HISTORY OF A CASE
OF
LITHOTOMY,
WITH A FEW REMARKS
ON THE
BEST MODE OF MAKING THE INCISION
IN THE
LATERAL OPERATION.

By SAMUEL COOPER, Esq.

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IN lithotomy, great awkwardness, mortifying failures, and dangerous blunders, are perhaps more frequently observed, than in any other great operation in surgery. Many a surgeon, who contrives to cut off limbs, extirpate large tumors, and even tie aneurismal arteries, with *éclat*, cannot get through the business of taking a stone out of the bladder, in a decent, much less a masterly style. This fact is so familiarly known in the profession, and its truth so often exemplified, that I may well be excused the unpleasant task of relating, in proof of it, all the disasters, which have come to my own personal knowledge. But I must take the liberty of remarking, that, in this branch of surgery, a great number of individuals do not profit by these instructive lessons of experience. It is true, the more they see of lithotomy, the more they are convinced of its dangers; yet, too often, instead of

studying the causes of ill success, they merely derive, from the examples before them, a suspicion of the unskilfulness of the operator, or some discouraging conjectures about the difficulties of the operation.

The establishment of certain principles, to be observed in lithotomy, appears the most probable way of diminishing the frequency of the accidents and failures of this common operation. From these principles the surgeon should never deviate, whatever instrument he may choose to employ; and no doubt a man of dexterity may make nearly the same kind of opening into the bladder with an ordinary dissecting knife, a concealed bistoury, a beaked scalpel, or a well-made gorget. Yet, there are so many objections to the employment of any kind of gorget, which is to be suddenly and forcibly pushed into the bladder, that I cannot refrain from here repeating the sentiment, which I have entertained for many years, that it is a dangerous instrument, the complete rejection of which would oblige every operator to pay due attention, not only to the anatomy of the parts, but to the right principles of the operation.

In the present paper, I propose to recite a case of lithotomy, which was attended with some particularity, and then offer a few general observations on the proper direction and size of the incision. These points are far from being settled, as must be plain to every body, who recollects, that Mr. John Bell recommends a free opening; Scarpa, a small one; that Mr. Abernethy and Scarpa prefer gorgets, which cut upwards and outwards, either at an

angle of 45° or 69° from the axis of the urethra; and lastly, that the gorgets of Desault, Mr. Cline, and most other surgeons, are constructed for cutting, either directly outwards, or outwards and downwards.

When I was in charge of the military hospital at Oudenbosch, in Holland, in the spring of 1814, Serjeant Ryan of the 1st Foreign Veteran Battalion, desired me to see his little boy, about four years old, whose complaints made me immediately suspect a stone in the bladder. As I had no sound, I introduced a small silver catheter, with which a calculus was distinctly felt. Without taking the instrument out of the urethra again, I determined to perform lithotomy with a common dissecting knife. Indeed, no other mode could be adopted, as we had neither a staff, a gorget, large forceps, nor lithotomy instruments of any kind. After making the external incision in the usual way, and dividing the membranous part of the urethra, I dissected along the side of the catheter, until the prostate gland, and a small portion of the bladder beyond it, could be plainly felt with the fore-finger of my left hand. In this step of the operation, the edge of the knife was constantly directed inwards and upwards. The catheter was then withdrawn, as its very small size and round shape, without any groove, made it impossible for me to derive any further assistance from it. The prostate gland now served as my guide in the completion of the internal part of the incision. With the edge

of the knife, therefore, directed inwards and upwards I cut into the bladder behind the base of the prostate gland ; and carrying the incision forwards, under the direction of my left fore-finger, I made the requisite division of the neck of the bladder, and upper part of the side of that gland. With a small pair of ordinary dressing forceps, a roundish stone about an inch and a quarter in diameter was readily extracted.

This operation was done at the hospital, in the presence of Dr. Shanks, of the 56th regiment, and several other medical officers. No unfortunate symptoms followed, notwithstanding the child was put into a baggage cart two days afterwards, and conveyed in this manner in the rear of the regiment, a march of two or three days. Such premature disturbance, however, and the totally neglected state of the little patient, for nearly ten days, made the wound longer in healing than usual.

