

STRICTURE OF THE MALE URETHRA;
ITS RADICAL CURE.

CHAPTER I.

CHRONIC URETHRAL DISCHARGES.

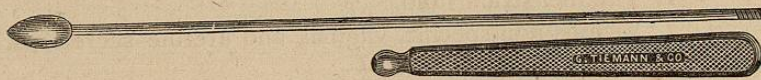
THE subject of Genito-Urinary diseases, and more especially those forms of trouble known as Urethral Stricture and Gleet, have received much consideration from me for several years past. As my study and experience in these diseases have led me in a direction somewhat opposed to the views and treatment hitherto accepted by surgeons throughout the world, it appears to me desirable at this time to make a full statement of the course, progress, and results of my observations and practice.

As early as the year 1861, I had come to appreciate the fact that the ordinary elastic bougie, or any instrument of uniform diameter, might traverse a urethra without giving indication of Stricture at any point; whereas, in the same urethra, with the bougie-a-boule (of M. d'Etiolles) of the same size, Stricture was, not unfrequently, made out with absolute certainty. Soon finding the necessity for an instrument of wider range and greater endurance than the bougie-a-boule of M. d'Etiolles, (which was made of gummed cloth, and rarely found larger than 21m. of the French scale,) I devised the *bulbous sound*.

This was a simple metallic bulb of olive shape, attached to a slender copper shaft. Six of these instruments were constructed under my direction, by Hernstein & Co., Surgical Instrument Makers, of sizes from 18 mm. to 30 mm. in

circumference, and, for convenience, screwing into a common handle.

With the aid of these bulbs I was often able to detect localized points of contraction that had escaped recognition in examination with the smaller bulbs of M. d'Etiolles. At this early period (1861) my attention was attracted to the frequent association of a chronic purulent urethral discharge



THE BULBOUS SOUND.

with localized urethral contractions of greater or less degree. The rebellious behavior of such discharges, under all then recognized modes of treatment, induced me to make this subject one of especial study for the following years and up to March, 1870, when I presented the results of my thought and experience in a paper read before the New York Medical Journal Association, and published in the N. Y. Medical Journal of June, 1870, as follows:

On Chronic Urethral Discharges.

In the term *chronic* it is intended to include, not only those purulent or muco-purulent discharges from the urethra which occur as the sequelæ of acute inflammations of the urethral mucous membrane, but all which, by their appearance and sub-acute character, resemble such discharges without regard to the time of their continuance. In consideration of the similarity between chronic urethral discharges, both as to their symptomatology and their chemical and physical constituents, and in view of their moral and social as well as the medico-legal relations, the importance of classifying such discharges in accordance with their etiology will, I trust, be admitted.

By such an arrangement, they readily separate into three distinct groups:

I.—The venereal specific.

II.—The venereal non-specific.

III.—The non-venereal.

Under the head of venereal specific we then have—

1. Gonorrhœa and its sequelæ.
2. Chancroid.
3. Syphilis.

Under that of venereal non-specific we have—

1. The menstrual fluid.
2. Vicious non-specific, vaginal, and uterine secretions.

Under that of non-venereal—

1. Acrid urinary secretions.
2. Idiopathic inflammation of the prostate.
3. Mechanical injuries and obstructions and chemical irritants.
4. Cutaneous disease.

The inclusion of gonorrhœa among the *venereal specific* causes of chronic discharge from the urethra is with entire acceptance of the fact, that no physical distinction has yet been drawn between an acute urethritis, caused by contact with gonorrhœal matter, and one set up by the application of the purulent secretion of a conjunctivitis, or of a uterine catarrh, or by excessive coitus, or, in short, by any one of the causes which are set down among the non-specific class. Yet it is well known that a peculiar virulence does pertain to the purulent secretion of a gonorrhœal urethritis; that its contact with sound mucous membrane communicates, with almost positive certainty, an inflammation whose product is of similar virulence, and whose tendency is to run a prolonged course; while from all other causes to which a urethritis may be attributed, not only is the establishment of the disease most exceptional, but, when it does so occur, it is of shorter duration, and, as a rule, of more benign character. That gonorrhœal pus has the power, more than any other, of extending its degenerating influence beyond the immediate layer of epithelium in contact with it, also seems to me certain; but, until a specific virulent principle can be found in it, we must be

content to accept the inflammation of gonorrhœa as a *simple* inflammation of unusually acute character. Yet, in a classification based upon etiological considerations, the propriety of placing gonorrhœa among the *specific* causes of urethral discharge must, I think, be conceded.

