peasant 50 years of age stepped into a wasp's nest and the insects flew up the wide leg of his trousers and stung his penis and scrotum; as a consequence he had a diffuse cellulitis. Twenty years later he came under the observation of Vujic with an apple-size swelling at the end of his penis, but the preputial opening was so narrowed in consequence of cicatricial contraction that it only admitted a probe. The prepuce was slit up and the space between it and the glans penis found occupied by three stones the size of a dove's egg; their apposed surfaces were faceted and the pressure they had exerted on the glans had caused it to atrophy.⁵

Preputial calculi arise probably in the following way:—Some are minute concretions which find their way from the kidney or bladder along the urethra and are retained under the prepuce, its orifice being too small to allow them to escape. Others, and probably the majority, consist of urates or triple phosphates deposited on a nucleus of smegma; and some are masses of smegma impregnated with phosphates.

It is beyond any doubt that many inconveniences are associated with a non-retractile foreskin in children, in adults, and in elders; it is also, in some circumstances, a menace to health. Mothers often strongly object to have their baby boys circumcised, not only from dislike to subjecting them to a surgical operation, however trivial, but also from a feeling of revulsion in subjecting them to a process which is regarded as a rite in other religious communities. My own experience in this matter has been that when the advantages of circumcision are explained to them, they yield.

Congenital phimosis is common in London, as in a measure may be inferred from the frequency with which circumcision is performed in a large hospital. Mr. Morson ascertained for me that in this hospital (Middlesex), during 1906 fifty-four children were circumcised and twelve adults, three of the men were over fifty years of age. Circumcision of infants is very common in hospitals concerned with children, and I have been informed that at the Hospital for Sick Children, Great Ormond Street, during 1906 this operation was performed on 874 patients.

Occasionally one hears of certain supposed disadvantages of circumcision; it has been urged that the scar left by the operation may ultimately be attacked by cancer. Carefully-observed cases have been reported in which squamous-celled cancer has been found on a circumcision scar, and this may happen to any scar, but the liability is excessively small; an adult with a long, non-retractile, chronically-inflamed prepuce is far more liable to cancer of the penis than one with no prepuce. Cutaneous horns have been seen growing from a scar left by circumcision; but they may grow from any part of the penis, even from the epithelium covering the glans.

In rare cases syphilis and tuberculosis have been communicated to Jewish children as a result of a certain formula in the rite. Infants have died from bleeding and sepsis when the operation has been performed by medical men as well as by the mohel. These things only serve to show that an element of risk pervades all human actions.

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ON THE RADICAL CURE OF URETHRAL STRICTURE BY INTERNAL URETHROTOMY.

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EXCLUDE excision, certain plastic procedures necessarily rare, and a few cases of external urethrotomy, and there has scarcely been any solid advance in the radical cure of urethral stricture for half a century. Yet internal urethrotomy dates back to Heliodorus (1st century). Exceedingly few irrefutable examples of the cure of deep fully-organized annular stricture—the common “stricture”—can be adduced. Partly organized, penile, and segmental strictures are cured every day by the most diverse means.

It is my object to attempt to show that failure was and is due chiefly to the overlooking of “little things.” Is not the secret before our eyes in the healing of the wound in the simple operation of meatotomy and in other places

where epithelium gets fair play in the covering of raw surfaces? Cut a meatal stricture as freely as you like and merely pass round sounds; recontraction to an undesired extent is the rule. A “splice” forms. Pass a flat body—even a loop of wire—with like frequency; contraction does not recur. Epithelium lines the wound flush with the plane of mucous membrane; the building up of new tissue does not outrun the paving of the old.

I claim that the first secret of success is the avoidance of that which is universally courted—the “cicatricial splice,” an offspring of contractile tissue, which in the future will possess all the vices of the parent.

Most urethral strictures will generally heal like meatal if cut properly and wisely treated in the way mentioned or by a process like scabbing. The periurethral deposit, no longer called on to support the tissues round the lumen, which bear the brunt of the urine stream, will disappear.