The preceding case is related, not with any view of persuading future operators to adopt exactly the plan, which the want of a staff obliged me to follow ; for if this instrument had been at hand, I certainly should not have withdrawn it before the completion of the internal incision ; but, having turned its convexity outwards and downwards, I would have cut inwards and upwards, into its groove. Thus, I conceive, the neck of the

bladder and side of the prostate gland, might have been divided with greater convenience and safety.

My principal design is to bring to the recollection of surgeons the several advantages of making the incision through the whole of the parts cut in lithotomy, in a straight, regular, direct manner, from the surface of the skin in the perineum, to the termination of the wound in the urethra and bladder. In an adult subject, the external wound should commence about an inch above the anus. The impropriety of beginning it higher up has been duly insisted upon by Sharp, Bertrandi *, Callisen †, and every good writer on the operation; yet, extraordinary as it may seem, this is one of the most common faults still committed by modern surgeons. The incision in the integuments is to be ample, that is to say, about three inches in length; because a free opening in the skin is not only exempt from danger, but attended

* “ Il ne faut couper l'urètre que le moins qu'on peut, parce qu'on obtient par ce moyen une meilleure voie pour pénétrer dans la vessie sous l'angle du pubis. C'est avec raison que Sharp dit que l'incision de l'urètre faite au dessus de cet angle est si peu utile pour l'extraction de la pierre, qu'on n'en retireroit pas plus d'avantage en le coupant presque dans toute sa longueur.” *Traité des Opérations*, p. 127.

† “ Ut eæ partes haud sectione attingantur, quæ pro calculi egressu nihil faciunt; adeoque bulbus urethræ et hujus pars corpore spongioso circumdata intacta relinquantur.” *Systema Chirurgiæ Hodiernæ*; pars posterior, p. 665.

with considerable advantages, especially those of facilitating the other steps of the operation, and preventing afterwards any lodgment and effusion of urine. The external wound ought to be directed towards a point situated a very little towards the anus, from the innermost projection of the tuberosity of the ischium. From the line thus made, the incision should be carried inwards and upwards, through all the parts between it and the side of the prostate gland. Another line, extending from the inferior angle of the wound, to the termination of the cut in the bladder, forms the precise limits, to which the depth of the incisions should reach, and no further.

The great principle of making the axis of the wound as straight and direct as possible should always be kept in view, whether the surgeon employ a common scalpel, which cuts into the bladder from without inwards, or other instruments, which divide the prostate gland and neck of the bladder, from within outwards, like the *bistouri caché*, beaked knives, and every kind of cutting gorget. In the latter circumstance, the only difference consists in cutting, from the bladder and urethra, downwards and outwards, towards a point, situated a little way from the tuberosity of the ischium, towards the anus, instead of carrying the incision from this point, upwards and inwards, through the upper part of the side of the prostate gland, and orifice of the bladder.

The following may be enumerated as important advantages from attending to the foregoing principle.

1. The wound is made in a direction which affords the greatest room for the extraction of large stones ; and the axis of the incision being also as nearly straight as possible, the introduction of the forceps, and the passage of the calculus outwards, are materially facilitated.

That these are important advantages, I think every surgeon will allow, who knows how much of the pain and danger of lithotomy depends upon the injury, which the parts suffer from the violence used in drawing out the stone*, and the repeated introduction of the forceps. Larger stones may likewise be thus extracted, than in any other way

* Cheselden, the most successful lithotomist England ever produced, made the incision in the direction here recommended,—sometimes inward and upwards ; sometimes outwards and downwards. The following remarks of another distinguished surgeon merit particular attention. “ J’ai vu plusieurs fois dans les Hôpitaux de Paris, que les chirurgiens, coupant trop en haut vers l’angle du pubis sentoient une grande résistance au périnée, quand ils vouloient retirer le calcul avec les tenettes ; on voyoit le périnée se tuméfier par la pression, qu’y faisoit la pierre ; en ce cas, quelques opérateurs plus sages abandonnoient la pierre, introduisoient de nouveau le gorgeret, et en tournant en dessous la cannelure de celui-ci, prolongeoient l’incision obliquement vers la tubérosité de l’os ischion ; et enfin à la faveur de cette plus grande ouverture, retiroient la pierre sans cause de déchiremens.” Bertrandi, *Traité des Opérations*, p. 133.

