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SOME OBSERVATIONS, CHIEFLY CLINICAL, ON INFECTIONS OF THE RECTUM AND ADJACENT STRUCTURES, WITH SPECIAL REFERENCE TO PRURITUS.

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I deem it my first duty to offer an apology for departing from the established custom of presenting a presidential address dealing with the history, progress and policies of the Society, as has been tenaciously adhered to by those who have gone before me.

There are two distinct reasons for my pursuing a course different from that of my predecessors.

First. You who have honored me with the presidency of this Society, with the able members of the Council, have so well perfected its affairs that I feel wholly incapable of commenting or of advancing views that would be of interest or value to the organization.

Second. For a number of years I have been profoundly interested in the clinical manifestations and treatment of chronic infections of the structures composing the pelvic outlet and its surroundings. Especially have I been interested in the treatment of the affection known as pruritus ani and vulvae.

Since I have been engaged in an original clinical study for three years, particularly of pruritic affections of these parts, I have selected this occasion to narrate my experiences and offer them to you for comment and criticism.

While it is true that most surgeons, and not a few physicians, believe that pruritus ani is bacterial in origin, I feel sure that we would be surprised if we knew the large number of physicians, and especially neurologists, who do not concur in this view. I am certain this difference in opinion can be attributed to the fact that the patient is not carefully examined and the pathology observed. Particularly is this true in examinations made of the tissues which are out of view except when instruments are employed. Surgeons, especially, have the opportunity when the anal muscles are dilated to see pathological states that otherwise would never be suspected. Therefore they have the opportunity of observ-

ing the conditions which are primarily responsible for the external manifestations. Those, who do not believe that pruritus ani is due to bacterial activity, generally hold to the opinion that these patients are neurotic, partake of improper diet, etc. Of course what I have to say will rest upon the hypothesis that pruritus ani and vulvae, and many other conditions involving the tissues composing the pelvic outlet, are bacterial in origin.

While my investigations have led me to numerous conclusions, which differ from those formerly entertained, I admit that I am in a changing psychological state, and do not feel certain in many respects where my course will terminate. Therefore I do not come before you with arguments that are absolutely and unequivocally settled, but feel that experience and further investigation will settle many of the questions under consideration.

Further I have allowed my investigations, so far as I was able, to follow natural courses, and have not allowed myself to become biased by arguments or conclusions previously presented and passed. In other words, when, in one stage of investigation, unexpected and new conditions arose, I allowed myself to follow further developments until, I admit, I have gone far from many of the formerly accepted theories regarding the nature and treatment of diseases in this part of the body.

Whatever may be the nature of the origin of pruritus ani and vulvae, it is a notable fact that every method or plan of treatment, which has been suggested, has fallen far short of the hopes entertained for it and many have been completely abandoned.

It is entirely inappropriate for me to comment at length on the nature and extraordinary characteristics of this affection, more than to repeat what a patient, so affected, said while in my office two weeks ago. His words were "I have a small family, but make a good salary. I have a number of friends who are excellent doctors, and I am sure that each of them has made every possible effort to relieve me. They have been reasonable in their charges, but today I am in the deplorable financial state of having spent all my means, and am still afflicted with a disease, which has almost wrecked my life and has made it impossible for me to care for my family as I have always hoped." He said regarding his symptoms, "I am frequently free from itching, perhaps for hours, and then, when only a slight sensation necessitates gentle rubbing of a small area, within a few minutes I am wild and no less than a maniac for hours, no relief being obtainable until I am under the influence of morphine." He said again "I have had many experiences and have suffered in numerous ways, but nothing, which has otherwise affected me, has been comparable to pruritus ani." The above is not very unlike the experiences most

patients relate with respect to the perineum or vulvae.

I beg your indulgence in these patients and in resuming practice with pruritus ani. I felt that in treating this disease, more should be done, than has heretofore been promptly accomplished.

A few years ago I published my opinions on this subject in a somewhat successful manner. Now I am deeply impressed with the value of operating for pruritus ani, and of the mucous membrane of the perineum and vulvae, and of the tip of the penis, and I am profoundly impressed with the importance of this operation.