The anatomy of strictures varies so much that to treat them scientifically we must examine them so. Owing to want of this I assert that strictures are nearly always undercut, overcut, or badly cut. If A. and B. have obstructions $5\frac{1}{2}$ in. down these may not be at the same site owing to the varying length of the penile urethra. That of A. may be prebulbar, that of B. bulbar or post-bulbar. Such difference makes a great difference in regard to treatment and results. Another urethra where incision at the bulb is required measures normally 40 or 45 mm., but the stricture deposit has extended into the corpus spongiosum even beyond this extent, whilst the meatus, or mid-spongy part, measures 24 mm. only. Now we are told if we “cut at all to cut all,” and almost universally that cure depends on the severance of every stricture fibre. There is no instrument, used in England at least, capable of doing such a thing, and no sound was ever passed capable of determining if it were done. A gutter is made and even this is allowed to fill up.

Find out (1) the site of the stricture, (2) its length, (3) the aspect of the urethra it engages, (4) whether it be urethral only or periurethral, (5) inflammatory (hyper-trophic) or sclero-cicatricial.

The instruments I find most helpful are a full set of flat demi-boule sounds, and some of a rhomboid shape for deep examination which will not hitch so much on the layers of the triangular ligament. Both are metal, the former are straight. Straight instruments are usually as easily passed through deep stricture as curved. The sinus of the bulb is filled up, and the surgical path, the roof, is fairly free.

I pass as large a demi-boule as possible down to the stricture and mark the site over its shoulder. Then, if possible, a small one through the stricture, and make it hitch on the posterior aspect of the latter. A finger in the anal canal can pull the tissues over the instrument, can feel where it hitches, and can straighten the curved urethra. Thus site and length are known.

Whoever performs internal urethrotomy should decide (1) how to cut, (2) where to cut, (3) how much to cut, (4) what to do besides, (5) what to do afterwards.

1. Instruments.

Of some sixty urethrotomies not one is perfect. Indeed, otherwise there would not be so many. Some men decry new devices. Urethral surgery stands alone in this, that the patient is at the mercy of the instrument. Not one of the senses comes directly into play. Instruments, therefore, must supplant the senses; they may be simple, but they must be ingenious. Endoscopic section of stricture is a failure.

Urethrotomes are divided into those which cut from before and those which cut from behind. Again, into those which, acting in one of those ways, stretch whilst they cut. Lastly, some cut the roof only, some the floor only, and a few can cut both.

As the anatomy of stricture varies so greatly, it follows that an instrument incapable of adjustment to all needs is defective. An ideal one should be capable of:

1. Stretching the tissues.
2. Cutting roof or floor.
3. Cutting to any depth.
4. Cutting the widest as well as the narrowest contraction.
5. Localizing the lesion it divides.
6. Cutting from before or from behind.

The indications are:

1. To restore the normal axis, thus getting rid of friction in urination.

2. To cut as much of the obstruction as possible, commensurate with safety.

3. To avoid unnecessary section of healthy tissue and blood vessels.

No instrument in use fulfils these wants. Take the chief types. Teevan's cuts the roof only, and only to the extent of its shield. Its prototype—that of Maisonneuve—is even more objectionable; the knob of the blade pushes some of the morbid tissues aside and tears, not cuts, its way through the periphery of the stricture. Civiale's, etc., cannot well cut beyond the extent of the protrusion of the blade. As to the Otis plan, stress is laid on the smallness of his blade, 2 mm., but a cut made into stretched, therefore attenuated, tissue by this small blade is really deeper than that made by a much larger blade without the stretching. It is a depth which cannot be gauged, and if the operation be carried out as originated, it is a combination really of cutting and bursting, a proceeding not ideal in results.

I do not deny that all these instruments now and then fulfil an admirable function, but that is not enough. Watson's urethrotome is admirable in some cases, but that is a limited use. Reybard's as modified by me possesses the advantages of that of Otis, and two in addition. It can cut roof or floor. The blade is capable of adjustment.

