

PROSTATIC ABSCESS.

OBSERVATIONS UPON THE PATHOLOGY AND OPERATIVE TREATMENT.*

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THE object of this paper is to record a series of observations upon the pathology and operative treatment of abscess of the prostate caused by gonorrhœal infection. I have not included in this report cases of abscess occurring in the enlarged prostate of elderly men, nor cases of tuberculous abscess of the prostate.

I have taken as a basis of this report all operations performed for prostatic abscess of gonorrhœal origin in my service at Bellevue Hospital during the years 1905-1908, inclusive. All of these patients were treated under similar conditions. The operations were performed in a public clinic and the histories of all the cases are a matter of public record.

These cases of prostatic abscess of gonorrhœal origin were treated either by median perineal section and drainage of the abscess into the urethra, or by median perineal prostatectomy.

The following table shows the number of cases treated by each of these two methods of operation during the years 1905, 1906, 1907, and 1908. The cases treated by each operation are arranged in parallel columns:

TABLE I.

Cases of Prostatic Abscess Occurring During the Course of and as the Result of Gonorrhœal Infection of the Urethra. Treated at Bellevue Hospital in Dr. Alexander's Service.

Year.	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
1905	12	2
1906	6	13
1907	2	17
1908	6	10
	<hr/> 26	<hr/> 42

* Contribution from the Department of Diseases of the Genito-Urinary System, Cornell University Medical College.

Read before the New York Surgical Society, Jan. 27, 1909.

Total number of cases of prostatic abscess, 68.

This gives as a basis for comparison 26 cases of prostatic abscess treated by perineal section and drainage of the abscess into the urethra, and 42 cases of prostatic abscess treated by median perineal prostatectomy, a total of 68 cases of prostatic abscess.

The ages of the 68 patients subjected to these two methods of operative treatment have been arranged in Table II.

TABLE II.

Ages of Patients.	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
18-25 years	13	15
25-30 years	6	15
30-35 years	4	8
35-40 years	1	1
40-44 years	2	3
	Total 26	Total 42
Youngest patient,	18 years	20 years
Oldest patient,	44 years	43 years

It will be seen by reference to this table that nearly all of these patients were young men. Twenty-eight cases, or more than one-third the entire number, were between the ages of eighteen years and twenty-five years; and twenty-one were between the ages of twenty-five years and thirty years. Therefore, forty-nine cases, or nearly three-fourths of the entire number, were under thirty years of age.

The prostatic abscesses in these cases occurred during that period of life in which gonorrhœal infection of the urethra is most common.

The time at which prostatic abscess developed in the course of the gonorrhœal infection is shown in Table III.

TABLE III.

	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
Abscess occurred during first gonorrhœal infection	12	19
Abscess occurred after two or more previous attacks of urethritis which were cured (?)	6	4
Abscess occurred in cases of relapsing urethritis in	8	19

It should be noticed that the prostatic abscess developed during the course of a first urethral infection 31 times, or in nearly one-half the cases; in 10 cases the patients had had two or more infections of the urethra preceding the formation of the prostatic abscess.

In 27 cases there had been relapsing urethral discharge for varying periods, but in some of these cases there was a history of symptoms of previous prostatic suppuration.

Table IV shows the frequency with which prostatic suppuration was associated with perineal abscess and with ischio-rectal abscess.

TABLE IV.

	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
Prostatic abscess was associated with perineal abscess in	8	8
With ischio-rectal abscess in	1	4

It should be noted that perineal abscess, usually arising from a co-existing bulbitis, was present in 16 cases. In 5 cases there were complicating ischio-rectal abscesses of prostatic origin. The number of ischio-rectal infections in this series of cases is below the average, and is due to the fact that in many of the cases of prostatic abscess early operation was performed. I am convinced that nearly, if not all, ischio-rectal abscesses which come under the observation of the genito-urinary surgeon are of prostatic origin, and that the reason so many ischio-rectal abscesses relapse (which they certainly do) after treatment by simple incision and drainage is because the prostatic origin of the infection is overlooked. To cure these ischio-rectal abscesses the source of the infection in the prostate must be removed either by drainage of the abscess, or by prostatectomy.