I might state that the probe may be used in the treatment of these patients. This is a new attempt, the success of which I doubt, but every one, who has suffered with pruritus, but does not reach a destructive state, should try this paper.

Knowing that pruritus had occurred to me, I had a dermic needle introduced, and succeeded in relieving me.

For the relief of pruritus, I used warm vaseline and succeeded in relieving me. The pruritus of the posterior anal margin, which had been relieved by drawing into the rectum, was relieved by leathery skin, and I was relieved with no resistance. There were potent results pressed upon me.

patients relate who have the severe and intractible type of pruritus ani or vulvae.

I beg your indulgence while I relate my experience in dealing with these patients after returning from Europe in April, 1919. Soon after resuming practice I had under my care a half dozen cases of severe pruritus ani. I felt that I was reasonably familiar with most methods of treating this affection, but, when I began to consider seriously what could be done, it was evident that little encouragement could be offered for prompt, complete and permanent relief.

A few years previous to the war I attempted some original investigations on this subject, which did not terminate by any means in a successful manner. Now I reviewed some of the ground gone over then, and was deeply impressed with the fact that when, on numerous occasions while operating for pruritus ani, an incision was made through the junction of the mucous membrane and skin posteriorly, a probe could be easily passed without obstruction under the anal skin margin forward to the perineum and often to the scrotum or to the vaginal margin or backward to the tip of the coccyx. I had seen this condition so often, that it had profoundly impressed me, and I could not feel otherwise than that it had an important relation to this peculiar affection.

I might state here that there are not a few surgeons who claim that a probe may be introduced under the skin, as I have described, *in all patients*. This is incorrect and can be proved so by any one who will attempt the same in a series of cases. I do not make the claim that every one, on whom this can be accomplished, is affected with pruritus, but do claim that the phenomenon indicates a diseased and destructive state of the tissues, which will again be referred to in this paper.

Knowing thus the presence of potential cavities under the skin, it occurred to me that some agent might be introduced by means of a hypodermic needle into them to destroy the factors responsible for their existence, and so obliterate them.

For the sake of experimentation I conceived the idea of injecting warm vaseline under the pruritic skin into the cavities and noting the results. The point selected in my trial case was midway between the posterior anal margin and the tip of the coccyx, where the patient's itching had been intolerable. After the vaseline had been sterilized and drawn into the syringe, the needle was introduced through the hard leathery skin, and to my utter astonishment the point of the needle met with no resistance when the skin was punctured. While I knew that there were potential cavities under the diseased skin, it was now impressed upon me in a different manner and I felt more secure in my

former conclusions. The vaseline was slowly introduced to the amount of about six drachms, without pain or particular sensation of any kind, and nothing but a slight fulness under the skin gave different evidence of the condition before injection. The patient experienced no relief whatever from his itching.

As I had but little confidence in the vaseline, I thought next of bismuth paste. This occurred to me on account of having used it in a number of fistulae, which had extended high up by the rectum and above the pelvic brim, where it was impossible to operate. These patients were cured, and at the Detroit meeting I showed a number of lantern slides illustrating the closure of these cavities in different stages after they had been completely distended with bismuth. If bismuth paste effected the closure in these instances, why should it not be depended on in the cavities surrounding the anal orifice in pruritus ani?

The site selected in my trial case was about that of the one in which I injected the vaseline. The same observation was made that the needle, as soon as the skin was punctured, was free from obstruction, and the bismuth was easily introduced though under greater pressure than the vaseline required. The paste passed forward to the left anal margin and for half of the distance anterior to the anus. As the disease involved the skin more than two inches around the anal margin, an arm of the paste passed at right angles to the anus an inch and a half to the left, and also backward under the skin posterior to the needle. The greatest evidence of tumefaction was at the extremity of the column extending to the left of the anal margin. The patient experienced no discomfort from the procedure and returned to his home soon after the injection. Between seven and eight o'clock that evening he called and said that he had such an intolerable aching in the region where the bismuth was introduced, that he would have to have relief. I advised him to use hot applications, sit in hot water, take ten grains of aspirin and call the next morning. At eleven o'clock the next morning he appeared in my office in an ugly state of mind, saying that he had spent the entire night and most of the forenoon in a tub of hot water. I gave him codeine and assured him that it would give him relief for the remainder of the day. That night he called again, and I was out, but he succeeded in getting my assistant and they wrestled till each was exhausted, when he was given a hypodermic of morphine. The next day it was evident that more heroic measures must be employed to obtain relief. Novocaine was injected and an incision made over the most prominent part of the tumor. I was impressed with the difficulty experienced in removing the bismuth. Of course, that which occupied the principal cavity was easily removed, but it was astonishing to note the small and numerous lateral cavities which the