The organisms with which we have chiefly to deal, in considering diseases of the urethra, are mucous membrane, muscular and connective tissue, with their vessels and nerves. The mucous membrane which lines the urethral canal consists, like all other mucous tissues, of an epithelial structure, lying on a basement membrane; the epithelium being of the stratified kind, and of varied character in different regions—the tessellated variety presenting in the anterior, the spheroidal and columnar in the posterior parts of the canal. Underneath the mucous membrane is a thin layer comprised of muscular fibres and connective tissue, which is united to the tendinous layer of the corpus spongiosum by delicate membranous bands.

It may be well to glance briefly over the pathological changes which are now recognized as taking place in inflammations of mucous membrane of the variety under consideration, viz., those protected by a stratified epithelium. All such in their normal condition present a lubricated surface—this lubrication due to a bland secretion from the mucous follicles.

Under the microscope, this secretion is found to consist of mucosine in which are suspended mucous corpuscles and epithelial scales. When the membrane is subjected to irritating influences, the epithelial element in the secretion is increased, the epithelial cells are hurried from the surface before they are fully developed, their forms become rounded, and hence they are more easily detached, until, as the inflammatory process progresses, the natural proliferation of epithelial structure becomes luxuriation (Virchow). Layer after layer is thrown off, less and less perfectly developed, losing more and more the characteristics of the true epithelial scale, until at length it has degenerated into the form recognized

as the pus-corpuscle, and the mucous secretion has assumed all the features of the purulent discharge.

In their normal condition, mucous membranes secrete only sufficient fluid to answer the purposes of lubrication. All discharges from the urethra are then evidences of abnormal excitement—of imperfect cell-development—varying in degree from the first stage of epithelial imperfection to complete purulent degeneration, and dependent upon exciting causes of the varied character indicated in the classification I have ventured to adopt.

In the frequency of its occurrence, in the importance of its indications, in its pathological connections, and in its moral, social, and medico-legal belongings, the discharge arising from gonorrhœa and its sequelæ ranks first in importance. We have at this time only to deal with chronic forms of disease as defined in the commencement of this article. Omitting, then, all consideration of the acute stage of gonorrhœa, I shall at once proceed to consider the conditions upon which a continuance of the chronic or sub-acute discharge may depend. These are as follows: 1. An enfeebled condition of that portion of the mucous lining of the urethra which has been occupied by the acute inflammation. The degeneration of epithelium set up by the acute disease is continued by *enervation*—a simple want of vitality in the tissue sufficient for a return to its normal functions. 2. The vitality apparently restored by appropriate local and general treatment; the discharge, though in decreased amount, still continues. Its continuance may depend on *the localization of the disease in the deeper parts of the urethra, or in folds of membrane, or in mucous crypts or follicles which have escaped local medication.* 3. The continuance of the discharge may be due to granular ulcerations located at any point along the canal where from any cause complete exfoliation of the epithelium has occurred. 4. From alterations in the *course* and *calibre* of the urethral tube dependent upon pathological changes occurring during recent or previous inflammations. These causes of the persistence of

a urethral discharge, with gonorrhœal antecedents, I propose now to consider, and to indicate the remedial measures which in my own experience have proved most productive of benefit.

