THE VALUE OF EYE-GROUND OBSERVATIONS IN RECENT CASES OF FRACTURE OF THE SKULL

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A rise in the intracranial pressure above normal as the result of cerebral hemorrhage or edema is usually one of the most damaging factors in cases of recent fracture of the skull.

While it is interesting to know the nature and extent of the fracture revealed by the roentgenograms, it is not as important from the standpoint of immediate treatment as the determination of an increased intracranial pressure, and this is frequently foreshadowed quite early by edematous changes noted in the fundus of the eye.

In three patients of the series studied, roentgenoscopy revealed a distinct fracture of the base of the skull with no signs or symptoms developing other than those following an ordinary concussion. Some of the cases of basal fracture, in which an extensive hemorrhage occurred from the ear at the time of injury (virtually a "natural" decompression), developed none of the signs or symptoms of an increased intracranial pressure.

Observations were made in 212 cases that were diagnosed as fracture of the skull in the service of Prof. William Sharpe, at the New York Polyclinic, with whom I have studied the eye-grounds in these cases for the past two and one half years.

When the recent cases are examined for the first time, that is, within twenty-four hours after admission to the hospital, there is usually found a general edema blurring equally all the details in the fundus of the eye, and this blurring may be slight, or sufficient to obscure greatly the usual landmarks. The venous twigs when visible are usually dilated out of proportion to the size of the accompanying arteries.

Frequent and careful observations are made while these patients are in bed. In cases uncomplicated by an increase in the intracranial tension, the retinal edema gradually subsides. Occasionally, in some of the routine examinations after the first twenty-four hours following the accident, we note either an increase in the general edema that previously existed, or, to the edema that heretofore blurred equally all details, there is a decided added edematous obscuration of the nasal half of the disk and its margins.

These observations are most valuable, because they are usually some of the earliest indications of a rise in the intracranial pressure, and just as soon as possible after their detection the measurement of the pressure of the cerebrospinal fluid at lumbar puncture by the spinal mercurial manometer is done to determine its extent. In nearly every such instance an increase in the pressure of the cerebrospinal fluid above normal was recorded.

Infrequently there is seen in some of the cases an edema occupying the entire disk the height of which is measurable with the ophthalmoscope (papilledema). In all of these cases the cerebrospinal fluid was found to be under higher tension than normal.

The degree of pressure of the cerebrospinal fluid at lumbar puncture recorded in a given case, and its

pressure effect on the cerebral cortex, are prime factors which must be taken into account in deciding the character of the treatment the condition requires.

Dr. Sharpe advises that all patients with fracture of the skull be placed in bed, kept absolutely quiet, free catharsis maintained, given a liquid diet, and an ice helmet applied to the head. If no signs of intracranial pressure develop, the foregoing treatment is all that is given; but if the intracranial pressure is slightly increased and up to nearly double the normal, then in selected cases repeated lumbar puncture may be performed, and the condition relieved. If, however, the cerebrospinal fluid is found both with the ophthalmoscope and at lumbar puncture to be double the normal and even more than double, and the pulse rate may or may not be greatly lowered from medullary compression, then he advises a simple cranial decompression to be performed for the relief of pressure and for drainage before a possible collapse of the medulla occurs.

An examination of the fundus of the eye twenty-four hours after a lumbar puncture or cranial decompression has been done usually reveals a reduction in the amount of the edema that had existed previous to these operations.

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SYPHILIS OF BLADDER *

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Syphilitic disease of the bladder has been considered a rare affection. In the older textbooks it is sometimes not mentioned at all or it is dismissed briefly or its existence is even denied. In the most recent works the disease is considered so rare as to merit only the briefest mention. Within the past sixteen years, however, a considerable number of carefully studied cases have been recorded in widely scattered reports. These furnish sufficient data for a fairly comprehensive clinical study.

The history of this affection falls naturally into three periods. The first comprises those rare observations on syphilitics coming to necropsy in whom ulcers, tumors, or perforations of the bladder were discovered and were considered syphilitic in origin. This period extends to 1879, when Prosch critically reviewed all the published cases up to that time. He found only six cases which could be considered definitely proved (Morgagni, Ricord [two cases], Virchow, Vidal di Cassis, Tarnowsky).

To the second period belongs a small number of cases observed clinically in which the diagnosis was confirmed by the disappearance of all symptoms following antisyphilitic treatment (Morris, Grivtsoff [two cases], Chezelitzer, Margoulies, Towbien). No direct examination of the bladder lesion was made.