of making the lateral incision, as must be obvious to every practitioner, who reflects for a moment upon the very limited room afforded at the upper part of the triangular space, between the arch of the pubes, the ramus of the ischium, and the neck of the bladder. This consideration cannot fail to have great weight with all surgeons, who feel duly convinced, how unsatisfactory a method it is to break a calculus, in order to get it out of the bladder. The measures necessary for the removal of all the fragments protract the completion of the operation, and seriously increase its danger ; while the continuance of a single fragment of the stone behind, may cause a renewal of all the grievances, for the cure of which, the patient submitted to the operation.

2. The *arteria pudica profunda* can never be injured, because the surgeon does not let the knife, or other instrument made use of, cut in a direction which would bring it into contact with the inside of the tuberosity, or ramus of the ischium, where that vessel is situated.

3. The rectum will not be wounded, because the direction of the incision, either downwards and outwards, to a point situated a little way from the tuberosity of the ischium towards the anus, or from that point inwards and upwards, sufficiently removes the knife from the intestine. But no surgeon should be unmindful, that, when the rectum

is considerably distended with feces, it rises up a little way by the side of the prostate gland. Hence, the prudence of emptying the large intestines, by means of a clyster, a short time before the operation. In using the knife, however, the surgeon always has it in his power to press the rectum downwards with the fore-finger of his left hand, when he is about to divide the prostate gland.

4. As the seminal duct penetrates the lower part of the substance of the prostate gland, in order to reach the urethra, and the knife, or other instrument employed, divides the upper portion of the side of that gland inwards and upwards, or outwards and downwards, it is obvious, that the duct will not be in any danger.

The judicious Callisen is well aware of the advantages of making a regular, direct incision into the bladder*; but, like Professor Scarpa, he is averse to making a free cut through the neck of that viscus. Indeed, as we shall presently notice, Scarpa does not sanction cutting any portion of the bladder whatsoever.

Every practitioner who will take the trouble to

* *Vulnus sit æquale, haud angulatum, conicæ figuræ, apice vesicam respiciente, externa plaga ampla, et quatuor pollicum longitudine; unde effluxus sanguinis, puris, lotii, arenæ facilitatur. Syst. Chir. Hodiernæ; Pars Posterior; p. 656.*

look over the history of the lateral operation, will find, that such lithotomists as have particularly distinguished themselves by their unparalleled success, as Frère Jacques, Cheselden, Côme, &c. all made a free incision into the bladder. This fact alone is enough to raise doubts of the goodness of the advice delivered upon this subject by Callisen and Scarpa; especially, as neither they, nor any other modern surgeon, can boast of having cut patients for the stone, with a degree of success at all equal to that of the above-mentioned operators*. Of fifty-two patients, whom Cheselden cut successively, he lost only two; and out of two hundred and thirteen of all ages, constitutions, &c. only twenty. The accounts which we have of the successful operations done by Frère Jacques and Côme, are equally remarkable. During my residence at Paris, last spring, I saw a celebrated lithotomist of that city, an actual descendant of Frère Côme, extract a stone of considerable size, on the plan of his well known ancestor. The incision was ample and direct, so that the calculus was taken out with perfect ease. Now, as the operations of this professed lithotomist are very nume-

* Pajola, of Venice, is alledged to have cut for the stone immense numbers of patients with extraordinary success, notwithstanding his plan consists very much in gradually dilating the neck of the bladder. But, as he is a journeying lithotomist, it must be exceedingly difficult to procure exact accounts of the fate of his patients, many of whom, no doubt, he never sees again himself after the operation is finished.

rous, and he enjoys the reputation of scarcely ever losing a patient, we are bound to conclude, that his plan of making a free opening, and directing the incision downwards and outwards, is well deserving of general imitation. At the same time, we are also justified in inferring, that the advocates for a small incision are promulgating the worst advice, which can be offered to the lithotomist. My own observations decidedly tend to these conclusions, as will be presently explained.