When, after a longer or shorter time, the acute symptoms of an attack of gonorrhœa have subsided, and there remains simply a muco-purulent, painless discharge, examination should be carefully instituted, with the view of ascertaining the exact point to which the disease has extended, and, as nearly as possible, the pathological condition upon which the continuance of the discharge depends. This may be done in a rough way by pressing the walls of the urethra together and squeezing out the discharge from the meatus, making the pressure farther and farther back, until no more fluid can be made to exude. In the absence of any tenderness or uneasiness beyond the point so examined, you may conclude that the disease has not extended beyond that limit. If, in addition, a fair-sized bulbous bougie fails to detect any special points of tenderness, it may be concluded that the difficulty is dependent upon the first of the causes mentioned, viz., *a want of recuperative power in the epithelial structure*, and that there is sufficient of the gonorrhœal influence to keep up an exaggerated desquamative action, though not sufficient to excite acute inflammation. The additional fact that the membrane is kept constantly bathed in fluid, also retards the return to a normal condition by diminishing the cohesive power of the superficial cell growths. The indications for treatment then are, to apply such local means as are most likely to diminish the excess of fluid, and to stimulate the membrane to a more complete performance of its functions. Solutions of the salts of zinc, lead, and iron, combining astringent and stimulating properties in various degrees, are found well calculated to meet this double requirement. Vegetable tonics and astringents are also of value. The more thoroughly the epithelial products in the discharge are degenerated, the more stimulating and astringent is the application required; so that, when the discharge is thoroughly purulent,

the more stimulant salts, as the chloride, sulphate, or acetate of zinc, etc., will be found most beneficial; the more it approaches the mucous character, the more simply astringent should be the application. Under all circumstances, where a simple atonic condition perpetuates the discharge, no solution of any sort should be used of a strength sufficient to produce a caustic effect. Stimulation alone is required, such as results from solutions of the sulphate of zinc, or the acetate of lead, alone or in combination, and of a strength varying from one to three grains to the ounce of distilled water. When the discharge is not wholly without pain, I am accustomed to add two or three grains of the extract of belladonna to the ounce. When the discharge is small in quantity and chiefly mucous, the acetate of lead, grains one to three; the persulphate of iron, grains three to five; tannic acid, grains five to ten, are often promptly efficacious. The power of *phenol* (the so-called *carbolic acid*) to modify and arrest suppurative action, wherever located, is now generally admitted. My own experience in its use in disease of mucous membranes has been considerable, and I have seen positive benefit in quite a number of cases where a solution of two or three grains to the ounce has been used; but I have not employed it to any such extent as would at present warrant an expression of opinion as to its real value. The recent statement of a contributor to the *Cincinnati Medical Repertory*, that he had used it in hundreds of cases of gleet with magical effect, suggests a prevalence of the disease in that region which is appalling; while an entire forgetfulness to cite the supposed pathological conditions in any case, would warrant a suspension of judgment as to the accuracy of the recital. Other journals have presented testimony of its efficacy in the treatment of urethral discharges. The antiseptic and antiparasitic qualities of *phenol* certainly warrant an expectation of usefulness in discharges of a specific nature, and it seems to me not improbable that it may come to be a valuable agent in the management of gonorrhœal disease. The permanganate of potash, three to five grains to the ounce, has been

highly recommended in simple chronic gonorrhœa. I have used it in perhaps twenty cases, with the apparent effect of arresting the discharge for a short time, but have invariably been obliged to resort to other means to complete the cure. The mode of application of solutions to the urethral mucous membrane which I have been accustomed to employ is by injection with a hard rubber syringe, of the capacity of half an ounce, and constructed with a well-rounded extremity, so that it may be easily and painlessly introduced, and the meatus readily and effectually closed around the pipe after insertion. Inasmuch as it is desirable that the injection should be applied only to the diseased surface, the urethra should be closed by pressure with the thumb and finger at the point previously fixed upon as the depth to which the disease has penetrated; with this precaution the danger (which is not an imaginary one) of establishing a new focus of disease by forcing the vitiated secretions into the deeper parts of the urethra, or even into the bladder is avoided. A very general impression exists in the profession that fluids are with difficulty injected into the deeper parts of the urethra by an ordinary syringe, and that to force them into the bladder, by that means, is a physical impossibility. The positive statements to that effect by various authors (Acton, Milton, etc.) would tend to confirm such a belief. Within the past two years I have had three patients who were able to inject their respective bladders by means of an ordinary Davidson's syringe, one of them throwing in a pint of water, in my presence, then emptying the viscus—refilling and discharging it three times in succession. I am, therefore, convinced that it is judicious to limit the distance we desire to medicate, by pressure on the canal at a given point. And I also believe that the whole diseased surface can usually be reached by a properly constructed syringe of ordinary size. After directing the patient to pass his water (for the purpose of cleansing the canal), the medicated fluid should be thrown in quickly, to avoid spasmodic resistance, filling the urethra to the desired limit, and allowing it to remain for from one to

three or four minutes. This procedure I am accustomed to have repeated three or four times in the twenty-four hours.

