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CLINICAL ASPECT OF THE ENLARGED PROSTATE, WITH A REVIEW OF 67 CASES.*

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THE presentation of this paper to-day concerns 67 cases occurring in our practice within the last six years, of which accurate records have been obtained in 41 cases, and the facts which will be brought before you bear directly upon this sequence.

If I can impress upon the general practitioners here present the necessity of a closer study and determination of the conditions present in the enlarged prostate, and can induce them the more to bring such cases under the eye of the surgeon at an earlier period, I will have deemed my duty well done.

I judge that most of you are familiar, in a general way, with the anatomy of the gland, and bearing upon this subject I would simply recall, in general, to your mind that it is a very important organ, from a negative standpoint, after enlargement of the same has commenced, so far as the well-being of the patient is concerned.

Composed of bundles of muscle fibres surrounding the outlet to the bladder, one can

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readily picture the natural sequence of events which occurs when this enlarges and encroaches upon the outlet. More especially is the anatomy to be studied after the period of so-called "old age" has set in, when the muscular fibers are replaced by fibrous tissue —one of those histological elements unyielding in character and distorting in action upon surrounding organs.

Strange as it may seem, the enlargement of this gland, save as a result of some form of urethritis, or sexual abuse, in young men, seldom occurs until the patient is in his declining years, and at a time when we see degenerative changes elsewhere in the body. In the 67 cases, of which, unfortunately, the records are somewhat incomplete in 26, we note that 41 cases are recorded in detail; first, as to age—in which we find the average of the ages of the patients approximated 67 years at the time when the operation was performed. Some authors claim that this condition is never observed until after 50, and in these 41 cases the youngest is noted as being 51 years old at the time of operation, while the oldest is 85. The age, however, averaged up to the time when the symptoms first appeared gives us a much lower percentage. In 37 cases out of 41 it is 63 years. The youngest recorded is 44, while the oldest is 83. Some clinicians, Caspar being among them, claim that the condition has been noted as early as the 40th year, and that it is usually due to the chronic enlargement of the gland, followed sooner or later by a secondary slow chronic inflammatory condition which progresses for many years. Personally, I believe, with many other clinicians, that the in-

flammatory condition is first, and that the enlargement of the gland follows this persistent inflammation. Seldom, however, do we find cases coming under the observation of the family physician before the 50th year.

Authors are found who lay stress upon the fact that gonorrhea is the predisposing cause of enlargement of the organ. In the cases under consideration to-day we find that 15 acknowledge to a previous gonorrheal infection, while 18 (or about an equal number) denied ever having had any venereal trouble, and 8 are indefinite; but some of the statements of the 18 were disproved later. Therefore one cannot make an absolute statement that gonorrhea is the sole pathological factor.

As regards occupation; out of 34 cases we find there are 17 farmers, 4 laborers, 3 lawyers, 2 merchants, 1 each of expressman, boarding-house keeper, pattern-maker, butcher, salesman, manufacturer, blacksmith and stone-mason; 7 are not recorded. Reviewing this number, we note that most of these men have been employed in occupations demanding manual labor in a standing posture, and that the average of intelligence in the social scale would seem to predispose those in the middle walks of life to this malady.

Concerning the marriage state; of the 41, 21 were married at the time of entrance to the hospital, 15 were widowers and 5 were single men, leaving us to reason, therefore, that those who had in a measure carried on the sexual act regularly were somewhat predisposed to the condition.

Reasoning from these facts, we may, therefore, be led to state that in some manner the

physiological use of this gland has something to do with the conditon.

No direct etiological factor has, however, been found, as witness by the perusal of the various authors and a study of the theories advanced as to the reason for the enlargement. Some base their claims upon the previous history of the patient, as regards sexual conditions, and we find theories that are directly antagonistic one to the other. Others base a theory upon septic inflammatory conditions of steady progress, which seems to be the more logical conclusion when we take into consideration the complications usually present before and during the enlargement of the gland in true prostatic hypertrophy. And, lastly, others base a theory upon a true pathological condition, without regard to previous etiology. Personally, I am sure that in the 67 cases under consideration, taken *in toto,* fully 75 per cent. had a previous gonorrhea, developed eventually a mild cystitis, which was then followed by enlargement of the organ.

Pathology.—The study of pathology is an interesting one, in so much as there is an enlargement of one or more of the three lobes, either uniform or diffuse in character, associated with a bulging of the rectal wall, provided the enlargement is of sufficient size to cause a posterior protrusion into the rectum. There is also distortion of the prostatic urethra, change in the bladder orifice, the size of the bladder, the conformation, the muscular and other structures, as well as in the urethral opening; and there may be even conditions of the ureter, and lastly, of the kidneys, heart, etc., following this disease.

When we take up the pathology of the cases under consideration and deal with 41, as previously recorded and the pathological reports as cited, 13 were malignant and 28 were of the benign type. Therefore, in our experience it would seem that more than the usual percentage were malignant than is commonly recorded by authors in general. In fact, by these statistics it would show that at least one-third of the cases operated upon were of the malignant type, in which we have accurate pathological reports. The usual pathological findings in the benign type assume one of three forms: either a myomatous enlargement, which is by far the most common, and has been surnamed the "hyperplastic myoma of Virchow," but which I personally prefer to call the "discreet myomatous type," and one which has to do with a single portion of one or more of the lobes of the organ; secondly, the diffuse myomatous type, which involves all of the lobes to a greater or less degree throughout; and, lastly, the adenoid, or glandular type, which has to do with the glands of the organ itself and their enlargement.