The urethrotome I prefer is that shown (Fig. 1). It is a

modification of the simple one I described long ago, now made to cut in any direction. I am much indebted to Messrs. Arnold and Sons for the pains they took to carry out my ideas. It fulfils all the forementioned wants. A is a blade usually blunt on its upper aspect, which allows it to slide on the healthy mucous membrane, but very sharp before and behind. These sharp edges are bevelled like a hatchet edge, to run up to the superior blunt margin. Thus the stricture is always cut at least flush with the plane of mucous membrane, which latter is stretched by the expansion of the instrument. The blade is protected by a shield, and is drawn back by a spring. A metal guide is shown. I usually prefer a copper end, which can be bent any way. Since, however, tortuosity, not mere narrowness, creates impassability, guides are often needed. Space forbids the description of mode of use. I shall only add one great point is this—the blade is adjustable in millimetres.

2. Where to Cut.

Certainly where the stricture mass is greatest, where bleeding will be least, where drainage is best secured. Although the greatest mass is usually on the floor, the contraction renders a corresponding point in the roof salient, hence a coarctation, though not actually circumferential, is practically so. Yet where the roof is healthy it is a mistake to cut it. New cicatricial tissue is added and increased calibre attained at the expense of true axis; the zigzag passage is exaggerated. Segmental stricture should be cut where it presents. Concisely, antebulbar obstruction should be divided on the roof, where deep incisions are safe; bulbar and post-bulbar on the floor—a rule with exceptions. Severe bleeding may arise from the roof of the membranous part, but deep wounds may be made in the bulbous and bulbo-membranous floor if exactly in the middle line (septum of Kobelt).

3. How much to Cut.

I said strictures were rarely completely cut. I find a vagueness even in theory on this matter, and also that "that grand old surgeon, Guthrie," was really the only man who stated an exact rule based on anatomy. He advised cutting through the corpus spongiosum as far as its outer muscular layer. No matter if the target be hard to hit, the aim is there! Haemorrhage, according to many, will be severe if we go this far; but haemorrhage

does not so much ensue from stricture tissue, whose vessels are mere fissures, but from deep wounding of healthy tissue before and behind.

I find the best rule is to cut a little over the normal surgical capacity of the individual urethra immediately anterior to the stricture, usually 1 mm. more. This capacity varies greatly, and is scientifically expressed as the degree of expansion under a known dilating force. This can be determined by my automatic urethrometer. In the absence of a urethrometer, cut 2 mm. above the size of the largest bulb which will pass down to the stricture (meatus being normal). Physiological capacity should mean that required for the exit of the urine stream; the latter is 15 mm. (Sappey).

Radical cure does not so much depend on the depth of the wound as on its after-treatment. Even if we "cut all," like produces its kind, and cicatricial tissue will fill the gap if we are content with ordinary treatment.

Authorities, whom I respect, state that when a stricture is divided the wound gapes owing to the contraction of the remainder of the ring. That is hardly possible, because (a) the muscular elements in confirmed stricture are atrophied; (b) there is no yellow elastic tissue—or "vital contractility"—in stricture; (c) the undivided part of the corpus spongiosum, "that eminently contractile tissue" (Kolliker)—that tissue, indeed, which accounts for the "resiliency" of stricture—keeps the wound walls in contact.

It is often safer to cut too much than too little. Septic absorption, even extravasation, will be more likely to occur where there still exists an impediment to the stream, that is, where its volume and centrifugal tension behind is but little diminished, whilst an avenue for its escape into the tissues is afforded by the wound.

4. What to do besides Cutting.

A large flat demi-boule is the best test for the proper division of stricture. I am usually satisfied with the passage of short wedge-shaped sounds as illustrated, used as large as possible, and with pressure so as to get them well into the incision. When these pass easily, all that is needful has been done; they cannot injure healthy tissue, but if used properly they can complete the severance of any partially-divided bands possibly existing. Fig. 5 is used for the roof, and its shape allows it to exert an expansion wider than the meatus through which it passes; Fig. 3 for floor; Fig. 4 for either, or both.

These sounds do not divulge; they open the tissues to the extent used. Ordinary divulsion, whether

by a divulsor or a sound, leaves a tear rugged and unlimited, and yet divulsion practically always attends internal urethrotomy. What is the result of using sounds in an ascending scale? If cylindrical sounds cannot be a test of the completeness of the operation, can they be a remedy for its incompleteness? Urethral sounds should have a curve half the usual size. They should pass through the stricture only, not into the bladder. Chill and shock will then be rare.

