SOME AFFECTIONS OF THE FEMALE BLADDER.¹

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THE Kelly cystoscope brings all parts of the bladder, the openings of the ureters and the urethra under the eye, so that we actually see the disease before us. Through the cystoscope we may make applications to ulcers of the bladder; we may touch, for instance, tubercles with nitrate of silver; we may remove foreign bodies and small calculi. Diseases of the bladder itself are, therefore, amenable to local treatment. The urine can be drawn from each kidney, and can be examined with reference to the working efficiency of each; this is particularly important when the question arises of removing one kidney for disease, for it can be determined with accuracy just what the condition of the opposite kidney is, thus eliminating the possibility of removing a diseased kidney when the opposite one may be equally affected.

In a case recently seen with Dr. S. Breck this question arose. It was in the case of a young unmarried woman who had had pain in the left lumbar region for some time with pyuria. She was much reduced in health. Both ureters were catheterized, and urine collected from each. There was pus from the right kidney as well as from the left, showing that both were affected. This altered the aspect of the case.

Kelly relates the case of a woman who had been suffering from indigestion, headache, a sense of pressure in the bowels and pyuria. The right renal pelvis was catheterized with a long catheter; thirteen cubic centimetres of urine flowed in two minutes; normally only one cubic centimetre of urine flows in two minutes. This showed obstruction at the pelvic outlet. Suction with an aspirator brought away some pieces of uric acid and the end of the catheter was scratched, so that there was no doubt about the diagnosis. She was operated on, and a renal calculus of small size removed by lumbar incision.

In another of Kelly's cases there was stricture of left ureter with pyo-ureter above it. She was cured by passing bougies, and washing the ureter with bichloride solution, but there was trouble in keeping the stricture open. A most important feature of the Kelly ureteral catheters is the feeling of safety they give when *in situ* during a hysterectomy, either abdominal or vaginal. The catheter can be felt throughout the operation and there is consequently no danger of wounding the ureter.

The cystoscope has brought out from obscurity many diseases of the female bladder, some of which have heretofore been ascribed to the vague action of the reflexes, or classed as *neuroses*. The picture of a nervous woman broken down in health, suffering from irritable bladder, is a familiar one. When no apparent cause for this condition was present, the physician was easily led into the error of mistaking cause for effect and of attributing the irritable bladder to a manifestation of an irritable nervous system. The urine in these cases might be quite normal. The cystoscope has shown that these "functional diseases" have almost without exception a definite pathological condition which is amenable to treatment. The diagnosis of bladder affections without the cystoscope has been particularly difficult because the magnitude of the

lesion may have no relation to the severity of the symptoms. For instance, in one case the bladder was found to contain numerous ulcers, some at the fundus, some at the ureteral orifices, besides these there was a cheesy mass occupying the site of the right ureteral orifice—and yet the only symptom complained of was occasional bloody urine. Next to this case may be placed another in which the woman was tortured night and day by a harassing desire to urinate constantly. Her sleep was disturbed, she could do no work, and she was reduced to a state of invalidism. Yet the cystoscope showed only a hyperemia of the vesical neck and trigonum. In another case of acute post-operative cystitis the only symptom was the presence of large amounts of pus and mucus in the urine. On examination with the cystoscope the trigonum was seen to be of a bright, glistening, purplish-red hue, while the rest of the bladder showed here and there patches of dilated blood-vessels which stood out in bold relief; no part of the bladder was exempt; the fundus, however, was least affected. The point of interest was that there was relatively no inflammatory appearance about the neck of the bladder the most sensitive portion; this probably accounted for the absence of the usual symptoms, tenesmus and frequent micturition.