bismuth had penetrated and from which it was difficult to remove it. This observation gave me the deepest inspiration I had experienced up to that time, that pruritus ani could be cured by injections into these cavities. I am sorry that I can not report positively on this patient's present condition, for he is abroad and has been for several months, but the last time I saw him he said that the tissues in the area, where the bismuth was injected, were absolutely free from itching. This experience, because of the local tenderness and great discomfort for a number of weeks after the injection, convinced me that bismuth paste could not be employed successfully in the treatment of pruritus ani.

Now my enthusiasm was waning, since nothing had been discovered which seemed to have any practical value in controlling this dreadful affection, but again, my hopes were revived when I had on hand two or three pruritic cases in which stomach analysis had been made and all showed deficient hydrochloric acid. It occurred to me that hydrochloric acid was a natural product of the body tissues, and that it undoubtedly played an important part in protecting the mucosa of the stomach from the invasion of various bacteria ingested with the food. I also thought that the tissues of the body would likely tolerate hydrochloric acid better than other agents, which came to my mind, such as carbolic acid, hypochlorite of soda, tincture of iodine, arsenous acid, sulphuric acid, nitric acid, etc. If hydrochloric acid was germicidal in its effect and the tissues tolerated it fairly, why could it not be injected into pruritic tissues affected with low grade bacterial life, and destroy the offending bacteria by saturating their habitat with a fluid of sufficient strength to prohibit their development and, at the same time, not to harm the tissue cells.

A trial case was selected and the next important question was to decide the strength of the agent to be used, which could be done only on empirical grounds. I had a solution 1-200 and another 1-500 prepared. The patient came to my office about noon on Sunday for the first injection. To be sure that I was protecting him from harm, I selected the weaker preparation. When he was in position, the needle was introduced and the solution began to infiltrate the tissues, the commotion which followed was scarcely short of a riot in my office, on account of the terrific burning and aching which was produced. As soon as possible the same area was injected with a solution of novocaine, which gave prompt relief. This experience led me to the positive conclusion that the hydrochloric acid must be reduced in strength, and that before injection into the tissues, it would be necessary to use local anesthesia. The hydrochloric acid was then reduced to 1-1,000, and was always

preceded by $\frac{1}{2}$ per cent solution of novocaine. At this time the injections were all made under the cutaneous surfaces with the consequence that not infrequently superficial abscesses occurred. The next important observation was that frequently patients, within a few hours after injection, had aching, high temperature and chilly sensations, simulating the onset of influenza. Most of these cases went on to abscess formation which extended over a period of about four days. It was found that a small puncture through the skin, allowing easy escape of the pus, gave the patient complete and immediate relief. The most striking feature of this phase of the treatment was, that there was no tendency to subsequent fistula, which always occurs when abscesses form in this region due to bacterial influences. Numerous abscesses have resulted from this treatment without a single fistula sequence.

Within four or five months we discovered that the solutions were still too strong and were destructive to the tissues. As I now use them, they range between 1-2,000 and 1-3,000. For several months I practiced the injection of equal quantities of, first, novocaine $\frac{1}{2}$ per cent, second, quinine and urea $\frac{1}{2}$ per cent and then hydrochloric acid, but we continued to produce abscesses. For the past six months I have used only $\frac{1}{2}$ per cent solution of novocaine with 1-2,000 or 1-3,000 hydrochloric acid and have had little tendency to the formation of abscesses. I have also observed that the tissues, involved in abscess reaction, seldom need further treatment. The pruritus, however, has been at once and permanently relieved in every case.