The third period begins in 1900, when Matzenauer published the report of his case and described for the first time the cystoscopic appearance of tertiary syphilis of the bladder. During the past sixteen years the number of observations has rapidly increased, so that up to the present time about forty cases have been reported. In 1909 it was shown that the bladder is

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involved in the secondary stage. According to Levy Bing, a systematic examination of the bladder during the secondary stage of the disease will reveal that a more or less characteristic erythema, resembling the roseolar rash on the skin, and also superficial ulcerations are not rare. As these produce few or no symptoms they may be easily overlooked without a routine cystoscopic examination.

REPORT OF CASE

History.—N. G., boy, aged 19 years, came to the clinic complaining of frequent and painful urination, and passing bloody urine. His past history was unimportant. There was no history of syphilis or gonorrhea. For the previous three months the patient had had to pass urine frequently, night and day. On an average he got up eight times at night to void, and he urinated every ten minutes during the day. Marked pain in the perineum and along the urethra accompanied each urination, and the pain persisted several minutes after the act. At times the urine was quite bloody; at other times it was only slightly tinged with blood.

Examination.—The patient was a healthy looking young colored farmer boy presenting the facies characteristic of a painful urinary disorder. The chest and abdomen were negative. The external genitalia were normal. The urine was uniformly turbid, owing to the presence of pus, bacteria and red cells. It was slightly acid in reaction, and the specific gravity was normal. There was a slight cloud of albumin, but there were no casts. There were no scars on the penis or other evidences of healed cutaneous lesions. The inguinal axillary and epitrochlear glands were definitely enlarged. This glandular enlargement without apparent cause aroused suspicions of syphilis, and suggested the possibility of a syphilitic infection of the bladder. A Wassermann test was made and reported as strongly positive.

Cystoscopic Examination.—This was painful despite the free use of cocaine. There was a marked general cystitis. All markings of the vesical mucosa were completely obscured. The mucous membrane was of a uniform rose color and had the appearance of a curtain of uniform color spread out over the inner wall of the bladder. It was difficult to locate the ureteral openings. Just to the outer side of the right ureteral opening was a single small ulcer, which was bleeding. It was about 1 cm. in diameter, with an irregular outline and an inflamed base. No other ulcers could be seen. The appearance of the ulcer suggested tuberculosis, but no tubercles could be found in the bladder, and the urine was negative for tubercle bacilli on repeated search.

Treatment and Result.—It was decided to apply the therapeutic test without any other form of treatment whatever, either local or general. Salvarsan, 0.6 gm., was given intravenously. The following day the patient noticed a definite decrease in frequency of urination. The improvement was continuous and rapid, and in a week's time the patient was able to retain the urine for three hours with little or no pain on urinating. A second injection of salvarsan was given, followed by mercury by mouth. Cystoscopy three weeks later revealed a remarkable change in the bladder. No trace of the ulcer could now be found. The ureteral openings appeared normal. The peculiar appearance of the mucosa had entirely changed. Normal markings of the mucous membrane were now clearly distinguished, with here and there discrete patches of inflammation such as one sees in an ordinary cystitis of a mild degree. No local treatment had been given previous to this examination. The urine was still turbid, owing to the presence of bacteria, pus cells and an occasional red cell. The improvement in the patient's condition was most striking. He was now able to retain his urine for three or four hours without discomfort, and voided without the marked pain and tenesmus of which he complained when he came under observation. His condition was so satisfactory that he insisted on going home to work, as he declared he was perfectly well.

COMMENT

There are several points of interest in the foregoing case report. The symptoms were those of a severe cystitis coming on without apparent cause. The urine showed an acid total pyuria, together with red cells and bacteria. The condition suggested tuberculosis of the urinary tract with a secondary infection, probably colon bacillus. Repeated search for tubercle bacilli, however, was negative. There were no changes to be made out in the epididymides, vesicles or prostate.

It so happened that I was looking for a case of syphilis of the bladder at the time. The general glandular enlargement aroused my suspicions of syphilis, and these were strengthened by a strongly positive Wassermann test. Cystoscopy revealed, in addition to a solitary ulcer about the right ureteral opening, a peculiar appearance of the mucous membrane such as I had never seen before. But there was nothing about the cystoscopic findings which I could consider characteristic of syphilis. Certainly the ulcer might easily have been mistaken for tuberculosis. I could not, as a result of my examination, say that the bladder lesion was syphilitic. It was determined, therefore, to put the patient on antisiphilitic treatment and to watch the effect of this on the symptoms and the vesical lesion. I was careful to avoid any local treatment whatever, or any internal medicine to relieve the symptoms. The marked and prompt improvement in the symptoms and the ultimate disappearance of the vesical lesion following salvarsan alone seems to justify the diagnosis of syphilis. It is of interest to note that no history of syphilis was obtained in my patient. This only serves to emphasize the point to which attention has so often been called, namely, that the history in many of these cases is thoroughly unreliable.

