

An account of the method of obtaining a perfect or radical cure of the hydrocele, or watry [sic] rupture, by means of a seton / [Percival Pott].

Contributors

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AN
ACCOUNT
OF THE
METHOD
OF OBTAINING
A PERFECT OR RADICAL CURE
OF THE
HYDROCELE,
OR
WATRY RUPTURE,
By Means of a SETON.

By *PERCIVAL POTT*, F.R.S.
And Surgeon to ST. BARTHOLOMEW'S HOSPITAL.

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MDCCLXXI.

A N
A C C O U N T
O F T H E
M E T H O D
O F O B T A I N I N G
A P E R F E C T O F R A D I C A L C U R E
O F T H E
H Y D R O C E L L

29819(2)



By Means of a S E R I E S
O F P H R I M A L P O W D E R S
A N D S E R I E S I N S T R U C T I O N S
F O R T H E
P R A C T I C E O F T H E
M E T H O D

L O N D O N
P R I N T E D B Y H A W K S W O O D S A N D C O
I N T H E S T R E E T W O O D S
M E D I C I N E

A N
A C C O U N T, &c.

AN Hydrocele is so irksome a disease to the indigent and laborious, furnishes even the easy and opulent with such disagreeable ideas and apprehensions, and is to all who are afflicted with it so troublesome and inconvenient, that every rational attempt toward relieving mankind from such an evil, will, I make no doubt, be favourably received.

It is now some years since I first began to make particular inquiry into the nature of this, and some other diseases of the testicle, and the usual methods of treat-

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ing them; an inquiry, which they appeared to me, for many reasons, both to deserve, and require. The result I communicated to the public, under the title of, A “ Treatise on the Hydrocele, or
 “ Watry Rupture, and other diseases of
 “ the testicle, its coats and vessels;” in which I endeavoured to be as precise, and as explicit as I could.

One part of this tract contains an examination of the various means, which have at different times, either accidentally produced a radical cure, or have been professedly proposed, and practised for such purpose.

Among other means used to obtain this end, I mentioned the Seton; and spake of it as that, which for many reasons, appeared to me to be preferable to all others; as a method which I
 had

had for some time practised with great success, and as that, which if nothing should occur to induce me to change my opinion, I should continue to make use of.

Since that time I have had frequent opportunities of repeating the experiment, and it has so constantly, and uniformly answered my expectation, that my opinion concerning it is determined, and I am convinced, that it is the most successfully efficacious of any.

This might be urged, and would perhaps be admitted as a good reason for laying my thoughts on the subject again before the public; but I have others also to plead in vindication of the few following pages.

In the first place, I think that I have considerably and materially improved the operation and process ; and have rendered it less painful, and more certain.

In the second, I find, that what I said of it in the general treatise, has not been so clearly and perfectly understood as I could have wished ; and in consequence either of brevity and obscurity on my part, or misintelligence on the part of some of my readers, my true meaning has not been received, and I have been subjected to the frequent interruption of troublesome correspondences on the subject.

And, in the third place, I might add, that some few gentlemen of consequence, who have by this means been cured, have requested this publication.

A minute account of the nature and circumstances of the disease, would be a mere repetition of what I have already said at large in the book referred to; would be therefore unnecessary, and beside my present purpose; a short and cursory one may perhaps throw just as much light on the subject, as may serve to render the description of the operation, and the treatment after it, more easily intelligible.

The common bag in which both the testicles are included, is called the Scrotum, and consists of epidermis, skin, and that loose cellular membrane, which is here called the Dartos; to which might perhaps be added, the expanded fibres of the cremaster muscle on each side. The proper coats of the testicle, are, the tunica albuginea, and the tunica vaginalis. The former of these immediately

ately invests the vascular compages of the testis, and is that coat with which it is covered while within the cavity of the abdomen, before birth. The latter is formed on the outside of the said cavity, is a process of the peritoneum, and is placed ready for the reception of the testicle when it shall be thrust forth, thro' the groin, into the scrotum. Between the vascular structure of the testicle, and the tunica albuginea, there is no vacuity, but the external surface of the gland, is in every part firmly adherent to, and connected with the internal one of the investing coat; the tunica vaginalis forms a hollow cavity, or bag, which loosely, and unconnectedly envelopes the testicle, covered by its albuginea.

When I say loosely and unconnectedly, I would wish to be understood aright. I do not mean that the testicle hangs
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in the middle of the tunica vaginalis, (like a clapper within a bell) and has no connection with it; I mean, that all the superior, anterior, and lateral parts of the tunica vaginalis are loose from, and unconnected with the testicle, which is at the same time firmly united to its posterior part, in such manner, that if the cavity of the tunica vaginalis was to be distended with wind, such wind would occupy, or fill all the loose, and unconnected part, and produce a tumefaction not unlike to a hydrocele, while the testicle would be found firmly and immovably attached to the hinder part of the said cavity so distended.