As has already been stated, at first the injections were made under the cutaneous surfaces involved around the rectum, and those around the scrotum and vulva if likewise involved. If the injections were made under sufficient pressure to blanch the skin and especially if it remained discolored two or three minutes, sloughing was certain to occur.

The solutions are very carefully made from chemically pure hydrochloric acid in strength of 1-1,500, 1-2,000, 1-3,000 and 1-200, the latter being diluted to various strengths and used for enemata, and the technique employed in the introduction of the fluid, has been changed from time to time. We now have the patient assume the dorsal posture with the hips flexed upon the abdomen and supported by the patient's own hands. The hips are brought to the edge of the table and the leg rest is lowered.

At first the injections were made at the anterior and posterior anal margins, passing the needle under the diseased surfaces and thoroughly depositing the fluids. When there were extensions upon the vulva or scrotum, injections were also made under the areas involved.

After more than a year's experience, I observed that the fluid often passed under the tissues of the anus up to its junction with the mucosa and even passed above that. This led me to begin injecting under the mucosa at this junction. Fluid was introduced anteriorly, posteriorly and laterally in quantities varying from 15 to 30 c.c. The relief these patients experienced from itching would have aroused profound astonishment in any one however obtuse. If these points were well injected, the patients were promptly relieved for two or three days. Of course, in a great many of the cases, the fluid, when under pressure, would pass out under the cutaneous surfaces for one or two inches. After additional experience I am still introducing the needle at the four points previously indicated, and making the injections. If the infection extends backward, laterally, or forward a considerable distance under the skin, small cutaneous injections are also made. I have recently observed that the injections have not been made high enough under the rectal mucosa, and I have had two cases, particularly, which did not yield as promptly as those ordinarily treated, and it was found that, when injections were made up under the mucosa three or four inches, or even more, the results were much improved. As will be shown later, the tissues surrounding the rectal wall are in many cases diseased as high as the peritoneal reflection. Referring again to potential cavities under the skin, I will say that it has been proven that they are even more extensive under the rectal mucosa. Large quantities of fluid have been introduced under the mucosa with tumefaction extending in various directions and assuming multitudinous forms. When the needle, which may be four or five inches in length is inserted, it is allowed to remain *in situ* until all the fluid that is required at this point is introduced. As a proof that the needle is occupying a position where the point is surrounded by fluid, which is not taken up by the tissues, there is a rapid reflow through the needle when the syringe is disconnected. In several instances, when the pressure was quite marked, the fluid would spurt out two or three inches, and I have put pressure on the tumor and forced the fluid through the needle in very rapid drops or even in a stream. I do not believe that any argument could be more conclusive of the fact that there are potential cavities under the mucous membrane and skin in this locality. In females I have repeatedly introduced the needle anteriorly at the junction of the recto-anal tissues, and had the fluid flow backward and up under the skin to the vaginal margin, and in males almost to the scrotum.

The amount of fluid injected depends largely on the extent of the disease and the patient's tolerance of the procedure. Perhaps the average dosage might be estimated at 60 c.c. of hydrochloric acid and 50 c.c. of novocaine, which should be about equally distributed at the four points

given, but usually are more posteriorly. I frequently inject, when the solutions pass high up under the mucous membrane, as many as 100 to 130 c.c. of hydrochloric acid, but rarely go over 50 c.c. of novocaine. The largest dose of hydrochloric acid I have yet given was 150 c.c., and the patient did not show any evidence of ill effect from the drug except locally a great deal of soreness.

While injecting the patient experiences but little discomfort from the hydrochloric acid, if novocaine has been used first. It must not be forgotten, however, that usually, where these injections are indicated, the anal and lower rectal tissues are in a state of chronic inflammation, and that any fluid injected into them causes pain by its mere presence and should, therefore, be introduced very slowly until anesthesia has been acquired. I have been astonished at the amount of pain patients have complained of when the local anesthetic was being introduced, unless very slowly injected. A short distance above the anorectal junction little pain is experienced if the fluid is injected under the mucous membrane only, since these structures are poorly supplied with sensory nerves.