5. What to do Afterwards.

(1) Cause the wound to heal so that a permanent gap is left; (2) guard the wound against urine contact for a time; (3) prevent and treat complications.

(1) I continue the use of such sounds which enter the depth of the wound and keep its sides apart, combined with the previous injection of drugs which hasten repair and annul sensibility. Orthoform and xeroform, in the form of ointments and mucilages, are my chief friends. Iodoform stimulates granulation tissue too much. The

sounds are scarcely complained of, and press these things into the wound. The drugs are used twice daily; the sounds with a frequency dependent on tolerance and individual need till repair is complete. Thus the wound is healed, mucous membrane at one end sending its epithelium to meet that from the other end, and over the sides as well. The desirable medicaments block dead spaces, and guard from infection.

(2) Guarding from urine contact is largely fulfilled by these, but I usually empty the bladder as often as necessary for the first two days. The best catheter I find to be a small rubber one stiffened somewhat by a slender whalebone stylet, having a coudée bend.

(3) As to complications, space forbids. Haemorrhage from before the triangular ligament is met by perineal pressure. A soda-water bottle filled with iced water fulfils a double function: it restrains priapism (often very injurious) and inflammation as well. It contracts the compressor bulbi urethrae muscle. Haemorrhage from behind demands pressure on the membranous urethra and a contracted bladder.

The difficulty of passing guides is met by the small device shown in Fig. 2. We can push but we cannot direct

FIG 2

or sustain guides. If introduced into the little cannula, they can be both directed and sustained. One secret is to fill the urethra with oil, then rotate and push.

I have operated very many times on the foregoing principles with results which justify me in bringing them to notice. I regret the illustrations are not quite so true as I would wish.

CONGENITAL HYPOTONIA (CONGENITAL AMYOPLASIA).

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THE main object of this paper is to describe a form of myopathy, exemplified by a patient under my care, which has apparently escaped observation in this country, at all events, although a condition similar in nearly every respect has been noted in Germany and America, and named "congenital hypotonia" or "myatonia congenita" by Oppenheim, the earliest and fullest writer on the subject. The patient was shown and her case discussed at a meeting of the Bristol Division of the British Medical Association, and many of the apposite suggestions and comments made there have been embodied in this paper.

E. G., a girl of 10, was brought to the out-patient department of the Children's Hospital, Bristol, on account of muscular weakness and general wasting. Her parents are healthy, and in a position to give their child good food and hygienic surroundings. They have lost three children since the birth of this one—one from measles, one from cancer of the oris, and a third at two months old from some unknown cause. Her birth was uneventful and without instruments, at full term, and no relative, near or distant, has ever suffered from anything like this girl's malady. Within half an hour of her birth one hand was noticed to be peculiarly flabby and loose, but no other sign of weakness was apparent until she began to get about and to learn to walk. Then it was found that her legs gave way under her, letting her down upon the inner aspects of her legs in very much the same position as that which will be described later on; this prevented her from walking by herself till she was over 2 years of age. Her mother often found it very difficult to put the child's shoes and socks on, because the legs were so weak and flabby. When she was only 2½ years, the fact that her calves were very small was remarked upon; this feature has become more pronounced as she became taller and more definite of outline. Till she was 7 or 8, her ankles turned over so readily as to cause a serious disability, as she often fell down, and her attendance at school suffered many interruptions as a consequence. This trouble, however, has been greatly lessened by the use of boots with very long "uppers." Her hands and their possibilities have always been a source of entertainment to her friends; at school this has developed to such an embarrassing degree that her parents have been

obliged to forbid her "showing-off" to her schoolfellows. In spite of the muscular laxity, no dislocations have ever occurred. There has never been any defect of vision, and no squint has been noticed. Her voice does not disappear after prolonged use, and there has been no difficulty about mastication; it has, however, been noticed that she cannot cough powerfully. Her appetite is good, and she has never had any grave illness or serious injury. Her mental powers are quite normal. Her mother brought her to the hospital on account of the weakness of her hands, which was so great that she could not dress herself. She can hold up light objects, such as a cup of tea, but can do nothing with heavier weights—for instance, a bucket of water. Two miles is as far as she can walk at a stretch without being immoderately tired.

