and there has not been a case of serious illness following the operation. There has been one recurrence of the retroposition, making the failures one-half of one per cent. In about 5 per cent. of the cases stitch-hole abscesses and separation of the lower angle of the incision occurred; this accident very rarely happens now with my present technique in closing the abdominal incision.

The suspensory operation was abandoned in one case recently because the enlarged uterus was so

friable that the stitches cut out as soon as they were tied.

In all cases where the vaginal outlet was relaxed it was repaired at the same time the uterus was suspended; when there is both retroflexion and relaxation of the vaginal outlet, if I can do only one operation, I prefer to lift up the outlet under the pubic arch. It is well known that I have always been an earnest advocate of the direct method of treating retroflexion by a small abdominal incision, bringing the uterus into anteposition and holding it there by two stitches through the anterior abdominal wall and the posterior surface of the fundus. I am influenced by four principal reasons in continuing this method of treatment, which I originated nine years ago; these are:

a. A natural tendency to continue an investigation in the line already opened up (see *American Journal of Obstetrics*, January, 1887).

b. The advantages of a direct inspection of the ovaries and tubes, as shown by the cases of inflammatory adhesions found at the operation, where it was not known that any had existed. In one case I was fortunate enough to find a little papilloma, not as big as the end of my finger, starting out of the ovary. When the uterus is adherent no other method can be so good, as this is the most direct way of dealing with the adhesions.

FIG. 1.—Elevator which serves to hold uterus up while first stitch is being passed.

c. The mechanical advantages of my suspensory operation acting directly on the posterior surface of the retroflexed fundus, are better than the same organ held forward by pulling on the round ligaments on both sides.

d. Probably the best reason of all is the remarkable statistics of my 200 cases without a single death, and with but one recurrence of the displacement in a patient in whom a tube and an ovary were removed at the same time.

With this introductory statement I present my address substantially as given at the Music Hall last May, with the analysis of the first 170 cases. The last thirty are more recent and may, therefore, be left out without disadvantage.

I hope the illustrations which accompany my paper will help make clear some points which are difficult to describe away from the actual demonstration on the patient.

I have adopted the same "Suspensio Uteri" as more correct than "Hysterorrhaphy," which is a plastic suture of the uterus, or than "Ventrofixation" or "Hysteropexy," both of which, though widely used, give a false impression of the results obtained. If the operation is properly performed the fixation (*pexy*) of the uterus lasts but a short time, after