To prevent the accretion of these coats in those parts where they ought to be unconnected, and perhaps for some other purposes, the cavity of the tunica vaginalis is furnished with a fine lymph
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constantly exuding into it; which lymph is as constantly absorbed by proper vessels; so that, in a healthy and natural state, there never is any more of this fluid, within the bag, at a time, than may just serve (beside what other purpose it may be intended for) to keep the two membranes from coming into immediate dry contact, and cohesion with each other. This small quantity is sufficient to preserve the proper and natural cavity of the tunic, but never occasions any degree of intumescence, or any unnatural or diseased appearance of the part.

A deficiency, or total failure of the secretion of this fluid, will be followed by a partial, or total coalescence of the two coats, with each other; and consequently a total or partial abolition of the cavity, a super-abundance, or a secretion of more than the absorbent vessels
can

can take up, must, on the other hand, inlarge and distend, the said cavity, by carrying all the loose unconnected part of the bag farther and farther from the testicle, in proportion to the quantity accumulated. The former, I do know to be sometimes, and I verily believe most frequently is, the consequence of a severe hernia humoralis, as well as of other inflammations of the testicle. The latter among other diseases produces the hydrocele or watry rupture.

This being the case, that is, the intumescence of the scrotal bag, being caused by the gradual accumulation of a fluid, which ought to have been absorbed, it is almost always produced gradually; and therefore has, in most instances, made some progress before it is taken notice of; especially by careless and inattentive people. For the same reason

it will be found, that as it depends upon the circumstances of secretion and absorption, it will in different people, make quicker or slower progress, according as the deposition shall happen to be quicker or slower, and the absorbent faculty, only more or less impaired, or totally obstructed. As this disease is confined to the cavity of the tunica vaginalis testis, and as this bag has no communication with the cavity of the belly, the tumefaction can never be lessened by any attempt toward reducing or returning it into the abdomen. For the same reason, it never is, nor can be liable to any alteration of size, or temporary distention from the efforts, or actions of coughing, sneezing, expulsion of fæces, &c. For the same reason, (I mean the confinement of the fluid within the cavity of the tunica vaginalis) the intumescence, when early attended to, will
always

always be found in the lower part, and does not rise above the upper-part of the testicle, until the disease has made some progress, and the quantity is become considerable; therefore the spermatic process, will always, in the early stage of this distemper, be capable of being felt perfectly and distinctly; altho' when the tumour has arrived to any considerable degree of size, the fluid does so conceal the testicle, as to render it not a very easy matter to find it. The three last circumstances, well attended to, will always serve to distinguish the hydrocele from the intestinal hernia or common rupture, at least in the beginning. To these might be added, several other characteristical marks of this distemper; such as, that being neither accompanied by, nor occasioning any inflammation, or irritation, it never gives pain, unless it be very rudely handled, or be permit-

ted to attain such size as to be troublesome from its weight, or to be subject to excoriation from its magnitude ; which may serve to distinguish it from the hernia humoralis, an inflammatory, and often a very painful disorder. That if the fluid be thin and limpid, and the vaginal coat and membranes of the scrotum not thick, the tumour is often in some degree transparent ; that is, the light of a candle or lamp may be seen through it. That constipation of belly does not render it at all more tense, or produce any uneasiness in it while it lasts ; neither does the removal of such obstruction or constipation at all lessen its volume, or make any alteration in it either to the eye, or to the finger. To all which ought always to be added, the *fluctuation of the fluid.*

The size and figure of the tumour caused by this disease are liable to considerable variety, dependant upon the quantity and consistence of the fluid accumulated, the time such accumulation may have taken up, the thickness, or thinness of the vaginal bag, and membranes of the scrotum, and the equal or unequal manner in which these parts may have given way to the distention. Hence the tumour will be larger or smaller, round, flattish, pyriform, or globular; will be firm, tense, and resistant, or lax, soft and easily compressible; smooth and regular in its surface, making one uniform figure, or divided by a kind of depression or stricture, which will make it appear as if the water was in two distinct sacculi or bags; it will also be more or less tense, as well as regular in its surface, as the contractile power
of

of the scrotum, by means of the cremaster muscles, shall be more or less.

The qualities of consistence and colour in the contained fluid is also various: it is thin, aqueous, roapy, viscid, limpid, citrine, greenish, brown, bloody, clear, or turbid; from each of which some small differences in the aspect, feel, weight, transparency or obscurity of the tumour will arise; but are of no consequence with regard to any method of treatment, palliative, or radical.

