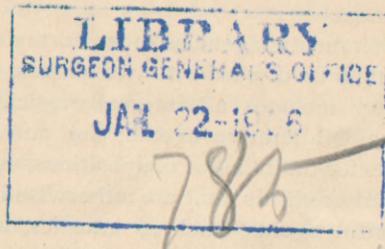


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## NOTES ON THE GALVANO-CAUTERY IN THE TREATMENT OF URETHRAL AND VESICAL DISEASES.<sup>1</sup>

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THE discovery that infection, either conveyed by personal contact or transmitted by foul instruments, was responsible for many of the diseases of the urinary organs, marked one great advancement in this department. About the same time it was noticed that minor injuries inflicted by the unskilled use of improper instruments, chiefly the female catheter, was a most active cause of cystitis and urethritis. I mentioned this in a medical society fifteen years ago. An old obstetrician of large and long experience who was present said that he had used the catheter many times in post-partum patients and had never seen the slightest harm follow. At that time I knew of two of his former cases who were under treatment for cystitis which followed his use of the catheter. My opinion was not changed by his argument, and many observations since then have confirmed the fact regarding the cause of this class of affections. This understanding of the causation led to improvement in therapeutics. The treatment of cystitis and urethritis with strong solutions of nitrate of silver and like caustic agents was found to be no more efficient in relieving the inflammation than milder measures, and they were far more unsatisfactory in their after-effects. The more destructive agents were largely given up by some of the foremost investigators. More attention was given to constitutional

<sup>1</sup> Read before the New York Obstetrical Society, October 4, 1892.

treatment and bland instillations. Soon after this, dilatation of the urethra, forcible and extensive, was introduced and much said in its favor. It did some good, unfortunately, which induced many to practice it and do great harm. Urethrotomy and cystotomy were introduced about this time, and they have fully sustained a deserved position in the surgical treatment of a certain but limited class of cases.

The therapeutic agencies most worthy of confidence at the present time may be divided into two classes, the medical and surgical. The former includes all internal medication and the local use of sedative and alterative agents; the latter comprises all surgical procedures for the relief of malpositions, malformations, neoplasms, cystitis and urethritis that are otherwise incurable. This excludes the powerful agents, such as caustics, which so long were employed. This may appear to you like quotations from back-numbers of medical literature, but there is room for a more general knowledge on the subject in the profession at large at least. The evidence of this is found in the number of cases that run from the acute to the chronic state, in which pathological conditions are developed that require special treatment. Furthermore, I have observed that better results are obtained by those who depend upon general treatment than by many of those who employ active local treatment. Much of my time is occupied in treating injuries arising from the use of caustics.

The diseases, the treatment of which I propose to speak of at this time, are as follows:—

First, diseases of the urethra. Neoplasms about the meatus. Small papillomata within the urethra, sometimes called granular urethritis. Narrowing of the meatus, either congenital or acquired. Inflammation of the urethral glands and follicles. Neoplasms of the bladder and chronic cystitis.

In regard to the pathology of these neoplasms, there are two forms that I wish to call attention to. One, the rarest, is angioma, caused usually by malnutrition and deranged circulation. These growths closely resemble rectal hæmorrhoids in pathology and the causes which produce them. The other is a proliferation caused by a chronic inflammation of the glands or follicles in the vaginal side of the urethra, usually at the meatus, but occasionally found within the urethra. Both varieties have been known as vascular growths of the meatus, or caruncle. The diagnosis is, of course, easily made when the disease is confined to the exposed portion of the meatus, but when these growths are within the urethra, and

especially the upper third, the diagnosis can only be made by the use of the endoscope. I have in these last days found that many do not use this instrument for diagnostic purposes, owing to its being rather inconvenient and requiring experience in its use. To meet that, I find in many cases a diagnosis can be made by exclusion. Displacements and dislocations can be detected or excluded by the touch and sound, and cystitis can be disposed of by frequent and careful urine examinations. Most important of all in this connection is the cystoscope, which is so valuable in detecting or excluding diseases of the bladder which simulate in a marked way certain diseases of the urethra, but this instrument is not always at command. I find that the differential diagnosis must be made by the majority of practitioners—if made at all—by examinations of the urine and the symptoms. When, by exclusion, it is determined that the disease is confined to the urethra, the question rests then between inflammatory affections and displacements and dilatation. The latter can—as before stated—be detected by the touch and sound.

