ON THE
DILATATION OF THE MALE URETHRA
BY INFLATION,
FOR
THE EXTRACTION OF CALCULI
FROM THE BLADDER,
AS PRACTISED IN EGYPT, NEAR 250 YEARS AGO.

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THE dilatation of the female urethra has become a subject of great interest, particularly since the judicious use of sponge-tent by Mr. Thomas, as communicated in the First Volume of the Transactions of this Society ; its distension by air inclosed in a tube, formed by the intestine of an animal, had been employed by Mr. Bromfield, forty years ago ; but, for some reason, which does not appear, it had not become established as a practice, and the successful adoption of the dilator, described in the last Volume of the Transactions, by Sir Astley Cooper, seems likely to supersede every other method.

It may, therefore, not be uninteresting to call

to remembrance a mode of dilating the *male urethra by inflation*, and of extracting calculi from the bladder, near two hundred and fifty years ago in Egypt as described by Prosper Alpinus, in his book *De Medicinâ Ægyptiorum*. It exhibits great ingenuity of contrivance, and, in a climate where the muscular fabric of the body is habitually more relaxed, and all its parts more susceptible of distension, than in this northern country, it is not improbable, that some benefit was occasionally derived from the practice ; I think, at least, that this is a fair inference, when we consider the defective knowledge of anatomy possessed by the inhabitants of Egypt in the middle ages and up to the period alluded to, and when we recollect the severity of the operation of lithotomy, as described by Albucasis and other Arabian surgeons, whose writings were a model for the best informed native practitioners in Egypt.

The period at which this distension of the urethra by inflation was first employed, cannot be easily defined. I have met with no allusion to it in the writings of the early Greeks and Romans ; nor do Rhazes, Albucasis, Alzarhavius, or Avicenna, notice it. I am inclined to believe, therefore, that the practice originated with some bold surgeon of the Arabian school, and had never been recorded ; or at least, never printed in an European language prior to the year 1591 ; because, at the time Alpinus wrote, nearly the whole of the medi-

cal and surgical writings of the ancients, and Latin translations of the Arabians, had been printed at Venice, or in other parts of Italy. They were in the hands of every professor in the Italian Universities, so that it is not likely, that any allusion to the means described by Alpinus was to be found in their works, or this manner of dilating the male urethra would not have been noticed by him as a novelty, and recommended for adoption.

Prosper Alpinus left Italy in 1580, as physician to the Venetian consul in Egypt, and lived at Cairo for three years. His book *De Medicinâ Ægyptiorum*, was first published at Venice in 1591. It is in the form of a dialogue between himself and his friend Melchior Guilandinus.

The fourteenth chapter of the third book is chiefly concerning the extraction of a calculus from the bladder of a male subject, without an incision, and begins thus :

“GUILANDINUS. Optarim priusquam de aliis sermonem haberes, ut modum, quo audio, Ægyptios lapides e vesica absque ulla incisione extrahere, nunc mihi explicares, summæ enim utilitati hujus actionis cognitionem nostratibus medicis fore existimo, avide igitur id, quonam modo se habeat, audire expecto.

“ALPINUS. Certe hic modus extrahendi lapides

e vesica valde utilis est, eo quod nulla incisione operetur. Extrahunt lapides e vesica colem in primis vento replentes, atque cum eo os etiam vesicæ dilatantes, atque laxantes, ut os vesicæ lapis facile meare possit, colisque dilatatum et ampliatus meatum, ex quo ipsos lapides vento subreptos foras extrahunt, ipso continuo toto violenter evocato.

“GUILANDINUS. Haud probe intellexi quid dixeris, usque adeo obscura oratione usus es. Duo tamen mihi videris dixisse, quorum alterum est, illiusce regionis medicos, lapides e vesica extrahere volentes, in primis colis vesicæque meatum vento laxare ac dilatare, per quem commode lapides exire possunt, atque eosdem lapides vento eodem foras educi, an non hæc dixisti?

“ALPINUS. Plane eadem; sed quid te dubii cœpit?

“GUILANDINUS. Quoniam vix credere possum os vesicæ, colisque meatum tantum dilatari ac ampliari posse, ut magni lapides in vesica contenti, qui magnæ nucis instar sæpe cernuntur, commode exire queant: ex quo dubia fit apud me ea lapidum eductio, quo nam pacto ita possit administrari, maxime cum tu etiam affirmaveris, eos vento subrepi, forasque educi, quod mihi haud fieri posse videtur.

“ALPINUS. Utrumque verum esse cognosces,

neque omnino a veritate id alienum putaveris, os vesicæ, colêmque, eo modo dilatari posse, quando nervosa, ac pelliculosa substantia illi meatus constant. Admirandum magis existimare debemus, uteri os in mulieribus nervosum durum, atque ita angustum, tempore partus tantum ampliari ac augeri, ut fœtus per ipsum exeat, atque foras propellatur. Unum hoc scio, me colis meatum ita dilatatum inspexisse, ut per eum facile magna avellana transiisset. At utilius erit, ut nunc modum ostendam, quo ad extrahendum lapidem ii uti soleant.

“GUILANDINUS. Hac eadem de causa apertis auribus tuum hunc sermonem expecto.