Table V. shows the proportion of cases in which there was marked urethral stricture.

TABLE V.

	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
Urethral stricture was present in....	3	6

There were only nine cases of stricture properly so called, but a very large number of the cases showed a congenitally narrow external urethral meatus necessitating meatotomy, and this fact should not be lost sight of as a contributing causative factor in prostatic abscess. I believe that the imperfect drainage of the urethra caused by this defect may play a not unimportant rôle in causing many of the complications incident to gonorrhœa.

Table VI shows the proportion of cases in which the suppuration was confined within the limits of the prostatic capsule, and those in which there was an extension of the suppuration outside the prostatic capsule (periprostatic abscess).

TABLE VI.

	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
Pus confined within the prostatic capsule	17	28
Pus had extended outside capsule....	8	14
Abscess had opened into rectum.....	1	0

It should be noted that of the 68 cases, in 45 the pus was contained within the capsule, while in 22 cases there was periprostatic suppuration. In many cases one or more abscesses had ruptured into the urethra either before or at the time of operation, but in all of these cases other foci of suppuration which had not opened into the urethra were found in the prostate at the time of operation. A number of the patients had acute epididymitis at the time of admission, and several of these patients were admitted to the hospital with this diagnosis, the prostatic condition being overlooked.

Table VII shows the frequency with which prostatic abscess was associated with retention of urine.

TABLE VII.

	Perineal Section and Drainage. No. of Cases.	Prostatectomy. No. of Cases.
Abscess caused retention of urine in	14	21

Of the 68 cases of prostatic abscess, 35 cases, or more than 50 per cent., had retention of urine. In the majority of these

cases the retention was complete. In some of the cases the patients were able to void a little urine at frequent intervals, but in all of the 35 cases the bladder was distended.

The retention was usually preceded for several days by frequent and painful attempts to urinate, the retention gradually increasing.

The operative treatment of prostatic abscess by median perineal section and drainage of the abscess into the urethra was described by me, and my reasons for preferring this method of treatment at that time, were given in a paper read before this Society in October, 1904.¹ This method of operative treatment, by median perineal section and drainage of the abscess into the urethra, I have continued to employ in certain selected cases up to the present time, and I am convinced that in many cases it will be the operation of choice.

This operation is especially good in cases of a single focus of suppuration or of a large prostatic abscess where one or both lateral lobes have been practically destroyed by the suppurative process.

This operation is, however, not applicable to cases of multiple abscesses of the prostate; and in this class of cases, which are by far the most numerous, I believe that time can be saved and a more perfect cure can be made by the entire removal of the diseased lateral lobe or lobes by median perineal prostatectomy.

In 1905 I found that in parenchymatous suppuration of the prostate, when detected early, the affected lateral lobe was the seat not of a single abscess, but of multiple abscesses, and that it was usually by the union of several of these isolated foci of suppuration that the typical large prostatic abscess was formed.

I also observed that often when a single small abscess was opened and drained by operation, later another abscess which had been overlooked, or had not fully formed at the time of the first operation, would require operation.

¹ "Prostatic and Periprostatic Abscess," *Annals of Surgery*, December, 1905, p. 883.

These relapses I found could be prevented by the removal of the diseased lateral lobe. I therefore have continued to remove in many cases the portion of a prostate which was the seat of an abscess by median perineal prostatectomy by the same method which I have consistently employed in all cases of enlargement of the prostate since 1896.

The results clinically of this method of treatment of prostatic abscess by prostatectomy have been most satisfactory.²

The removal of these suppurating prostates has furnished material for the study of the evolution and pathology of prostatic suppuration which has not been available before for this purpose. The truth of these clinical deductions has been confirmed by the pathological examinations of the suppurating prostates removed by prostatectomy. The majority of the cases, 42 in number, form a part of the basis of this paper.