The methods of cure of a hydrocele are said to be two, one called the Palliative, the other the Radical; the latter of which alone deserves the name of cure.

The former consists merely in letting out the water occasionally, and is so simple and so trifling an operation, that I shall say nothing more of it, than that I think a small trochar a much preferable instrument for this purpose on all accounts to the lancet, or any other.

The radical cures, as they are called, may be collected from the writings of several of our predecessors. The general means they made use of were cautery, caustic, ligature, and tent. For the particulars relative to each of these, I must beg leave to refer my reader to the writers themselves, a minute detail of them not being consistent with the plan of these few sheets. But without entering into such disquisition, I believe I may venture to say, that whoever will give himself this trouble, will find, that
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all the means which were either professedly used to obtain a radical cure, or which ultimately and accidentally produced such event, were put in practice for three general reasons, or under the influence of three general opinions; the first of which was, that the fluid found in the sac of a hydrocele was always originally formed in the cavity of the belly, and descended from thence into the scrotum; the second, that it was a disease of the habit, as well as of the particular part; that is, that it was general, as well as local; the third, that the collection of liquor found in it, was either the necessary cause, or the consequence, of a diseased state of the testis.

From these flow the applications of cauterly, and caustics to the groin, and of ligatures on the spermatic process.

From

From these are derived all the cautions to undertake the cure guardedly, to conduct it slowly, and to attend rigidly to the patient's general state by cathartics, alteratives, specifics, issues, &c. &c. &c. and to these we owe the experiments made to induce suppuration from the parts affected.

Not being acquainted with the anatomical structure and disposition of the parts concerned in the disease, they had very terrible as well as very erroneous notions concerning it. They supposed that the fluid contained in the cyst was thrown off from the habit as a kind of crisis; that the general constitution of the patient was by such deposition much relieved; that it prevented many other, and those worse disorders; and, either that a morbid state of the testicle and epididymis concurred in producing the fluid, or that the same parts necessarily became diseased from lying in it. They therefore concluded,

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that

that although a radical or perfect cure might be obtained by certain means, or that certain means having been found now and then to have produced such event, they might with probability be expected to answer such purpose, yet the attempt ought never to be made without a strict attention to the general evils which might ensue, as well as to the particular ones proceeding from the supposed morbid state of the parts.

Inquiry and experiment have taught us better, have given us truer notions of the nature of the complaint, have induced us totally to lay aside many of the means used by our fore-fathers, and although we do still in some sort continue some of them, yet it is upon different principles, and with very different views.

The noxious quality of the fluid, the diseased state of the parts whence it proceeds, or wherein it is deposited, the critical, or depuratory nature of the deposition, the necessity of drawing off the water partially and at short intervals, and the fear of curing it locally lest the general habit should suffer, are all now known to be groundless apprehensions; and it being also known that the collection of fluid is originally made in the tunica vaginalis only, and that it does not descend from the belly, all attempts toward preventing such descent are become equally absurd.

The testicle, although frequently somewhat enlarged in its dimensions and relaxed in its texture, is known to be found, to be otherwise unaffected, and unaltered, and to be fit for, and capable of performing the functions it was designed to execute; the fluid is acknowledged to be in-

noxious in its nature, neither proceeding from parts in a diseased state, nor causing any disease in the parts in which it is deposited, and with which it is in contact; but being accumulated in consequence of constant secretion, and deficient, or non-executed absorption, the intention of every rational practitioner, when he aims at a radical cure, is, to abolish the cavity of the tunica vaginalis, and thereby to prevent any future collection.

Whatever means can accomplish this end with the least fatigue, pain, or hazard, are certainly the best.

Of the incision I shall in this place say nothing, except that it lies under so many restraints from a variety of circumstances, is so improper for the majority of persons afflicted with the disease, and requires such nice attention and such judicious management, that it never can be recommended as fit for general practice.

The caustic, upon the rational principle of which I am now speaking, viz. that of abolishing the cavity of the tunica vaginalis, has been practised by many, and that with such success as to induce some to think it the best and most eligible method: Among these is Mr. Elfe, who has lately published his opinion on the subject.

The introduction of suppurative medicines by means of a tent, was practised by some of even our remote predecessors, and as they tell us with success, even in complicated cases; that is, in cases where a diseased state of the testicle has been added to the hydrocele: But whoever will attentively consider their accounts of this matter will see, that this method, whatever might be its accidental consequence, was not intended for the purpose which I am now speaking of.