After the fluid has been injected, the patient is free from pain for about fifteen minutes, and then a burning or rather aching sets in which is very annoying to some patients. One cannot avoid observing the marked difference in the amount of pain, or toleration of pain in various patients. As a rule, as soon as the injection is completed, a half grain of codeine and five grains of aspirin are given. Then the patient lies down and hot applications are made until there is relief. This may take fifteen minutes to an hour or, if a large injection is given, the patient may complain of soreness and more or less aching for two or three days. The phenomena which follow the introduction of hydrochloric acid into the tissues in this locality, are so variable that it would take a lengthy article to give a meager description of them. If the injections are given high in the rectum and surrounding tissues, I have observed that there is much less tendency to pain, and do not inject more than two thirds the amount of novocain used in the lower anal and rectal tissues. If the patient is not in a hospital, he should not be allowed to leave the office except in the care of some one, and only a short time should elapse until rest may be possible. More recently I have been inclined, as stated before, to give larger doses; and often I believe it is advisable to give a large dose first either anteriorly or posteriorly, and the day following in the other site; and the lateral injections may be given in the same manner.

I use needles varying from three to six inches in length in much of the work, the very long ones being large and specially made, but those of regular hypodermic size are employed when injections are used under the

skin. The ordinary glass syringe of 5 to 10 c.c. capacity is usually employed. The injection of any fluid into dense fibrous tissue with an ordinary syringe is almost impossible, and it will be found advisable to inject near the periphery and proximally in fibrous strictures. I feel sure that a heavy and powerful syringe can be made, whereby fluids can be forced into the very center of fibrous masses. The mechanical effect is itself of great benefit, and the dissolving properties of the acid, when forced into fibrous structures, has been astonishing. In old cases of pruritus ani the skin is tough and very difficult of injection, but the disease will disappear much more readily, if the fibrous structure itself is infiltrated with the solution.

In the treatment of pruritus and the various infections about the lower bowel, it is very important that the patient employs also daily injections of various astringents and antiseptic solutions. Argyrol, retained in mild solutions and small amounts, aids greatly in many cases. If a careful study is made of all cases of pruritus, it will be found that they are secondary to a colon infection of the mucosa, with usually a production of more or less mucus. When these patients eat certain foods, they often have the itching increased, dependent, of course, on a phase of indigestion which increases the bacterial activity, flow of mucus, etc. When the digestion is nearest perfect, bacterial activity at a minimum, and mucus least in amount, the pruritus is in its most quiescent state.

VARIOUS CONDITIONS IN WHICH HYDROCHLORIC ACID HAS BEEN
EMPLOYED.

Pruritus Ani. It is important that we observe the numerous stages and varieties of pruritus ani. In what we might term the simple forms or early stages, the disease is not deeply seated and the itching not so persistent or severe. The tissues chiefly involved are the anorectal junction, the anal canal and the skin surfaces at the external margin. Of course, this variety is much more easily treated than more severe infections.

There is a variety of pruritus in which the entire rectal wall, the connective and cellular tissue surrounding the rectum, and the structures comprising the pelvic floor are involved. In cases, where the disease is so extensive, the anal muscles are free from spasticity, hypertrophy and irritability. All the rectal tissues in this type of infection are soft and free from any tendency to active inflammation or fibrous deposit. This holds true in all the tissues involved, including the skin and the structures interposed between the mucosa and skin. The needle, when puncturing any of these tissues, meets but little resistance and sometimes scarcely more than if passing through jelly.

Another very different variety is the type of infection where there is marked tendency to the deposit of fibrous tissue. Here the anal muscles are contracted and hypertrophied and, when a needle is introduced into the anal canal, the tissues are firm and resistant. The same kind of deposit is observed when the needle penetrates the rectal mucosa low down, and the skin is very thick and dense, and, in some cases, whitish and almost as impenetrable as leather.

There is one statement I wish to refute with great emphasis, and that is that rubbing or scratching is responsible for the thick, parched, leathery condition of the skin, whereas some of the worst of these are luetics. The cases with considerable discoloration of the skin, with moderate folds and with fibrous tissue deposits in moderate degree, represent the ordinary type of infection as we see it, and the infection is most likely due to specific organisms working in conjunction with other influences, as other bacteria, lues, tuberculosis, etc.