The Tract* recently published by Scarpa, has for its main objects the recommendation of a modification of Hawkins's gorget, and the inculcation of the propriety of making a small limited incision in the prostate gland, without cutting any part of the bladder. As sufficient room cannot thus be obtained, for the extraction of even a stone of moderate size, he is an advocate for the gradual dilatation of the urethra and orifice of the bladder. He maintains, that the lateral operation, though executed with the greatest precision, does not exempt the surgeon from dilating, in a certain degree, the orifice of the bladder and cervix of the urethra, the dilatation of those parts, however moderate, being always necessary even where the calculus is of middling size. He states, that, in an adult, the orifice of the bladder dilates almost spontaneously

* Memoir on the cutting gorget of Hawkins, &c. translated by Briggs.

to the diameter of five lines ; and he adds, that the lateral incision, within proper limits, divides the body and base of the prostate gland to the depth of four, or at most five lines, forming with the five, to which the orifice of the bladder naturally yields, an aperture of ten lines. But, observes Scarpa, in an adult, a stone of ordinary size and oval figure, is sixteen lines in the small diameter, to which must be added the thickness of the blades of the forceps : consequently, even after the incision has been made with the most scrupulous exactness, the stone, though of moderate size, cannot pass out of the bladder, unless the dilatation of the base of the gland and orifice of the bladder be carried to the extent of nearly eight lines, beyond the size of the aperture made with the knife. But, says Scarpa, if in order to avoid distending the parts to the extent of eight lines, the base of the prostate gland, together with the orifice of the bladder and a part of its fundus, be divided to a depth equivalent to it, *the event would necessarily be an effusion of urine into the cellular membrane, between the rectum and bladder, and consequently suppuration, gangrene, fistulæ, and other serious evils.* (pages 4 and 5.)

According to Scarpa, the apex of the prostate gland forms the greatest resistance to the introduction of the forceps, and the extraction of the stone, and therefore ought to be completely divided (p. 7.); but, he contends, that two, and sometimes

three, lines of the substance of the base of the gland, should be left undivided; which, he asserts, is a matter of great importance, because the untouched portion, around the orifice of the bladder, prevents the effusion of urine, and the formation of gangrene, or fistulæ, between that viscus and the rectum. (page 22.)

After this statement of Scarpa's sentiments, respecting one of the most interesting points of the lateral operation, a question or two naturally arise. Are we then to conclude, that the plan of making a free and direct incision into the bladder, ought to be abandoned? Must we forget, that it was this method which answered so well in the hands of the several renowned lithotomists already enumerated? And must we believe, that the advice delivered upon this subject by Bertrandi, Desault, Mr. John Bell, and all the best modern surgeons in this country, is founded only upon a capricious partiality to the free use of cutting instruments? Earnestly as I respect the names of men, who have signalized themselves so much as Callisen and Scarpa, their authority can only influence me, inasmuch as I find it coincide with the dictates of experience, the great arbitrator of every disputed point in practice.

We have seen, that an apprehension of effusion of urine, gangrene, fistulæ, &c. is the only reason assigned by Scarpa for his aversion to making a

complete division of the side of the prostate gland, and orifice of the bladder. But, I would inquire, do we find extravasation of the urine, between the rectum and bladder, and gangrene and fistulæ, so frequent after lithotomy in England, as to render it probable, that these ill consequences can ever proceed from our usual mode of dividing completely not only the side of the prostate gland, but also the adjoining part of the bladder? Are those bad effects so often experienced in this country, as to constitute a material source of uneasiness in the mind of a surgeon about to undertake lithotomy? Do they form a substantial reason for abandoning the maxim of always endeavouring, as far as circumstances will allow, to make an incision of sufficient size for the easy removal of the calculus? And would not Scarpa's method of stretching and dilating the wound, in order to get the stone out of the bladder, often dangerously prolong the operation; lead to much mischief from the repeated use of the forceps; cause serious contusion and laceration of the parts; and, for all these reasons, increase the chance of inflammation of the bladder and peritoneum? It is this inflammation which destroys more than nine-tenths of the patients, who perish after lithotomy; and it appears to me, that the apprehension of it, from the consequences of making a small opening, is much better founded, than the fear of fistulæ, &c. from practising a large one.