Perhaps

Perhaps there is no part of surgery which was less understood by our ancestors, or concerning which they expressed themselves with so little precision as the subject of diseases of the testicle: they have multiplied and confounded them in such manner, and speak of them in such a jargon of unintelligible terms, that it is next to impossible to understand often what they really mean.

For a particular elucidation of this subject the chirurgic world are much obliged to the late Professor Monro of Edinburgh, and Mr. Samuel Sharp, late of Guy's Hospital, now of Bath.

The accounts which many of the best among the writers in surgery, even quite into our own time, have given of the diseases of these parts under the terms farcocele, fungus attached to the spermatic vessels, fungus arising from the testis, hydrocele

drocele and hydro-farcocele, are error itself; and the operations which they describe and recommend are many of them coarse, and either impracticable, or very unfit for practice. But however from these accounts, strange and irrational as they are, we may collect that they conceived the diseases which they call the hydro-farcocele, and the caro adnata ad vasa spermatica, to be (in contradistinction from the farcocele and the fungus springing from the testicle,) curable diseases, the one by extirpation of the fungus, the other by suppuration.

No precise definition of what they have thought proper to call the hydro-farcocele has been given by them, and therefore we have no better method of forming a judgment concerning it, than by considering the event and success of their method of treating what they have so called, with what we know concerning the structure
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of the testicle, its disorders, the means which we now find to be successful in them, and the disappointments, and disagreeable circumstances which sometimes occur in them.

Fabritius ab Aquapendente has been particular on what he calls the hydro-sarcocele, and has given an account of his method of curing it; but whoever is acquainted with diseases of the testicle, and will compare with such knowledge what Fabritius has said concerning his method and its success*, will, I am inclined to believe, think on this subject as I do, which is, that the disease which he gives this hard complex name to, is nothing more than a
true,

* “ Si carnosâ simul et aquosa sit hernia ego talem
 “ adhibeo curam. Seco cutem et incisionem facio
 “ exiguam, et in loco potius altiori quam in fundo,
 “ inde turunda imposita, cum digestivo et pus movente
 “ medicamento procedo, neque unquam totum pus
 “ extraho, sed perpetuo bonam intus relinquo, quod
 “ sensim carnem corodat & ita sanat. FAB. AB
 “ AQUAPENDENTE.”

true, simple hydrocele, in which the testis is somewhat enlarged beyond its natural size, and perhaps somewhat relaxed in its texture, in consequence of such enlargement; but still sound, and free from disease, still fit for, and capable of executing its office.

That by his method he obtained a radical cure I make no doubt; his ‘*turunda digestivo, et pus movente medicamento imbuta,*’ would most probably occasion a sloughing of the tunica vaginalis, and consequently an abolition of the bag or cavity; but whoever knows any thing of these matters must know, that a testicle really and truly diseased, would not bear such treatment; and therefore that his success was owing to the state of the testicle *not being* what he supposed it to be, and what the term he makes use of implies.

The method of Fabritius was within a few years past adopted and practised by Ruysch.*

The means and conduct were nearly the same, and I have no doubt that the success was equal. But the same objection still remained; which was, that not only a suppuration was brought on, but the whole tunica vaginalis was so irritated and inflamed, that it necessarily became sloughy, and was entirely destroyed. An objection which had been made to the method by caustic, and which I must acknowledge,

“ * Sanari quidem valet id mali pertuso scroto ope
 “ instrumenti trochert dicti, vel lanceola phleboto-
 “ mica ut aqua vulnere exeat, sed cito plerumque
 “ recrudescit *malum*.

“ Si *autem* curationem aggredieris aperiendo scro-
 “ tum a parte superiori, ad latus, tuncque vulnus
 “ turunda oblonga, unguento rosaceo mercurio præ-
 “ cipitato rubro inuncto oppleveris donec lenis in-
 “ flammatio, eique succedens suppuratio parva, mem-
 “ branules stillantes putrescerit tuncque eas tenaculo
 “ eduxeris, &c. RUYSCH.

knowledge, is, in my opinion, an objection to it still.

The late professor *Monro*, whose observations on the diseases of the testicle are very pertinent and very ingenious, seemed to think that it was by no means impracticable, by means of a slight degree of irritation, to excite such an inflammation both in the tunica vaginalis and albuginea, as might occasion a coalescence of them with each other, and thereby answer the end of abolishing the cavity without destroying any part of either tunic.

I made the experiment proposed by him, and found it sometimes successful, never hazardous, or prejudicial, but by no means certainly efficacious, or to be depended upon. The cannula by its hardness and resistance was a very unpleasant guest within the vaginal coat, and from

its inflexibility, upon any unguarded motion of the patient, injured the testicle and gave very acute pain; and the tent and bougie, which I occasionally substituted in its place, although they did not give so much pain, were liable to a considerable degree of uncertainty.