The urine is retained in the bladder by two separate forces, the reflex contraction of the muscles of the sphincter and the elasticity of the sphincter itself. When the sensibility of the bladder is exaggerated by inflammation or hyperemia, the reflex impulse to micturate is increased in intensity, producing intolerance of urine or irritable bladder. Under these circumstances the urine has to be discharged by a reflex act as soon as it has accumulated in small quantity in the bladder. The impression which excites this discharge is accompanied by a sensation, but may be too urgent to be resisted by the will; in any event it can be held back but a short time. The most sensitive portion of the bladder being the vesical neck, as it is most abundantly supplied with spinal nerves, it is readily seen that apparently insignificant lesions may cause intolerable suffering. This brings us to the consideration of a very common affection of the bladder which may be called "hyperemia of the vesical neck and trigonum." It is a very common affection and may give rise to a degree of suffering which is not in proportion to the magnitude of the lesion. It may cause the nervous break-down of the strongest constitution. Hyperemia may affect the vesical neck, the trigonum, the urethra, or all three. As a rule the vesical neck is the usual seat. Not only is it obscure in its cause but it is likewise most difficult to treat and will sometimes resist every known therapeutic agent. The following is a typical case of this affection and illustrates exceedingly well the different phases of the disease:

Mrs. W. was a woman thirty-three years old who had been delivered of five children, the youngest being ten years old. From the time of the last confinement, when she had septicemia in a severe form, she was never well. Constant pelvic pain, exhausting and frequent hemorrhages and leucorrhea reduced her to an invalid and made her life not worth living. During the ten years of her illness she had repeated attacks of pelvic-peritonitis which confined her to bed for days at a time. I did a vaginal hysterectomy by Pean's method of morcellation, last September, removing a large uterus and ovaries and tubes enlarged to three times the normal size by inflammation. She recovered

¹ Read before the Gynecological Section of the Massachusetts Medical Society, March 25, 1896.

well from the operation and was up in three weeks. At once she had trouble with the bladder. She had frequent micturition and dysuria, the pain occurring during and after the act. This is contrary to the usual rule; for in most cases of hyperemia pain is absent, there being only increased frequency and an irresistible desire. The pain did not last long with her, and in a few weeks it disappeared. She was obliged to urinate every half-hour during the daytime, and during the night she got up seven or eight times or more. Under these circumstances, with broken sleep and constant suffering, it is not surprising that she developed a condition of extreme irritability, which manifested itself by attacks of crying, profound mental depression, loss of appetite, and violent outbursts of temper. The urine was now examined, and *was found to be quite normal, without pus or other abnormal constituent* (later she developed oxaluria, however).

Here, then, was a case which formerly would have been classed as a functional disease of the bladder dependent on an irritable nervous system. The patient was examined under cocaine with the cystoscope three weeks after she had left her bed. The whole urethra was of an intensely scarlet-red hue, and likewise the neck of the bladder and trigonum; there were no superficial erosions of epithelium. On vaginal examination there was found a tender cicatrix in the right broad ligament about the size of a pigeon's egg. The treatment began by making applications of silver nitrate, three per cent., to the neck of the bladder and urethra, and giving bipolar vaginal faradic electricity. This, with tonics and the various diuretics has been the treatment. The result has been decidedly unsatisfactory so far.² She is still troubled by frequent micturition and in addition has partial incontinence of urine. A curious phenomena in her case is aggravation of her symptoms at the end of each month, the time of her former menstrual period. It lasts a few days and then subsides: she is feeling best in the middle of the month. It is worth mentioning that her incontinence appeared three weeks after a cystoscopic examination, so that it had no relation with this. The incontinence may be looked upon in her case as a later stage of the disease when the sphincter can no longer perform its function. Among other things that were tried was the treatment with Clark's balloons. By this method a rubber balloon smeared with ichthol is introduced into the bladder and blown up; the ichthol comes in close contact with the inflamed areas and it is claimed is more efficacious than when simply applied with a cotton stick. The balloon caused intolerable suffering and had to be discontinued. She has most relief when lying on a sofa with her head low and her feet elevated.

Besides this case of vesical hyperemia I have had, up to the present time, five others, making six in all. The complicating diseases were respectively, anteversion, retroversion (with pessary), two of endometritis, and a case of general subinvolution after confinement. One of the endometritis cases was really a case of subacute cystitis, for which a vesico-vaginal fistula was made with entire success, the local treatment having failed. This case was distinctly traceable to catheter infection three years before. A most faithful trial

of Kelly's treatment was made, extending over a period of four months without any appreciable success. This leaves us, including Mrs. W.'s case, five to analyze. In one only was a complete cure effected. It was the case of subinvolution. When she came under treatment she was urinating every hour in the daytime and got up three times each night. She had intense vesical hyperemia affecting the neck, which was made to disappear in four weeks by applying solutions of nitrate of silver alternating with glycerite of tannin to the neck of bladder. The other four cases were much relieved, but not cured. Applications in all cases were beneficial, and relieved for a certain time.