• ETIOLOGY

Lesions of the bladder occur during the secondary and tertiary periods of the disease. In the parasymphilitic diseases the bladder is commonly involved, notably in tabes. Age and sex have no influence on the development of the bladder lesions. As tabes occurs more frequently in males, however, the associated bladder disturbance is more often observed in this sex. Although more common in middle life, cases occurring at the two extremes have been observed: at 4 years (Tarnowsky) and at 66 years (Gayet and Favre¹).

The secondary lesions usually appear within a few months after infection, and are generally accompanied by lesions of the skin and other organs. Tertiary lesions, on the contrary, appear after a much longer period, up to twenty-five years. The bladder lesion may be the only evidence of the disease. In other cases the active syphilitic lesions of other organs or healed scars may be found. The majority of cases so far recorded belong to the tertiary period. It is quite probable that involvement of the bladder during the secondary stage would be observed more frequently if a routine cystoscopic examination were made. The occurrence of mild symptoms of cystitis during this stage is easily overlooked. These are attributed to the usual causes and their relation to a specific infection is not considered, particularly as they disappear under salvarsan and mercury.

1. Gayet and Favre: Jour. de Urol., 1915, 6, 152, three illustrations in color.

SECONDARY SYPHILIS

Nine cases of secondary syphilis of the bladder have been reported—six males and three females. The youngest was a child, aged 4 years, having been infected by its nurse. At necropsy extensive ulcerations of the mucous membranes, including bladder and urethra, were found. The liver was syphilitic. In all cases the bladder lesions were accompanied by secondary syphilis elsewhere—skin, mucous membranes, etc. Macules, papules and ulcerations have been described. Duroeux has described a macular eruption resembling roseola of the skin. In Fenwick's case (postmortem), papules were disseminated over the bladder mucosa resembling condylomas. The ulcers are usually multiple, from two to twelve, rounded or oval, superficial, with a slightly elevated edge and a necrotic base. They occur more frequently about the ureteral orifices, but may be found in other parts of the bladder. The adjacent mucosa is edematous, hyperemic, and the vessels are injected and prominent. The remainder of the bladder appears normal.

The symptoms of the secondary stage vary with the location and character of the lesion. In the case of Levy Bing there were absolutely no symptoms referable to the bladder, and the vesical lesions were discovered during routine cystoscopy. With ulceration at or near the vesical neck, symptoms of cystitis more or less acute are observed. Frequency, urgency, and tenesmus may be marked day and night, and are not influenced by rest. Pain is then a constant symptom referred to the suprapubic area or perineum, and radiating along the urethra, to the rectum and to the lumbar region. Hematuria when present is never profuse and is always terminal. The bladder capacity is reduced, and varies with the intensity of the symptoms.

The urine is often clear. In the presence of infection it is turbid, owing to the presence of pus and organisms. It may be bloody from the presence of red blood cells. The presence in the urine of the spirochete has been reported, but this observation has not been confirmed.

TERTIARY SYPHILIS

By far the greater number of cases of bladder syphilis so far observed belong to the tertiary stage of the disease. This may be due to the more pronounced symptoms associated with tertiary vesical lesions. Attention is thus directed to the bladder, and examination reveals the specific nature of the trouble.

Gummas of the bladder develop insidiously like all new growths, and in the early stages produce little or no disturbance. Urination is slightly more frequent and associated with mild discomfort in the region of the bladder, in the perineum, or in the urethra. Hemorrhage, sudden in onset and profuse, may be the first and only symptom noted. More often symptoms of cystitis develop and increase rapidly in intensity.