Uncertainty and hazard are certainly very different things, and the latter much preferable to the former: not to have injured a man by an experiment, affords some degree of consolation under a disappointment, but yet when it is considered, that an operation and process of this kind is submitted to from choice and not from necessity, if it fails of success, although no real harm be done either to the part, or to the constitution of the patient, both the loss of time and the confinement will become doubly irksome, as they will be found not only not to have answered the end proposed, but not to have brought
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the patient at all nearer to a cure than he was before the attempts. The reflexion is unpleasant to both parties.

Being, from the effects both of the cannula and tent, satisfied that there was no kind of hazard in the introduction of a foreign body into the cavity of the tunica vaginalis, nor from its remaining there; and having many opportunities of meeting with this disease in St. Bartholomew's, I determined to try what a seton would do toward raising such a degree of inflammation as might occasion a coalition of the two membranes, and effect the purpose proposed by Professor Monro*. The success fully answered my expectation.

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* His words are, " Considering how readily contiguous inflamed parts grow together, and how many instances there are of people having a radical cure made of this hydrocele by inflammations coming on the part, it would seem no unreasonable practice to endeavour a concretion of the two coats
" of

In my general treatise on the diseases of the testicle, I mentioned and recommended it, but as I could not be certain what a greater length of time might produce to make me change my opinion, I mentioned it with some degree of caution.

Since that time I have embraced every opportunity, both in the hospital and out, of practising it, and that under some

“ of the testicle when they are brought contiguous,
 “ after letting out the water through the cannula of a
 “ trochar, by artfully raising a sufficient degree of
 “ inflammation.

“ This to be sure must be done cautiously, and so
 “ that the surgeon can reasonably expect to be master
 “ of the inflammation, and therefore the application
 “ of all irritating medicines, the operation of
 “ which he could not immediately stop, or any single
 “ mechanical effort the effect of which he could
 “ not be sure of, are not to be employed.

“ Suppose the canula of the trochar was to be left,
 “ by the extremity of it rubbing against the testicle
 “ an inflammation might be artfully raised, the cause
 “ of which might be taken away as soon as the surgeon
 “ thought fit. *Medical Essays.*

some improvements; and as I can now speak positively to its success, I thought it right to give it to the publick, who are always intitled to every benefit arising from the labours of every man whom they have honoured with any degree of confidence, and this as well on a principle of humanity as of gratitude.

What I have said of it in the general treatise is in the following words, p. 176.

“ The point to be aimed at, is to excite
 “ such a degree of inflammation both, in
 “ the tunica vaginalis and tunica albugi-
 “ nea, as shall occasion a general and per-
 “ fect cohesion between them; and this,
 “ if possible, without the production of
 “ flough or abscess; without the hazard
 “ of gangrene, and without that degree of
 “ symptomatic fever which now and then
 “ attend both the caustic and the inci-
 “ sion; and which, when they do hap-
 “ pen,

“ pen, are so alarming both to patient and
 “ surgeon.

“ These ends I have frequently ob-
 “ tained by the use of a seton.

“ It is a method of cure mentioned by
 “ Aquapendens from Guido, and others
 “ before him, though their process was
 “ somewhat different from mine. I have
 “ several times tried it on subjects of very
 “ different ages, some of them more than
 “ fifty years old. It requires confine-
 “ ment to bed only for a few days, after
 “ which the patient may lye upon a
 “ couch to the end of the attendance,
 “ which is generally finished in about
 “ three weeks or a month at farthest, and
 “ during all that time no other process or
 “ regimen is necessary, than what an in-
 “ flammation of the same part from any
 “ other cause, (for example a hernia hu-
 “ moralis) would require.

“ The

“ The manner of performing it is as
 “ follows. Choose a time when the
 “ vaginal coat is moderately distended,
 “ and having pierced it with a trochar,
 “ of tolerable size, draw off the water ;
 “ when that is done, introduce into the
 “ cannula a probe armed with a seton
 “ consisting of ten or twelve strings of
 “ candle-wick cotton ; pass the probe as
 “ high to the upper part of the vaginal
 “ coat as you can, and on the end of
 “ that probe make an incision of such
 “ size as to enable you to pull it out
 “ easily, together with a part of its an-
 “ nexed seton ; then cut off the probe,
 “ and tie the cotton very loosely, co-
 “ vering the orifices with pledgets. By
 “ the next day the seton will be found
 “ to have contracted such an adhesion to
 “ the tunica albuginea as would cause a
 “ great deal of pain to detach ; but this
 “ it is perfectly unnecessary to do, and it

“ should be suffered to remain without
 “ molestation. In about forty-eight hours
 “ the scrotum and testicle begin to swell
 “ and inflame; the patient should then
 “ lose some blood, and have a stool or
 “ two, and the whole tumefied part
 “ should be wrapped in a soft poultice,
 “ and suspended in a bag-truss. The
 “ disease from this time bears the ap-
 “ pearance of a large hernia humoralis,
 “ and must be treated in the same man-
 “ ner, by fomentation, cataplasm, &c.