The failure to cure these cases suggests that the vesical hyperemia is part of a general pelvic hyperemia dependent on the primary disease. The vesical irritability is due to a hypersensitive condition of the vesical neck produced by the congestion at this point. This seems reasonable when the intimate anastomoses between the uterine and vaginal arteries with the vesicals are considered. The primary pelvic lesion causes pelvic congestion which involves the vesical neck. The constant desire to urinate intensifies the pelvic congestion; and so a vicious circle is established. This may explain the chronicity of the affection. In many cases of vesical hyperemia rectal hemorrhages are observed; they are always beneficial and act by relieving congestion. In one case recently observed severe vesical irritability after operation at once ceased with free catharsis.

Thinking that perhaps the catheter might be responsible for vesical irritability after operation, an analysis of 43 cases was undertaken.³ These cases were individually closely followed.⁴ Of these, 22 had no subsequent bladder trouble, and 21 did. Of the 22 cases in which there was no trouble after operation, 13 had had vesical irritation before operation, which ceased as soon as the operation was done. The operation therefore seemed to have a beneficial effect. Of the 22 cases the catheter was used in 10. In the 9 cases in which there had been no previous bladder trouble, the catheter had to be used only three times. In the 21 cases in which there was vesical irritability after operation it was found that all, with a single exception, had had previous vesical disturbance; the catheter was required in 14 of these cases.

To sum up, out of the 43 cases, 33, or 76 per cent., had had previous bladder trouble. *This shows the frequency of vesical irritation in pelvic diseases.* In the 10 cases in which there was no previous bladder trouble the catheter was required in four cases; no irritation followed. Of the 33 cases, in 24 the catheter was used. Looking at the 22 cases in which no trouble followed operation we find 10 in which the catheter was used. This is certainly evidence that the catheter does not cause irritation. Looking now at the other 21 cases we find the catheter was used in 14. They were either better or no worse of their irritation after operation with the exception of six, and these six all suffered severely from bladder irritability before operation. It seems to be a fair conclusion, therefore, that *the catheter, when properly used has no effect in causing vesical disturbance, and that it will be found that those having vesical irritability after operation are those who have had it before.* It is not argued

² This case was finally treated by making an artificial vesico-vaginal fistula. Entire relief followed, especially with reference to nervous symptoms.

³ Operative cases in Free Hospital for Women.

⁴ See article in American Journal of Obstetrics and Diseases of Women and Children, vol. xxxiii, No. 6, 1896, The Influence of the Catheter in Causing Vesical Irritability, Edgar Garceau.

that the catheter does not cause infection when improperly used. In three cases out of the 43, a distinct history of infection was obtained, dating in all three from retention of urine after confinement when the catheter was used.

The treatment of cases of vesical hyperemia is very unsatisfactory at times. Attention to the general health is of paramount importance. Digestion should be attended to, and, above all, the bowels should be kept freely moving in order to relieve the pelvic congestion as much as possible. It is needless to say that any coexisting pelvic disease should receive appropriate treatment. Local applications of nitrate of silver and in some instances of glycerite of tannin and ichthyol have been distinctly beneficial in my experience. Great relief will be given by the use of the fine coil of the faradic current; here the bipolar vaginal electrode may be used or one electrode may be placed over the bladder on the abdomen and the other in the vagina. In one patient this treatment was always followed by a good night's rest. If the urine is altered abnormally this should be corrected. The various diuretics and vesical sedatives I have tried, but the results have not been remarkable.