Destruction of Fibrous Deposits. I have injected this solution into fibrous rectal strictures, and, while its action is slow, the effect cannot be denied. My present knowledge would indicate that the hydrochloric acid has some dissolving influence on such deposits. I feel sure that the solution would be much more effective if it could be forced into fibrous masses, separating the fibers by force and leaving the hydrochloric acid to digest or dissolve them. It should be injected into the peripheral as well as the proximal tissues.

In a few cases I have passed the needle along fistulous tracts, where the walls were composed of dense fibrous tissue, and, by penetrating them at various points, have injected hydrochloric acid and succeeded in closing the sinuses. It is better to inject the fluid into the dense walls and then into the periphery.

The most absolute proof, I am capable of producing, that hydrochloric acid does dissolve or dispose of fibrous tissue, is the case of a patient who was treated for pruritus ani by x-ray in March 1921, producing serious burns of the buttocks. I first saw the patient last September. He had been in the hospital nine weeks with no relief, and was an invalid, and so great a sufferer that morphine was necessary to relieve him. His nerves were in a deplorable state, and he was, it appeared to me, in a hopeless condition. Some one suggested, since no treatment had given any relief and the patient was growing worse, that all the diseased tissues should be excised. By introducing a long needle at a few points I found the dense fibrous masses extended quite to the bone and much further back and forward than the skin lesion showed. Surgery was not a procedure that could be considered. I had treated a few x-ray burns, and had no hope of doing the patient permanent good; but, to try to relieve his pain, I put him on a

commode half filled with hot water and added to it tincture of opium and compound tincture of benzoin. This did afford a lot of temporary relief but, of course, did little, so far as could be observed, to effect a cure.

While in a state of ignorance as to what might be done to help this pitiable sufferer, it occurred to me that I had used hydrochloric acid successfully in reducing fibrous structures. As there was nothing, which I knew of, which offered any more hope, I decided to try hydrochloric acid. To settle the question as to its value I injected one side only, and it was a most difficult task, for I could find no syringe which would satisfactorily stand the immense force required to deposit the fluid even in small quantities in the fibrous tissues. The patient was kept in the hospital for two months, when he returned home, and it appeared that the lesion had been reduced about one-third. He returned to the hospital about one month later to report. The wound, which had been treated, was almost healed, while the untreated side was practically the same in size as it was when I first saw it. I then knew I could cure the other side, which has been practically effected. The patient resumed his former duties, that of a bank clerk, in April, and has regained his normal weight and feels quite well.

Chronic Infection of Anorectal Tissues. This is one of the most frequent and difficult conditions with which we have to deal, and, in almost every instance, can be traced to earlier infections in the alimentary tract, which may have been as early as in the patient's infancy. It is not at all infrequent, when infants are affected with diarrhea over a considerable period of time, or when they have a great deal of trouble with indigestion, for the infection to extend to the rectal and anal tissues, and there to remain through the child's life into manhood or womanhood. These patients are most commonly constipated, or may have, especially during the summer season, attacks of diarrhea, and later on fissures, ulcers and anal papillae are frequently observed. These types of pathology occur as the result of low grade chronic affections of the tissues. I have found that, by injecting them thoroughly with hydrochloric acid, the anal muscles become less irritable and therefore reduced in size, constipation is remedied, and nervousness relieved. I have repeatedly injected the acid through the skin under anal fissures and ulcers with the effect of obtaining complete relief. I do not recommend or propose to argue that this is the preferable method of dealing with such pathological conditions but give these experiences, embodied in my report, as evidence that hydrochloric acid has a marked influence on the low grade infections which are so frequently found in the lower portion of the rectal and anal structures.