“ The adhesion of the seton to the
 “ albuginea generally continues firm, and
 “ I never meddle with, or move it, till it
 “ becomes perfectly loose, which it seldom
 “ does for the first fortnight, or until the
 “ inflammation is going and the tumor
 “ subsiding. By the time the seton be-
 “ comes loose, the coalition of parts is
 “ universally and firmly accomplished. I
 “ then

“ then withdraw it, and heal the orifices
 “ with a superficial pledgit, &c.”

This method was, as I said in, general very successful; but repeated trials furnished me with objections to some parts of it, and induced me to think that such parts might be amended.

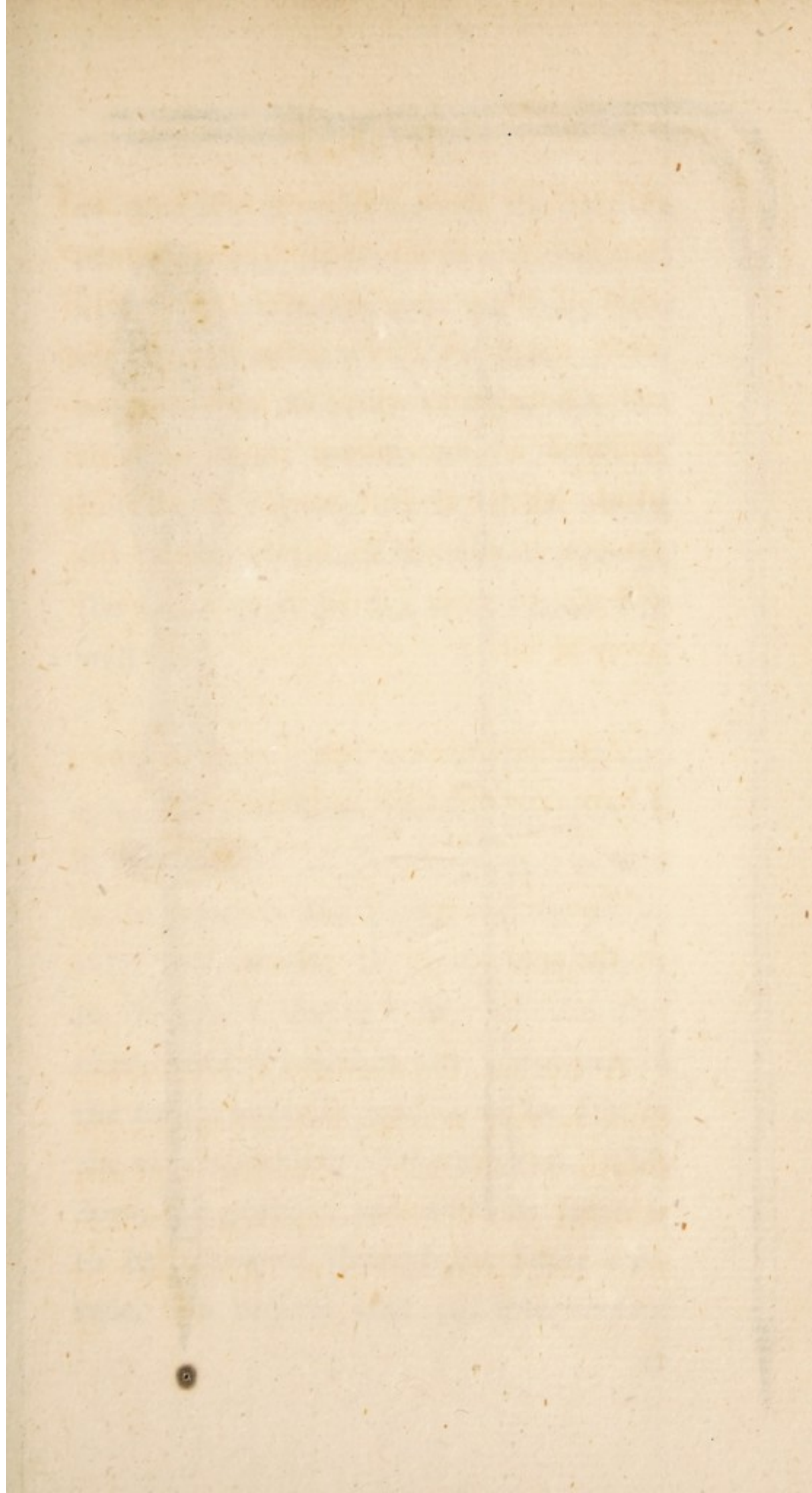
I found that cutting upon the end of the probe was troublesome, both from its smalness and from its flexibility, and also that it was sometimes difficult to keep it steady, for the same reasons, and that it always required the assistance of another person's hand besides that of the operator: a circumstance one would always wish to avoid when possible. I found also sometimes that the seton of candle-wick cotton did not pass so easily as I could wish, and by rubbing the tunica albuginea too rudely gave more pain than I liked. The seton as made of cotton