Finally, if the patient continues to suffer, absolute rest in bed with mild, unstimulating diet must be insisted upon. This measure will always be productive of good results. If it fails and the trouble continues, the question of artificial vesico-vaginal fistula is presented for consideration. In this we have a remedy which is astonishing in its immediate results. The relief given is most grateful to the patient. The very night of the operation she sleeps soundly and wakes up refreshed in the morning. The urine drains away through the vagina, and gives a much-needed rest to the irritable sphincter. After this operation the woman quickly recovers her lost nervous tone, is more placid and peaceful, and is not harassed by the continual desire to micturate which made her life a perpetual torment. The fistula must be left open a sufficiently long time and in cases of cystitis the pus in the urine must have entirely disappeared before the opening is closed. Another point to be emphasized is that the fistula must be made close to the sphincter, for if it is made high up near the cervix the urine pockets below it, and so the operation fails because the irritation is kept up as before, the drainage being imperfect.

Pregnancy need not be considered a contraindication to this operation; on the contrary, the occurrence of pregnancy may so intensify the symptoms from the increased hyperemia as to render the operation imperative. This was so in the case of cystitis already referred to, in which I made a vesico-vaginal fistula. Her sufferings were intense and she insisted upon having relief. The operation was entirely successful, and the pregnancy (three months) was not disturbed.⁵ After the confinement, if the urine is normal, the fistula will be closed. She now washes out her bladder herself at home, twice a day with boracic-acid solution, using antiseptic precautions which were taught her before leaving the hospital.

In conclusion, a word may be said about the method of making examinations of the bladder. The most comfortable position is the dorsal for the patient; the examiner also will find it easier to work with the woman in this position. In the knee-chest position

the ureteral orifices are more prominent but if the examiner is near-sighted he will find it rather difficult to get close enough to examine properly on account of the cramped position he is obliged to assume. If ether is given, the dorsal position will be chosen for obvious reasons. I have found that ordinary daylight with or without sun is quite satisfactory, and that the illumination is amply sufficient. The table should be placed close to a window, however, in order to have the light as strong as possible. If artificial light is chosen, a good strong gas-light must be used, preferably an argand burner. If ether is given the greatest care must be exercised not to burn the skin; this is an accident that easily happens, and the burns are most annoying and may be very serious. If the ureter is to be catheterized the best place for the light, if gas be used, is at the side of the woman which corresponds to the ureter to be examined, and not on the abdomen as is usually done. The examiner stands not in front of the woman but on the side opposite to the light. If he examines her left ureter the light is on the woman's left side and he stands on her right. This brings the ureteral opening directly in a line with the light and the examiner's eye and avoids cramped positions; the illumination is much better as the light is reflected directly and not at an angle. For this idea I am indebted to Dr. Edward Reynolds, as he was the first to suggest it. The examination is made much easier by using it.

CASES OF ABDOMINAL SURGERY OCCURRING IN THE FIRST SURGICAL SERVICE OF THE BOSTON CITY HOSPITAL DURING THE FOUR MONTHS' SUMMER SERVICE OF 1895.

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(Continued from No. 8, p. 194.)

CASE 23. Primary cancer of the gall-bladder, secondary extension to the liver. Resection of the gall-bladder and a large portion of the liver. Recovery from the operation. Death two months later from extension of the disease.¹

January, 1895. The patient, a woman about fifty-seven years old, was in good health until sixteen months ago, when she had an attack of jaundice accompanied by colicky pain in the right side of the abdomen beneath the free border of the ribs. These symptoms only lasted about four days, but in the course of the next eight months she had six similar attacks, slight jaundice being associated with each one. The color of the stools was not noticed, but the urine was seen to be very dark at these times. No nausea or vomiting at any time. The last of these attacks occurred eight months ago. During the last four months the patient has lost flesh and has become very anemic.

Five weeks ago, for the first time, the patient noticed a hard bunch beneath the free border of the ribs on the right side of the abdomen; this she thinks has increased somewhat in size since then. She has slight jaundice and marked anemia. The urine is of high color, specific gravity 1.013, with a slight trace of albumin; the sediment contains a few red blood-corpuscles, hyaline and fine granular casts. In the right side of the abdomen, and most prominent beneath the tip of

¹ This case is published by permission of the writer's colleague, Dr. H. L. Burrell, to whose courtesy the opportunity to operate upon it was due.

⁵ She was delivered at the end of nine months, and the fistula did not complicate convalescence.