Piles. These have been treated with hydrochloric acid, and repeatedly have been reduced or have entirely disappeared. The injection of the fluid is made freely, not into the hemorrhoidal masses, but beneath them. It was a revelation to me, when injecting into exceedingly large hemorrhoids, to observe the manner in which the fluid distended the rectal mucosa. I have often injected from 40 to 50 c.c. of novocain with an equal amount of hydrochloric acid, and, when introducing the finger into the rectum, found the mucosa distended in a linear direction as far as I could palpate. The most successful case, which I have treated by this method, was a man, 54 years of age, who had an immense prolapse with hemorrhoids. When under the influence of fatigue the entire hemorrhoidal mass protruded, it was impossible for him to reduce and keep it in position until he had lain down for a brief period. This patient had four injections at intervals of about eight days. After the first injection, within five or six days, there was barely any tendency to protrusion, and after the second injection there was no intimation of it, and examination showed last week that all the redundant tissue had disappeared.

Bleeding Hemorrhoids and Granular Tissues at the Anorectal Junction. These can be absolutely controlled by injection with hydrochloric acid. As an illustration of the spectacular results from this treatment, I will cite the instance of a young woman who had been having daily, for more than a month, hemorrhages, which occurred most profusely when the bowels acted, but often between the acts. The blood was bright red, and the source could be easily seen. Various astringents had been used without result, whereas a single injection of the acid around the ring of anal tissues promptly relieved her, and there has been no sign of bleeding to this date, two months later.

Reflex Pain. This is often due to disease in the region of the rectum and anus. I believe that we will soon be able to prove without question that lumbago, pains reflected into the hips, sciatica, bladder irritation, etc., are due to deep infections in these tissues, and that they can be relieved by the proper injection of hydrochloric acid. Time will not permit me to relate some astonishing results which I have observed in such cases, after treatment with the acid.

Rectal Prolapse in Adults. In children, except in cases where there are complications, such as stone in the bladder, polypus, etc., prolapse in children is very easy to cure; but in adults, a large rectal prolapse is difficult to cure. I have treated two cases of this in men who were previously operated on without success. After the experience, which I have related in treating hemorrhoids, it occurred to me that proctentia recti might be successfully treated by the same method. One case in the Louis-

ville City Hospital had been operated on a year previous without relief, and I decided to experiment on him with hydrochloric acid. Here again I was greatly surprised to find that the tissues, when the long needle was introduced high, literally drank up the fluid with no tendency to tumefaction. This patient had an irrigation every morning and the bowels acted while in the recumbent posture. After the first injection, three and half months ago, the bowel never prolapsed, but for a week or two there was a sensation of fulness in the lower rectum when the bowels acted. He had six treatments at intervals of one week. About two weeks ago his elder brother, who lives in Michigan, came for him, and at that time he was occupying the normal sitting posture when the bowels acted with no sign of prolapse, and stated that he felt normal.

The second case was of more interest because the patient was in a more vigorous, younger man, on whom an operation had been done and various other kinds of treatment employed. The prolapse was very large, and a moderate sized hand could have been introduced by the muscles into the rectum with but little resistance. He had a tendency to indigestion and was, in general, quite apprehensive and nervous. The first injection consisted of 20 c.c. of hydrochloric acid posteriorly, and 15 c.c. on either side and anteriorly, with an equal amount of novocaine. There was very little tendency to tumefaction, either low or in the tissues high up, and the fluids returned rapidly when the syringe was disconnected. As he had quite a tendency to constipation, a mild laxative was given and the bowels allowed to act in the recumbent posture. There was but little discomfort experienced after the first injection. Since he lived in another town and it was impossible for him to remain away a long time, on March 27th, 60 c.c. of 1-2,000 hydrochloric acid was introduced posteriorly, and 20 c.c. anteriorly and in either side. There was no tumefaction, but the entire rectal mucosa, as far as the finger could reach, felt boggy, and the skin was discolored for $1\frac{1}{2}$ to 2 inches around the anal margin. When the injections were completed, the skin was raised very perceptibly as far as the discoloration extended, which undoubtedly showed that the infection had invaded to this extent the entire thickness of the pelvic floor. As soon as the treatment was given, the patient became very nervous, restless, cold and clammy, with pulse very slow and weak, but complained of no pain, and was given whiskey and aromatic ammonia. In three or four hours he became hysterical and said he was going to die, but within six or eight hours he was comfortable. He remained in the hospital a few days and returned home feeling quite well. Since the first injection the patient has never had the slightest feeling that the bowel was prolapsing at the time of defecation. He returned April 25th, and another injection of about 60 c.c. of hydrochloric acid

was introduced, from which he had little discomfort, and he returned to his home the next day. I telephoned him on the 16th of this month, and his wife reported that he was in Jacksonville, and was experiencing no trouble whatever. I might add that the patient's general condition was greatly improved in the interval between the first and second treatments.