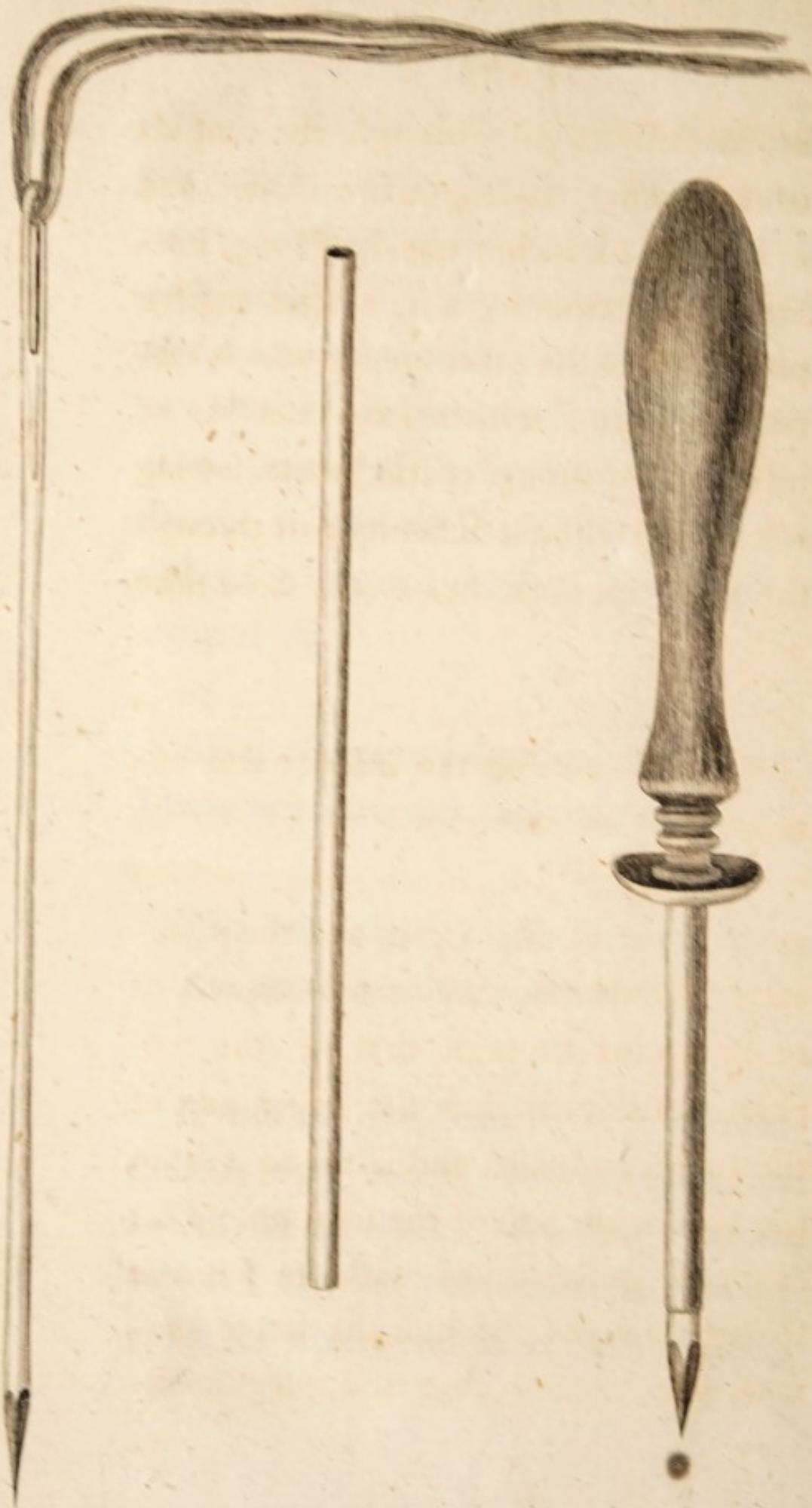
adhered in some instances too long and too firmly. From the intimate connection of the parts of the wet cotton with each other, it could never be brought away but entire, which in some cases occasioned an unnecessary waste of time. And, what was still worse, in two instances it adhered so firmly, that I was obliged to make a small incision to get it away at all.