In appearance she is of average height; her face is not remarkably thin, and though the orbiculares palpebrarum seem slack and toneless, it is not possible to demonstrate weakness in any of the muscles supplied by cranial nerves. The muscles of mastication, together with those of the tongue and lips, are not appreciably atonic. It is when the upper limbs are examined that the most striking departures from the normal are found. There is a universal defectiveness of power, accompanied by, and apparently proportionate to, a poor development of the muscles—that is to say, the muscles of the hand and those controlling movement at the wrist are smaller and at the same time weaker than those of the upper arm. Unlike the muscular changes of acute and chronic anterior poliomyelitis and of most of the muscular dystrophies, no particular muscles or groups of muscles are selected by the process; the weakness and ill development are evenly distributed except for the fact already mentioned, that the distal parts of the limb have suffered more than the proximal.

Hence there is an entire absence of the contractures usually associated with muscular atrophy. This is also to be accounted for by the fact that, though the muscles are weak and ill-nourished, they are only relatively so; the grip, though very feeble, does exist, and similarly the muscles, though small and hypoplastic, are not completely wanting. Picked up in the fingers, they can be felt quite distinctly, though they are small, soft, and doughy; the impression given is different from that derived from finger atrophied muscles. These remarks, while applying specially to the musculature of the upper limbs, are true also of the general state of the muscles of the lower limbs and trunk, particularly of the former. The most striking feature of this enfeeblement is, however, neither the loss of bulk nor the loss of power, but the remarkable hypotonicity of the muscles; resulting from this is an abnormal freedom of passive movement about the various joints, which is well illustrated by the accompanying photographs. It is at the finger-joints and the wrists that the greatest mobility is found; each finger can be turned backwards till the tip touches the back of the hand just above the metacarpophalangeal knuckle, and similarly the hand can be extended on the forearm till the knuckles touch the back of the wrist. Flexion at the wrist is equally free; the palm of the hand can be pressed against the front of the wrist. The fingers can be spread out from each other widely; the hand can be rolled up into a cylinder with palm inwards and dorsum outwards, the tip of the little finger projecting beyond the ulnar border. The thumb, also, can be distorted into all sorts of fantastic shapes. At the elbow, recurvation is of course prevented by the olecranon process; but lateral movement is abnormally free, so that the forearm can be abducted till it forms quite a considerable angle with the line of the upper arm. The forearm can also be hyperpronated. At the shoulder there is nothing worthy of note.

The lower limbs are hypotonic, but not to the same degree as the arms; the gastrocnemii, like the extensors and flexors of the forearm, are small and soft. The toes can be doubled back at the dorsum of the foot; they can be drawn apart, and the foot can be crumpled up in much the same way as the hand. Movements at the ankle, also, are abnormally free; the peronei, for example, are lax, and readily allow of the displacement of the foot into an exaggerated equino-varus position. The knee affords a good instance of the fact that in this patient the mobility of a joint is limited, not by muscular tonus, but by the actual anatomy of the joint itself; recurvation is possible, but not beyond the point permitted by the ligaments of the knee-joint, wherein it seems to differ in degree from the recurvation sometimes seen in dorsal tabes, and called by Fraenkel "hypotonie musculaire." The patella can be laterally displaced to an abnormal degree. At the hip a very high degree of mobility is possible, abduction and adduction being allowed through a large sector of a circle; the freedom of internal rotability is attested by the remarkable squatting position assumed naturally and habitually by the patient. Instead of sitting on the floor with her feet in front of her, she rests her body, not only on the glutei but also on the postero-internal surfaces of the thighs, and on the inner surfaces of the knees, legs and feet, the knees being flexed; that is to say, the lower limb can be rotated inwards at the hip through an angle of 90°. Such a posture would be impossible if the outward rotators of the hip were possessed of a normal degree of tonus.

The muscles of the trunk have erred less widely from the path of natural development; yet there are very distinct indications of hypotonicity here also. The most notable of these