These suppurating prostates removed by operation have been examined immediately after removal, and the gross anatomical changes have been noted. The specimens then have been subjected to microscopical examination, either in the pathological department of Cornell University Medical College by Professor James Ewing, or in the Clinical Laboratory by Professor Hastings and Dr. Warren. A number of these prostates are presented with this paper to show the gross anatomical lesions; and photographs illustrating the microscopic anatomical changes have been made by Dr. Jaches, of the Loomis Laboratory. These also are presented. I wish to express my obligation and thanks to these gentlemen for their painstaking work, and for the valuable criticisms which they have made as my work upon this subject has progressed.

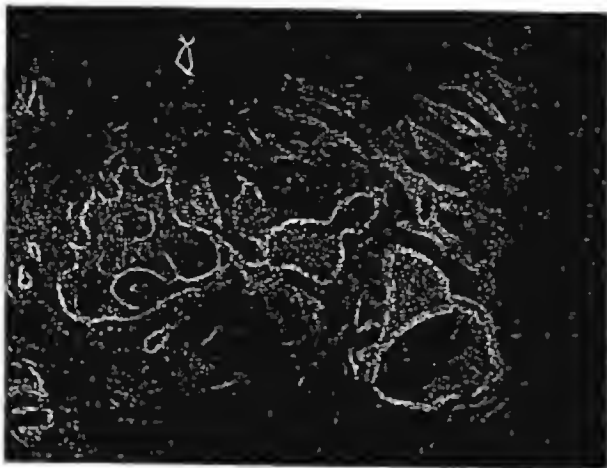
These specimens and microphotographs illustrate very well the progressive changes which characterize suppurative lesions of the prostate caused by gonorrhœal invasion of the gland.

These lesions shown progressively:

1. A purulent catarrhal inflammation with exudate chiefly within the gland tubules.

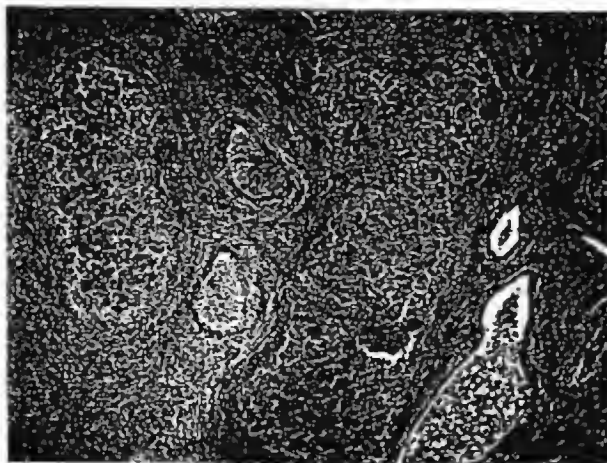
² "Prostatectomy in the Treatment of Prostatic Abscess of Gonorrhœal Origin," Boston Med. and Surg. Journal, November 5, 1908, p. 620.

FIG. 1.



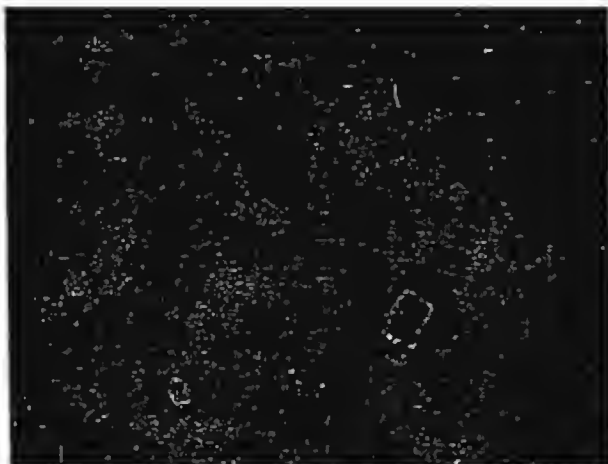
Suppurative catarrhal prostatitis.—The exudate is confined principally to the gland tubules.