All these inconveniences and objections I have now obviated and removed.

The instruments I now make use of are in the annexed plate, and are,

A trochar, the diameter of whose cannula is very nearly, but not quite, one fourth of an inch. Another cannula, which I call the seton-cannula, which is made of silver, and is of such diameter





as just easily to pass through the cannula of the trochar, its length five inches, and a probe of six inches one-half long, having at one extremity a fine steel trochar point, and at the other an eye which carries the seton; which seton consists of just so much strong, coarse, white, sewing silk as will without difficulty pass through the latter cannula, but at the same time will fill it.

With the trochar the inferior and anterior part of the tumor is to be pierced, as in common palliative tapping: as soon as the water is discharged, and the perforator withdrawn, the seton-cannula is to be passed through that of the trochar, until it reaches the upper part of the tunica vaginalis, and is to be felt in the very upper part of the scrotum. This done, the probe armed with its seton is to be conveyed through the latter cannula, the vaginal coat and integuments
to

to be pierced by its point, and the seton to be drawn through the cannula, until a sufficient quantity is brought out by the upper orifice. The two cannulæ are then to be withdrawn, and the operation is finished. It is executed in two or three seconds of time, and with little more pain than is felt in common tapping.

• By this method, every advantage which attended the former operation is obtained, and every inconvenience which it was liable to, is obviated and provided against.

The seton-cannula by its firmness bears tight against the place where the seton should be brought out, the trochar-point of the probe is kept from deviating by its confinement, and its point pierces through the skin immediately, and exactly in the place intended, while the seton by passing through the cannula is
pre-

prevented from rubbing rudely over the testicle.

As soon as the operation is finished I put the patient into bed, and immediately give him twenty or twenty-five drops of tinctura thebaica, which I repeat or not, pro ne nata.

About the third day the testicle and scrotum begin to inflame and swell, and to put on the appearance of a hernia humoralis, or the swelled testicle which now and then attends a clap; and requires the same and no other kind of treatment; that is, fomentation, poultice, a suspensory bag, a cool temperate regimen, and an open belly.

By these means the inflammation is soon and easily appeased. As soon as this end is accomplished, I permit the patient to get out of bed and lie on a couch, or
fit

fit in a great chair with his legs up, and I generally give the cortex in some form or other twice or thrice a day.

The forenefs and tumefaction now diminish apace, and as soon as the parts are quite easy, which is generally about the tenth or twelfth day, I begin to withdraw the seton, taking out, four, five, six, or seven threads of it at each dressing, which dressing consists of nothing more than a superficial pledget upon each of the orifices while they continue open, and a discutient cerate (such as the *ceratum saturnin.*) to cover the scrotum.

The discharge of matter from the orifices, is small and trifling, no more than might be expected; the *tunica vaginalis* does not become sloughy, but is preserved intire, and the cure is accomplished, merely by the coalescence or cohesion of the *tunica vaginalis*, with the *tunica albuginea*.

buginea. An event, which from what has fallen within my observation, I am inclined to believe, is most frequently the consequence of a severe hernia humoralis.

In this circumstance, viz. the accomplishment of the cure, by adhesion of the two coats together, without any destruction of parts, consists the material difference between the method of cure by seton, and that by caustic.

All the practitioners who make use of the latter, allow that it produces a slough of the whole tunica vaginalis, that it destroys the whole bag or cyst, and that it is used with intention so to do.

In the cure by seton no slough is produced, (at least I have never seen one) nor is the vaginal coat destroyed in any part of it, a firm cohesion is made between the two membranes occasioned by

the inflammation, and the cure is effected solely thereby.

I shall always most gladly embrace any opportunity to improve so noble and so really useful an art as surgery, but at the same time, should be very sorry to have it supposed that any partiality to my own opinion would make me misrepresent, or deviate from truth.

I have practised this method of obtaining a radical cure on a very large number of subjects, of all ages, from six years old, to sixty and upwards, in some subjects on both sides, and I have never seen any bad symptoms or any degree of hazard from it, nor have I once, since the present improvement, seen it fail of perfect
SUCCESS.

FINIS.