Hematuria is the most constant and most striking symptom of tertiary bladder syphilis. It closely resembles the hemorrhage of new growth of the bladder. It appears suddenly without pain, and is uninfluenced by rest or posture. It may continue for days or weeks and gradually subside, only to recur after a longer or shorter period. Complete retention may result from the formation of clots within the bladder. As a rule, hematuria increases with the duration and progress of the disease. Exceptionally it may be absent altogether.²

Pain is an inconstant symptom, and varies with the location of the lesion and the presence or absence of infection as a complication. In Simons's³ case the patient complained of a dull dragging pain in the hypogastrium which had existed for two years. At first intermittent, it became constant day and night, and increased as the bladder filled. In some cases, pain is a marked feature of the clinical picture. It is likely to be more severe at the end of urination if the ulceration is located at the bladder outlet, and it is accompanied by violent tenesmus. Frequency of urination is a disturbing symptom in most cases. Slight at first, it rapidly increases until the patient voids every few minutes with pain and tenesmus. While the symptoms in advanced, long standing cases are very severe and distressing, the absence of marked symptoms in the presence of severe bladder lesions in the earlier stages is noteworthy. The development of the more acute symptoms probably coincides with the degenerative changes in the gummas, and ulcer formation. Often the bladder lesion is the only evidence of syphilis to be discovered. In the absence of a definite history, the specific nature of the disease is not suspected.

CYSTOSCOPIC APPEARANCES

As viewed by the cystoscope, two varieties of lesions occur: gummatous ulcerations and papillomatous growths. The former are more common; the latter are rare. They occur separately, but may exist together.

Such ulcers are formed by the breaking down of a gumma of the bladder at its center. They are usually multiple, there being one to three which are rounded or oval, and which vary in size, the largest being from 1.5 to 2 cm. in diameter. They are elevated above the bladder wall, projecting into the bladder cavity. They present a punched-out appearance with irregular borders and a grayish necrotic base. On the base of the ulcer one sometimes observes the necrotic material detached in places, leaving a red, nodular surface which bleeds freely. The surrounding mucous membrane is edematous, hyperemic and dark red or livid in color. The vessels are markedly injected and prominent.

The papillomatous lesions are very rare. In Margoulies' case (Case 1) there were three small growths the size of a small bean situated close together and located on the base of the bladder just outside the ureteral orifice. The appearance of these growths suggested cancer of the bladder, and an operation was advised. It was by mere accident that the operation was not performed, and iodid was administered. Prompt disappearance of the lesions followed.

Gayet and Favre¹ report a case (Obs. 2) of sclerogumma of the bladder and prostatic urethra. The bas-fond was elevated, thickened and reddened, and indurated. The fiery red surface presented a few small ulcers and numerous fissures giving the appearance of cerebral convolutions. The general appearance resembled that seen in cancer of the cervix which has involved the bladder wall. The same character of lesion is described by Picot.⁴

Syphilitic lesions of the bladder, both secondary and tertiary, develop slowly and show no tendency to heal spontaneously. The long duration of symptoms in the reported cases is a striking feature of the clinical his-

2. Picker, R.: *Ztschr. f. Urol.*, 1913, 7, 192.

3. Simons, Irving: Case of (Syphilitic?) Ulcer of the Bladder, *THE JOURNAL A. M. A.*, June 21, 1913, p. 1943.

4. Picot: *Jour. de Urol.*, 1912, 2, No. 5.

tory. The secondary lesions are superficial. The tertiary involve the deeper layers of the bladder wall, and unless arrested may result in perforation. Such perforation, developing rapidly and involving the peritoneal surface, may terminate in fatal peritonitis. If the process develops more slowly, a loop of bowel may become adherent to the bladder, and perforation into the bowel occurs. Thus syphilis is one of the etiologic factors in the production of vesico-intestinal fistula. Vesicorectal or vesicovaginal fistula may result from the perforation of the bladder base.

TREATMENT

A striking feature of bladder syphilis is its prompt response to specific treatment. This is characterized by the immediate subsidence of all symptoms and the gradual disappearance of the vesical lesions. On the other hand, the measures usually employed in the treatment of ordinary cystitis have no influence whatever on either the symptoms or the lesions.

Profuse and persistent hematuria, which is often the presenting and predominant symptom, quickly subsides and disappears completely in a few days after the beginning of treatment with mercury or after the administration of salvarsan. No less striking is the prompt subsidence of all signs of vesical irritation, frequency, urgency, tenesmus, and a gradual return of the vesical capacity to normal.

The gradual healing of syphilitic lesions of the bladder may be followed by repeated cystoscopy. At the second congress of German urologists, Ernst Frank presented a series of cystoscopic photographs demonstrating the gradual healing and final disappearance of these lesions under treatment. Similar demonstrations have been made since by other observers.

It is the strikingly rapid subsidence of symptoms under specific treatment that makes the therapeutic test so valuable in differentiating syphilitic from non-syphilitic vesical lesions.