If, notwithstanding the use of injections administered after the manner I have indicated, the discharge still continues, though in decreased quantity, no other cause of failure appearing prominent, I am led to infer—

That the medicating fluid does not reach all points of the diseased surface; that, from insufficient distention of the canal, portions between folds of the membrane, or in the sulci of some of the numerous follicles with which the urethral lining is studded, have escaped the topical application. For security against failure, I am accustomed to introduce the injection through a modification of the ordinary syringe, as repre-



SYRINGE NOZZLE (HALF SIZE).

sented in the cut. By means of this instrument the urethra is penetrated to the farthest point of disease, distended to its full capacity and thoroughly bathed with the contained fluid. No point or portion can escape the application, except it be located in the *lacuna magna*, or in some accidental follicular sinus. These exceptions I am inclined to think are not very rare. Dr. Benjamin Phillips, in his treatise on "Diseases of the Urethra," states that he has found the continuance of a chronic gonorrhœa to depend upon the engagement of the *lacuna magna* in the disease, and cites four cases of cure by slitting up the inferior wall of that sulcus on a director. I have met with two cases of similar character which were successfully treated by injections introduced by means of a blunted hypodermic syringe. Under the designation of "*follicular sinuses*," I allude to little fistulous canals which are sometimes met with running outward from the urethra, and occasionally opening upon the surface of the penis.

I have a record of two and possibly of three such instances. The first, in a gentleman who presented himself to me suffering from a very scanty muco-purulent discharge of two years' standing, which, commencing as a gonorrhœa, had resisted much treatment. Close to the meatus—say a quarter of an inch—on the right side, two minute openings were visible, each the size of a pin's-head, one above the other, and about one-fourth of an inch apart. The patient remarked that, after connection, he always noticed a little matter at these points. Examining the fossa navicularis, I found its floor occupied by a narrow superficial ulcer a third of an inch from the orifice and half an inch in length. Exploring the fistulous openings with a fine probe, I endeavored to find a communication between them and the ulcer of the fossa, but was unable to do so. I did find, however, a fine canal connecting the two abnormal orifices, which I slit up and cauterized. The ample meatus received a No. 20 F.* bulbous sound with ease, but was arrested at the point of ulceration, and would only allow the passage of No. 16. I slit the constriction, which extended the entire length of the ulcer, and passed a No. 20 Béniqué sound into the bladder without difficulty. Twenty days afterwards, the wound was cicatrized, and the discharge had disappeared. I felt confident to the last that there had been a connection between the openings on the surface and the ulcer of the fossa, but failed to find it. Five years have passed since then, but the patient, who married about that time, has had no further urethral trouble.

The second case was that of a young man from Omaha, who came to me presenting a pustule the size of a pin's-head on the right side of the meatus urinarius, midway of the glans, and about one-third of an inch from the labium. Believing it to be the result of a vicious connection four days previous (as it had quite the appearance of a follicular chancroid), I cauterized it with a fine glass point charged

* Whenever the letter F occurs, following figures, it indicates the French measure, i. e. by millimetres in *circumference*. One millimetre equals $\frac{1}{25}$ inch.

with nitric acid, and felt warranted in giving the assurance of speedy cure. Two days following, the patient presented himself, with the lesion cicatrized, but a similar pustule had developed about a quarter of an inch above the site of the first. Confirmed by this, in my view of the chancroidal origin of the difficulty, the second was likewise touched with the nitric acid. On the following day my patient again presented himself, announcing that the first pimple had again broken out, and that he also had the *clap*. Making pressure of the glans, a drop of creamy pus exuded from the meatus and also a minute quantity of the same sort from the two little orifices on the site of the pustules. Struck with the similarity in location and appearance of these little openings with those of Case I., I at once set about exploring them. A fine silver-wire probe passed readily into one and out at the other; the lower seemed superficial. Into the upper, however, I succeeded in passing the probe nearly half an inch backward and upward on a plane parallel with the urethra. Feeling certain that a communication existed, through this sinus, with the urethra, I introduced as far as I was able the blunted point of a fine hypodermic syringe; and, having previously insinuated a bit of lint into the fossa navicularis, I injected a solution of indigo. After several unsuccessful trials, at last, on the withdrawal of the lint, it was found slightly but distinctly stained with the indigo. Shall we infer in this case that the trouble was originally a simple folliculitis creeping along an accidental sinus—possibly producing it—opening on the surface of the glans, and finally breaking also into the fossa, or was it of gonorrhœal origin, having its initial point in the external follicular opening, and after seven or eight days cropping out into the urethra? No solution of continuity could be detected in the fossa navicularis, nor was there much tenderness at any point. A ten-grain solution of the nitrate of silver was injected into the fistula, with the apparent effect of closing it entirely; the passage between the two points was slit up and cauterized. The gonorrhœa (if it was a gonorrhœa) extended very little beyond the fossa of the