To return to the treatment of neoplasms, the indications are to thoroughly and completely destroy the diseased tissue and nothing more. To do this with caustics in the way usually commended was impossible—at least I find it so. The diseased tissue can be destroyed, if not by one, by several applications, but the line of demarcation between the normal and abnormal tissue cannot be clearly and fully drawn, and the action of the caustic limited to that one part. After the eschar separates the surface left to heal is large, sometimes painful and tender, and during the healing process there is great liability to the recurrence of the original disease. This is one of the reasons for the frequency with which these growths return, as noted by all writers on the subject. Exsection is a more surgical method and gives better results (when well done) than caustics, but unless sutures are used to close the wound, the healing is slow and uncertain, especially if the urine is in any degree morbid.

The galvano-cautery fills the bill of requirements perfectly and completely. There is less pain in its use. Healing is more rapid and there is less likelihood of the disease returning.

The cautery instrument which I employ is the fine point used by the laryngologists. A larger cautery can be used with advantage in removing large neoplasms, but for all general purposes the small one is the best. I may here mention the fact that it should be brought to the desired heat before applying it to the tissues and then

after making one incision or application it should be withdrawn from the tissues and reheated. This is necessary because the moment this fine point is brought in contact with the tissues there is so much leakage of the current that the cautery very soon cools off. I mention this because I have so often seen the inexperienced, who were not aware of this fact, bothered by the cautery cooling and not doing its work. I have no doubt that all who use electricity have been greatly annoyed with batteries. It is exceedingly difficult to keep them in order so that they will be useful when required. I understand that there are good prospects of our being relieved from all such care and trouble by utilizing the electric-light current used in many parts of our cities. I believe that it is now pretty well settled that the current can be converted so as to take the place of the storage battery or the faradic current or continuous current. When this is perfected we will all be able to use electricity with very great convenience. This method may be in use with some of you and if so I hope it will be brought out in the discussion so that we may profit by the information.

The method of operating is as follows:—

The neoplasm to be removed is seized by narrow-bladed forceps at the junction of the normal and abnormal tissue; the forceps is closed and locked and the neoplasm cut off. The cautery is applied to the forceps sufficiently to heat enough to desiccate not char, the tissues held in its grasp. When this is accomplished the forceps is carefully removed by first unlocking it, then rocking it gently so as not to pull the pedicle or stump apart and start bleeding. If the work is well done, the thin stump of desiccated tissue will project on the surface of the mucous membrane.

It is important that the patient should not urinate for several hours after the operation, because if the stump can be kept dry for a time it will not spread but hold together and leave a very small surface to heal when the desiccated portion sloughs. The application of oil or vaseline helps to protect the stump until it heals.

The forceps which I use is the artery or compression forceps of Prof. Wight, and it answers the purpose admirably.

This method of operating is sufficient in the ordinary forms of angioma. When the neoplasm is caused by a chronic inflammation of the urethral glands, the best method is to pass a fine probe up into the canal and cut down upon it with the cautery point from the vaginal surface; in other words, lay the ducts of the glands open. This divides the neoplasm on one side, and an incision should be made with the cautery on the opposite side, which

divides the neoplasm into two equal parts, then each part is grasped in the forceps and removed in the way I described.

I have succeeded in completely curing the chronic inflammation of the glands by laying their ducts open in this way and removing the neoplasms at their terminal ends, excepting in a few cases where the inflammation still persists in the glands. To correct this I generally do a second operation. I pass the cautery point into the gland and cauterize it sufficiently to destroy it. I have always succeeded in curing all cases except in tuberculosis of the urethra. That disease has recurred as a rule.

The method of operating in cases of narrowing of the meatus urinarius is this:—I pass the bivalve speculum into the urethra and put the meatus on the stretch. The band of tissue below or on the vaginal side which extends from one blade to the other is made tense and is easily divided with the cautery; in fact it is necessary to be deliberate in making the incision or else hæmorrhage will follow, not a hæmorrhage which will give any trouble except delay, and it prevents continuing the use of the cautery to complete the operation.

In those cases of papillæ within the urethra, caused by hyperplasia around the follicles, the treatment with the cautery is difficult, but if properly employed gives the most prompt relief in those cases of chronic inflammation which have been called granular urethritis. After having made a clear diagnosis and localized the points to be destroyed I introduce the endoscope, with an open end, up as near to the neck of the bladder as can be without permitting a flow of urine; the instrument is then withdrawn until one of the points to be touched comes into the field of vision; the cautery is then passed up and the point slowly touched once, which is as a rule sufficient. The instrument is withdrawn again until another diseased portion appears when it is treated in the same way, and so on until the treatment is completed.

I might state here that the most troublesome of all diseases, both in the way of causing suffering to the patient and botheration to the surgeon, is fissure at the junction of the urethra and bladder.