The bladder changes occurring in certain diseases of the nervous system which we now designate as parasymphilitic are too well known to demand discussion at this time. They have been considered in another place.⁵

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ABSTRACT OF DISCUSSION

DR. MARTIN KROTOSZYNER, San Francisco: I have seen one case that, judging from the therapeutic result, I feel justified in classing among the cases that are considered syphilis of the bladder. A baker of 60 entered the hospital on account of sudden, painless and abundant hematuria, as the cause of which a small papillomatous growth, situated near the trigon and midway between the ureters, was ascertained cystoscopically. The patient admitted previous syphilitic infection. He had married late in life and was the father of two half-grown, healthy girls. Suspicious scars and other skin manifestations were the only other objective findings. The Wassermann was strongly positive. All bladder symptoms, including hematuria, quickly disappeared under combined antisyphilitic treatment. At a second cystoscopy, six months after the patient's discharge, the papillomatous

excrescence was still visible, though apparently less prominent and reduced in size.

While I have observed a great many bladder lesions due to central or spinal syphilis, I have never seen a bladder ulcer the syphilitic nature of which, as in the case reported by Dr. Fowler, became obvious through its prompt reaction to specific treatment. My own observation, therefore, does not constitute a classical case of bladder syphilis. Such cases must be very rare indeed, and I recall in this connection the statement of Casper, who doubts the occurrence of bladder syphilis, of which he, like other authorities, has never been able to obtain authenticated cystoscopic evidence.

DR. CHARLES J. WATTERSTON, Birmingham, Ala.: I can add one more case to Dr. Fowler's series. It is the case of a negro girl in whom we made a cystoscopic examination on account of hematuria. There was a small, raised ulcer about 1 cm. in diameter just below the right ureter and several smaller erosions running down toward the trigon. The patient had a strongly positive Wassermann, there were other evidences of syphilis, and the lesions healed completely under antisyphilitic treatment; that is, salvarsan intravenously, followed by mercury.

DR. H. A. FOWLER, Washington, D. C.: Formerly we were led to believe that syphilis of the bladder did not occur, or, if it did exist, was rare. The experience of competent observers during the past few years compels us to change this view, and we now believe that this disease is not so rare as it was thought to be. This is in line with our knowledge concerning syphilitic infection of other mucous membranes. It is probably our failure in diagnosis rather than the rarity of the lesion that is responsible for the prevailing opinion.

There are one or two points to emphasize. There are no characteristic cystoscopic appearances by which syphilitic lesions of the bladder can be recognized. The diagnosis cannot be made by cystoscopy alone. The lesion cannot be differentiated in all cases by its cystoscopic appearances from tuberculosis or new growths. There are a number of cases reported in which syphilis was mistaken for cancer. In the secondary stage the lesions are superficial and may produce no symptoms whatever. Hence they are easily overlooked.

After all, the essential point is to have in mind the possibility of syphilis of the bladder if we are to avoid errors in diagnosis. The mistake has been made of advising operation for a supposed new growth, then to see the lesion clear up rapidly under antisyphilitic treatment.

NINETEEN CASES OF TYPHOID FEVER DUE TO EATING TURKEY SALAD

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A reception was held at a local club by a number of women of Norfolk, June 26, 1917, about fifty guests being present. Among other articles of food served, there were several bowls of turkey salad. The turkeys were supplied from a cold storage plant, the celery came from Baltimore, the lettuce was bought in the open market, and the mayonnaise dressing was mixed at the club. The salad was prepared by a colored woman who has a local reputation as a cateress; she cooked the turkeys at home, carried them to the club, and prepared the salad there. Her assistants were three colored women and a colored man.

Mrs. W. and Mrs. R., two of the guests, assisted in serving the salad, ate portions of it, and both came down with typhoid fever fourteen days later.

Mrs. D., Mr. C., and Mr. T., also guests at the reception, ate salad and in sixteen days developed typhoid fever.

5. Besides the citations in the text, these additional recent cases will be of interest:

A critical review of the literature is given by Paul Asch in connection with his paper in the *Zeitschrift für Urologie*, 1911, 5, 504.
Pereshivkin: *Ztschr. f. Urol.*, 1911, 5, 732.
Mikhailoff: *Ztschr. f. Urol.*, 1912, 6, 215, two colored plates.
Mueharinskij: *Ztschr. f. Urol.*, 6, 376.
Pedersen, James: *Med. Rec.*, New York, 1916, 90, 235.
Baker, Theodore: *Surg., Gynec. and Obst.*, 24, 187.