urethra, ran a very mild course, and ceased under astringent injections in about ten days.

The third case was in a Mr. D., who came to me two years since, complaining of a little boil on his penis. Examination disclosed a small purulent-looking collection between the folds of loose tissue, a little to the right of and behind the frenum. Both the surrounding inflammation and the swelling were very slight; there was but little accompanying tenderness; the deposit was covered only by transparent cutis. A slight touch with the bistoury caused it to discharge three or four drops of laudable pus. As there were no venereal antecedents in the case, I remarked that it was probably a little sebaceous follicle which had become obstructed, and that he would have no further trouble from it. Several weeks after, Mr. D. called to inform me that he was quite well of the boil, but that when he urinated the water came out of the side of his penis. On examination, I discovered a fine opening like a pin-hole at the bottom of a small, funnel-shaped depression on the site of the old difficulty. A fine silver wire probe readily penetrated it, parallel with the urethral canal, for about half an inch. Failing to find my way into the urethra by this means, I introduced the blunted hypodermic syringe, and, on driving in the piston, the fistulous communication was demonstrated by free dripping of water from the meatus.

The foregoing cases, taken together, appear to me to warrant the inclusion of follicular sinuses among the possible causes of persistent urethral discharge; and, although I find no mention made of such complications in the literature of urethral disease, I venture the opinion that analogous cases have occurred in the experience of many practitioners.

In conjunction with the local treatment, the internal administration of such special medicines as are known by experience to act beneficially upon diseased mucous tissues, especially those of the urinary tract, is often advisable. The balsam of copaiba and the oil and powder of cubebs I have prescribed with benefit, but so often have succeeded in upset-

ting the digestive apparatus of my patients, without securing the desired result, that I now rarely recommend their use. Much more tolerable, and, in my experience, of much greater efficacy in such conditions, is the *oleum santalum citrinum* (the oil of the yellow sandal-wood), in doses of from ten to twenty drops, on sugar or, preferably, in capsules, three or four times a day. I have seen recoveries from its use in from three to six days, after the long and faithful employment of injections and other internal medicines had proved unavailing.

Berkeley Hill, a recent English writer, speaks highly of this remedy, where it can be borne, and advises it in doses of from twenty to sixty drops, three times a day, remarking, however, that "it produces nausea and vomiting, like copaiba, though in less degree." The maximum dose I have ventured to prescribe has been twenty drops, and, in uncomplicated atony of the urethral membrane, always with good effect. A patient would now and then complain that the subject of sandal-wood fans was too often introduced in his presence to be quite agreeable; beyond the odor, however, and its giving rise to occasional slight dyspeptic trouble, the remedy appeared unexceptionable. Recent chemical investigations* have demonstrated the presence of *phenol* in the aromatic oils, such as oil of thyme, fir, cinnamon, cubebs, sassafras, sandal-wood, etc., and they are now included in the class of *phenols*. Not a few of these, cubebs, fir, thyme, etc., have long had a reputation for usefulness in diseases of mucous membranes generally, and in gonorrhœal disease in particular. Is it not possible, then, that the active curative property in each is due to the *phenol* of which the predominance in any one determines its superiority? Further chemical researches in this direction may yet discover other and still more potent remedial agents for internal as well as local use, and aid in the simplification of our now too empirical and overburdened category of anti-blenorrhagic remedies. The muriated tincture of iron, in doses of from ten to twenty

* See Squibbs's "Notes on the Phenols from Coal Tar," etc., in the Proceedings of the American Pharmaceutical Association, 1868.