I am now making observations on the use of the cautery in the treatment of these painful fissures or ulcers and I am inclined to think that it will prove to be efficient, but it is extremely difficult to use. When the fissure is exposed by means of the endoscope there is a continual oozing of urine which interferes with the use of the cautery. If the fissure is on the vaginal side of the urethra I use a

fenestrated endoscope, bringing the fissure into the field of vision. I make pressure against the endoscope from the vagina with the finger, which forces the diseased portion of the mucous membrane into the fenestrum and prevents the outflow of urine. I then dry it with a small piece of bibulous paper and apply the cautery by simply drawing the point slowly through the ulcer so as to completely destroy its surface. To a certain extent lateral fissures can be managed in the same way, but when the fissure occurs above, which fortunately seldom happens, it is almost impossible to employ this treatment. Perhaps when I have had more experience I will be able to report quite favorably of this treatment. Up to the present time it is not completely satisfactory.

In treating those forms of urethral affections thus far alluded to, I find that with the use of cocaine general anæsthesia is not necessary, at least in patients that possess a fair degree of self-control, but I should urge the use of an anæsthetic until the surgeon has acquired some skill and dexterity in the management of the cautery.

In regard to the use of the cautery in diseases of the bladder, I will say that my experience with it has been limited to the removal of neoplasms, mostly malignant, from the bladder. I must call to mind the fact that Dr. Byrne uses the cautery for making a vesico-vaginal fistula, and I am satisfied that it is the quickest, simplest and best method of doing so; I have tried all the other methods and am confident that this is the best, when the fistula is to be maintained. But I chiefly desire to call attention to the use of the cautery in the removal of neoplasms or epithelial growths of the bladder. I can best illustrate the value of the cautery and method of using it by stating that I recently had a case in which I was able to make an accurate diagnosis of an epithelial growth, about an inch and a half in diameter, on the anterior wall of the bladder. The patient had for months suffered almost continuously from hæmorrhage. I made a vesico-vaginal fistula by dividing the tissues with the knife and scissors, then by having pressure made over the pubes, I seized the growth between my finger and a scoop and brought it down to the vaginal fistula and succeeded in drawing it through into the vagina, and with it, of course, a portion of the anterior wall of the bladder. I clamped the base of this growth with the forceps and then cut it off with the cautery and desiccated the portion within the grasp of the forceps, most of which was normal mucous membrane; the forceps was then removed, the bladder thoroughly washed out and the vesico-vaginal fistula closed

with silk sutures. The bladder was drained for twenty-four hours after the operation, and then catheterized every four hours for three or four days, and the patient made a complete recovery. It is now about eight months since the operation and there has been no recurrence of any symptoms whatever.

The advantages gained by the use of the cautery in this, as in other cases I have operated upon, are these:—That all hæmorrhage is arrested at once; that the surface left to heal is very much smaller, and in fact becomes glued together as it were, and partially healed before the desiccated portion sloughs off. It might be said that the base of the tumor heals under a scab, which leaves no ulcerating surface in the bladder to give trouble afterwards, nor any raw surface that can possibly bleed after the operation.

By removing small growths in this way I have been able to close the vesico-vaginal fistula immediately and so complete the treatment at one sitting. Heretofore when I have removed a neoplasm from the bladder through a vesico-vaginal fistula I have been obliged to leave the fistula open until the bladder had recovered from the damage done to its tissues during the operation. This I conceive to be a great advance. Of course this operation is practicable only in small neoplasms. In those of a larger size that cannot be brought out through a vaginal fistula I prefer the supra-pubic operation; but in place of removing the neoplasm by means of a curette, which I believe is the usual way of operating, I grasp a portion of the tumor at its base with fixation-forceps, making sure that I get down to the normal mucous membrane, and remove that portion in the way described. I then seize another portion and remove it in the same way until the whole is removed. If the disease does not extend beyond the mucous membrane it is very easy to diminish the base of the tumor very much by the use of compression-forceps and cautery, and leave a very small surface to heal afterwards. In those neglected cases where the tumor is so large that it is impossible to remove it in this way, after doing the supra-pubic cystotomy, the mass may be broken down and removed with the curette and the whole surface thoroughly cauterized, using a larger cautery; but even in such cases the raw surface should be picked up in sections in compression-forceps and cauterized thoroughly. That is the only way that the hæmorrhage can be thoroughly stopped, and the base or raw surface is much reduced in size. Drainage is necessary after the operation. Last week I operated in a case of epithelioma at the base of the bladder. The fistula was made a little to one side of the median line in order to

avoid the diseased part. I tried to dissect up the mucous membrane that was diseased, but found that that was impossible; neither could I grasp all of the diseased part in forceps. I was compelled to apply the cautery freely and leave the fistula open for drainage, and also to enable me to use the cautery again in case I find that all the neoplasm has not been removed.<sup>2</sup>

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<sup>2</sup> Since reading the above the case has progressed favorably and promises to make a complete recovery.