“ALPINUS. Eo tempore, quo ego in Ægypto moram faciebam, Arabs quidam, Haly vocatus, ad extrahendos lapides sine incisione celeberrimus erat, quem ego sane cuidam duci Turcarum, Horam Bei vocato, multos lapides extrahisse vidi. Quo in opere absolvendo ille ligneam cannulam accipiebat, longitudine octo digitorum, et latitudine digiti pollicis*, quam colis canali admovebat, fortiterque insufflabat, atque ne flatus ad interiora perveniret, altera manu extremum pudendi perstringebat, foramen deinde cannulam claudebat, ut virgam canalıs intumesceret, et latior fieret, ac appareret. Quo facto minister digito in ano posito, lapidem

* There is no plate of the instrument, nor any description of the size of the perforation of the canula; nor is it said whether the tube was cylindrical or conical.

paulatim ad canalem virgæ, atque in ejus extremum deducebat. Qui ubi præputio lapidem appropinquasse sentiebat, cannulam a virgæ canali fortiter impetuque amovebat, ut magna dexteritate lapis ad nuclei olivæ magnitudinem fuerit extractus, et ego interfui huic duci Turcarum, et postea duobus item ludeis, quorum alter puer erat, cui octo lapillos extraxit, et alter adultus, cui extraxit lapidem ad magnæ olivæ magnitudinem. Hicque est extrahendi lapidem e vesica modus, quo utebatur ille medicus Arabs. Audivi tamen alios etiam ibi esse, qui alio etiam modo lapidem extrahebant, quem modum nunquam ab aliquo quandiu Cayrum habitaverim potui cognoscere."

In a subsequent part of the same chapter, Prosper Alpinus says, that when he was at Genoa, some time after his return from Egypt, and looking over these manuscripts, which must have been prior to 1591, he received a letter from his friend Octavius Roveretus, who succeeded him as Physician to the Venetian consul in Egypt, describing a mode of operating for the extraction of a calculus from the bladder, by another Arab, whose name was Christianus Sajeticus, varying in some respects from that he has described.

It consists in the introduction of flexible tubes, beginning with the smallest, inflating the urethra and bladder, then introducing larger, and proceeding thus with three or four sizes, until the neck of

the bladder and the urethra have been sufficiently dilated to admit the calculus.

The largest tube being still in the bladder, the operator passes a finger into the rectum, and endeavours to press the calculus into its lower orifice; when he has so done, he applies his mouth to the other extremity of the canula, and draws in breath with the greatest possible effort.

In the case referred to by Roveretus, the calculus was broken, but he recommends the practice to be adopted, and intimates, that a more successful result might have occurred to an operator of greater skill and judgement. See pages 225 and 226*.

Fabricius Hildanus also recommended the inflation of the *male urethra*, as will be seen by the following instructions for the extraction of a calculus from it; but we should bear in mind that Hildanus's account was published above forty years after the return of Alpinus from Egypt, and thirty-five years after the publication in 1591; and, although Hildanus makes no allusion to the inflation of the urethra having been *previously* described, he must have known the fact, because he has given a long list of authors, whose writings he had perused and the name of Prosper Alpinus is amongst them.

After advising the urethra to be filled with oil of

* Nothing is said about the composition of these elastic tubes.

almonds by a syringe, and the perinæum fomented during half an hour, Hildanus says, that the surgeon is to hold the penis near the glans, firmly, with the left hand, whilst he passes a canula down the urethra, until it comes into contact with the calculus.

When the urethra has become dilated by the surgeon blowing gently and gradually through the canula, he is to propel the calculus with the forefinger of his left hand. If he should not succeed in the first or second attempt, he is not to desist, but to apply the canula to his mouth again, and blow gently, to avoid giving pain: for which reason, says Hildanus, it is necessary that the operator should not be a fifer, a quack, an ignorant mountebank, or a drunkard, but a discreet and experienced surgeon.

He adverts to the utility of dilating the *male urethra* mechanically, and of extracting a calculus from it, by passing the dilator through a straight canula, when the stone is between the external orifice of the urethra and the perinæum*; but he employed a pair of thin, round, and very long forceps, when the calculus was impacted at or beyond the perinæum†.

* A figure of this dilator will be found at page 755, of Hildanus's book.—The Frankfort edition of 1682.

† These forceps were invented by Marianus Sanctus, an Italian Lithotomist, and are described and illustrated by a wood-cut in a

The manner of extracting a calculus from the bladder, described by Alpinus, is not proposed to the enlightened members of this society for imitation in all its parts ; it is merely noticed as a point of early surgical practice, which seems to have been overlooked, or forgotten, and is now submitted for the consideration of the profession, at a period, when the anatomy of the parts is better understood, and when manual dexterity is possessed by many of its members to a degree which has never been surpassed.

Under these circumstances, and in such hands, I am induced to hope, that the communication may be productive of some usefulness, particularly as the partial inflation of *the urethra* in cases of stricture, has been lately introduced by Mr. Arnott's publication.

folio volume, printed in Zurich, in 1555. Haller notices this invention in his *Bibliotheca Chirurgica*, Vol. II. p. 181.