FIG. 2.



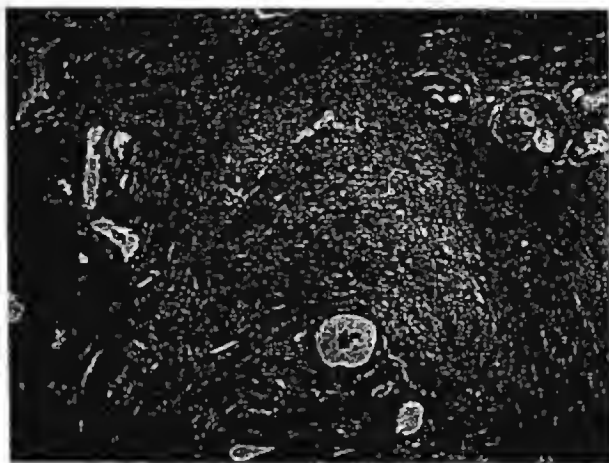
Purulent infiltration and destruction of walls of alveoli.—Miliary prostatic abscesses.

FIG. 3.



Diffuse suppurative prostatitis with destruction of alveoli.

FIG. 4.



Chronic suppurative prostatitis.—Chronic edema, hypertrophic degeneration and softening, hyperplasia and metaplasia of tube cells.

2. An interstitial purulent process starting from the tubules invading the surrounding stroma, destroying the tubules and stroma, and forming miliary or larger abscesses—the larger abscess being produced by the union of two or more abscesses, caused by necrosis of the intervening tissue.

3. Chronic exudation and productive processes. These are later manifestations of the same process of inflammation. These processes are characterized by infiltration of the stroma of the prostate with mononuclear cells, the appearance of compact foci of lymphocytes, chronic œdema, areas of softening composed of leucocytes, swollen degenerated epithelial cells, and other fixed tissue elements, and occasionally of advanced hypertrophy and metaplasia of the tubule cells.

All of these lesions are often combined in a single case of prostatic abscess, showing in different portions of the prostate all three stages of the process.

The position of the abscesses in the prostate and the relation which they have to the urethra is subject to great variation. The abscesses always occur in the lateral lobes, and especially in that part of the lateral lobes situated at the side of the urethra. One lobe may be affected, but it is not uncommon to find suppurating foci in both the lateral lobes. The extent of the destruction caused by these abscesses is not the same in each lobe. One lobe is usually more affected than the other. An early operation may do much, I think, to preserve at least one-half of the prostate. The abscess may be situated near the urethra, or in the centre of the lobe, or near the capsule.

An abscess of small size near the urethra may rupture spontaneously into this canal, and if the drainage is good the cavity of the abscess may heal. This happy termination is, however, more theoretical than real. Multiple suppurating foci scattered throughout the prostate occur as a rule, and therefore in many cases in which one abscess has ruptured spontaneously into the urethra an operation will be required.

As a result of my observations in this series of cases, and in other cases operated upon in private practice which are not included here, I am convinced that prostatic abscess as a result

of gonorrhoeal infection is much more common than is usually supposed. The symptoms in many of these cases were not in accord with those often described as accompanying prostatic suppuration, and in some cases, the existence of abscess might have been overlooked, but for the physical examination.³

As a result of our investigations of prostatic suppurations I offer with confidence this new method of operative treatment of prostatic abscess by perineal prostatectomy. The operation is based on a better understanding of the anatomy and of the pathology of the disease, and I think it will commend itself to those who will carefully employ it clinically. I think that as our knowledge of infectious diseases of the prostate becomes more accurate it will become more and more apparent that these suppurative conditions of the prostate cannot be treated by such methods as are now employed, as, for example, by over-dilatation of the urethra and by massage. I believe that these methods will have their day and that the principles underlying the operations now described will receive the endorsement of those who shall have tested them clinically.

³ For further particulars see article in Boston Med. and Surg. Journal, November 5, 1908, p. 620 *et seq.*