In the course of the nineteen years that I have been in the profession of surgery, I have seen the lateral operation performed more than fifty times, either with various kinds of gorgets, beaked knives, the *lithotome caché*, or common scalpels. In all these examples, the avowed intention of the surgeon was to make a free opening into the bladder. I do not mean to say, however, that this was always actually effected, since the bad construction of some of the instruments employed, and other causes, sometimes frustrated the wise design of the operator. But what was the consequence? Generally speaking, those surgeons who made only a small incision into the bladder, and kept their patients a long while upon the operating table, before they succeeded in getting out the stone, by the repeated and violent use of the forceps, had the mortification to see very few of their patients recover, a large proportion being carried off by peritonitis, on the third or fourth day after the operation.

On the contrary, when the incision was ample and direct, so that the calculus could be easily and gently removed, the patients were almost invariably saved.

It merits particular notice, that, of late years, gorgets have been less employed than formerly, in one of the principal hospitals* of this metropolis,

* Saint Bartholomew's.

scalpels and beaked knives having been preferred, and that since this beneficial change in practice, fewer patients have been lost there by peritonitis. This fact serves as a material confirmation of all that I have urged in the foregoing pages ; because, the common fault of gorgets, particularly of those used some years ago, was to make too small an opening, and this sometimes not in the best direction. But when a common scalpel, or beaked knife, was preferred, the surgeon generally made the incision in the prostate gland and neck of the bladder, large enough for the easy passage of the stone, and always downwards and outwards in the most advantageous direction.

With respect to the degree of importance which ought to be attached to the fear of effusion of urine between the bladder and rectum, gangrene, fistulæ, &c. I can only repeat, that they are inconveniences, which are not commonly observed after lithotomy in this country. In two or three instances only, I have known the urine come through the wound longer than usual ; but even these cases ended well. As for the extravasation of urine and sloughing, although there cannot be a doubt of their occasional occurrence, they cannot be fairly imputed to the method of operating in England, since they have not taken place after any of the numerous operations, with the results of which I have been acquainted.

All these facts and considerations, therefore, incline me to doubt, whether the apprehension of effusion of urine, fistulæ, &c. be sufficiently serious and well founded to render it adviseable for surgeons to relinquish the plan of making a complete division of the side of the prostate gland, and part of the bladder, in the operation of lithotomy. Nor is it at all clear to my mind, that effusion of urine and sloughing are likely to be the effect of practising a free opening. Indeed, when they do happen, I suspect that they generally proceed from a totally different cause, *viz.* from the incision in the skin being too small and too high up, and from the axis of the internal part of the incision not corresponding with that of the external wound. Hence, the urine does not readily find its way outward, and some of it passes into the neighbouring cellular membrane*.

* In noticing the faults of Hawkins's gorget, Desault has observed : " La methode de l'enfoncer horizontalement dans la vessie sur le cathéter tenu à angle droit avec le corps, a deux grands désavantages : d'un côté celui de pénétrer par l'endroit le plus rétréci du pubis, et par conséquent de ne faire que difficilement une ouverture suffisante ; d'un autre côté, celui de ne pas établir de parallélisme entre l'incision extérieure des tégumens qui est oblique, et celle du col de la vessie et de la prostate qui se trouve alors horizontale. De-là la possibilité des infiltrations par les obstacles que les urines trouveront à s'écouler."

I have also no doubt, that some of the worst instances of extravasations of urine after lithotomy, have been owing to another cause, pointed out by the same excellent surgeon. " Imprudemment

demment porté dans la vessie, le gorgeret peut aller, par le stylet beaucoup trop long qui le termine, heurter, déchirer, perforer même la membrane de la vessie, et donner lieu à des infiltrations d'autant plus dangereuses, que le lieu d'ou elles partent est plus inaccessible." (See *Cœuvres Chirurgicales de Desault*, par Bichat, Tom. II. p. 460--461.