Psoriasis. While treating a man from Texas, his wife asked what could be done for a psoriasis on her knee, of which she had complained for a long time but could find no cure. I suggested that we might try hydrochloric acid and the treatment was given. That was last August, and last week she wrote me that she was entirely relieved. I had a second case of psoriasis last November in a woman from Ohio. Hers was on the arm, was of a more acute variety, and was giving her a great deal of trouble. We injected hydrochloric acid, and she was relieved of the itching promptly, but had chilliness, aching and temperature. I heard from her a few days ago that she has never had any symptoms since the treatment.

There are three other phases of this subject in which I am much interested.

The *first* is that chronic state of disease, affecting the anal tissues and those at the anorectal junction, in which we have skin tags, irritable, hypertrophied muscles, fissures, ulcers, constipation, reflex pains, bleeding from granular surfaces, nervousness, etc., I feel sure that hydrochloric acid or other agents may be injected into these tissues and give relief. Constipation, hemorrhage and, in fact, all the symptoms I have just mentioned have been relieved frequently by injecting the acid. There is no doubt about our overlooking these low grade infections and failing to cure a large percentage of sufferers, which we could easily avoid by this treatment.

The *second* is chronic disease in the deep rectal structures in front of and to the sides of the coccyx and sacrum. I have under observation now a patient with pain in the sacroiliac region in addition to extensive disease in the rectal outlet, who has afforded a source for much speculation. In this case the needle was introduced in front of the lower sacrum, and, when the syringe was detached and the needle left *in situ*, the fluid streamed out. She has now had three deep treatments and is entirely relieved of her back or sacroiliac symptoms. Another patient who had lumbago was completely relieved by four injections. Still another case, which is of much interest, showed fistulous tracts extending from the rectum to near the head of the right femur. He had a great deal of pain extending into his leg below the knee, which has been relieved by curing the sinuses with bismuth.

All this leads us to wonder what backaches, lumbago, sciatica, etc., are really due to, when there is no evident cause.

The *last*, which I will mention, and one of the most interesting observations I have made, is the frequent burning and desire to void, especially in women, due to unsuspected disease in the anterior rectal wall adjacent to the bladder and urethra. This disease is also a frequent cause of nocturnal micturition in children, and I now have two boys under observation thus affected. No genitourinary disease in the anterior rectal wall can be found in most of the cases. If one will look for these cases he will be surprised at their frequency and the relief that can be given by injecting hydrochloric acid.

In conclusion I wish to say that I have endeavored to report my observations on the injection of hydrochloric acid over a period of almost three years. It has been by far the most interesting, and, I might say, exciting experience of my professional life, and hardly a day goes by that some new phase of the subject does not unfold itself. Primarily hydrochloric acid was injected for the relief of pruritus ani, and success in this treatment led to the use of the remedy in other conditions, and thus the story developed.

THE ETIOLOGY AND PATHOGENESIS OF ANAL PRURITUS AND PRURITUS ANI.

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Disregarding for the time being the question of whether we are dealing with a symptom or a disease, and proceeding under the assumption that this condition is an actuality and not merely a hallucination existent only in the patient's mind, we find, upon consideration, that we are dealing with a certain sensation of irritation, which is projected in consciousness to a very definite area of the body. This area consists of the terminal three-quarter inch of the anal canal, the mucocutaneous margin and an elliptical area of perianal skin, which extends two and three-quarter inches anteriorly and posteriorly from the center of the anal orifice and two inches laterally on both sides from the same point. This is the area in which or throughout which the conditions under discussion play havoc, and, inasmuch as the symptoms are clinically uniform throughout this zone, I am going to refer to it, for the sake of convenience, as the *pruritic zone*.