I will not burden you with the microscopical aspects of these various types, but simply quote the fact, that of the 41 cases we find 5 of the adenomatous type, 10 of the type of adenofibroma, 13 of carcinoma (9 being adenocarcinoma, 2 medullary carcinoma, 2 scirrhous carcinoma), while 4 showed simple hypertrophy of the gland; 8 were gathered under the heading of chronic prostatitis, and one was tubercular in kind.

Concerning the pathology of carcinoma of the prostate, it would seem that upon refer-

ence to these statistics at hand, in the 13 cases that of adenocarcinoma was about 75 per cent. in frequency, while the other two forms of carcinoma divided between them 25 per cent. Most of the carcinomatous type were acute in their character of manifestation, and the remainder were simply looked upon as the usual chronic hypertrophy. At operation some of these specimens were sent to the laboratory, with a clinical diagnosis simply of hypertrophy or pathologically of the adenomatous or myomatous type, and no suspicion was entertained of a malignant growth until the report was returned from the pathologist.

In general, we have come to suspect carcinoma where the prostate is firmly adherent to the capsule and where the capsule was also broadly attached posteriorly to the rectum and refused to give way with ease.

On further reference to the 67 cases it is found that five more were diagnosed as carcinoma, and died shortly afterwards, upon which no autopsies were allowed, two dying in the hospital and three removed from the hospital to their homes and dying shortly afterwards, within the period of a year; while of three more who suffered death, upon whom autopsies were allowed, two were found to have carcinoma, confirming the previous diagnosis; while one in which carcinoma was not suspected showed this to be the case. So that we take the liberty of stating that out of the total of 67 cases there were 16 actual cases of carcinoma diagnosed pathologically, and five clinically suspected cases which died shortly after being seen.

Symptoms.—Frequent urinations—pollaki-

uria. The study of the symptoms has been interesting, insomuch as they are so variable. Chiefly, they may be said to be of frequent urination, noted in 33 of the cases under consideration; a slight burning in 35 of the cases, and in the same number a slowness in starting the stream. These symptoms have usually been observed as being present at night; the general health at this time has not been impaired. In but 3 of the cases was dribbling noticed, while in 25 of the 67 cases, or a little less than half, the condition was ushered in with acute retention of urine in the early stage. The stream became smaller, as noted by the patient in explaining his case to the doctor in only 8 out of the total of 67. Constipation was complained of in 23 of the cases; and congestions, caused by the excessive use of alcohol or condiments, exposure to wet or cold, also pollakiuria, or the increase in the amount of urine voided, were also complained of by various ones in this number.

Pain.—The factor of pain is an interesting one in entering into the question, and we find in the following table varying statements by the patients as to where the pain is located. In 27 of the cases, the patients assigned the pain to the perineum; in 14, near the rectum; in 13, along the penis; in 1, in the right testicle; in 1, in the left groin; in 1, in the right buttock, and in 27 it was located exactly over the bladder region.

Most of the patients had noticed the various conditions some years before, and did not go to a doctor until they were driven so to do by their recurring frequent urination or retention.

Especially is the symptom of pain to be care-

fully noted regarding location and character, as pains which are referred to the back and in the neighborhood of the anus, and which shoot down the thighs, have proven in a large number of cases at operation to portray prostatic conditions of malignant type, or beginning rectal conditions which early involve the prostate and its accompanying nerve plexus.

Temperature and Pulse.—19 out of the 41 cases had a normal temperature, but in 16 the temperature was raised somewhat, and in 6 it was at a subnormal point. The pulse was normal in 21 cases; in 16 it was hypernormal, while in 4 it was subnormal.

Palpation.--By abdominal palpation and bimanual palpation, 4 cases showed a marked enlargement which could be easily made out with the hand upon the abdominal wall. By digital examination, it was possible to note 2 with great enlargement of the right lobe, 3 with enlargement of the left lobe, 4 with suspected enlargement of the median lobe, while 32 showed some enlargement of both lateral lobes. Of the remaining 26 cases, the records of the physical examinations are lacking and it cannot be stated what the percentage was of the various enlargements. It is to be noted that in 13 of the cases the mucous membrane was adherent to the rectal wall, 10 of these being carcinomatous, as proved later; 3 of these 13 cases, however, did not come to operation or autopsy.

Percussion.—In general, this has been negative in its results, save as an enlarged prostate, with a retention complete or partial, which has given some idea of the trouble at hand.

Retention.—Examination of the urine is also

interesting. In 25 of the cases there was complete retention, requiring catheter relief one or more times. In 22 of these cases the retention approximated 80 ounces, which it was necessary to relieve by catheterization mostly in the earlier ones. In 22 cases there was actual residual urine and from 1 ounce up to 40 ounces, while the average is between 4 and 5 ounces.

Macroscopically, the urine out of 41 cases showed 30 to be in a cloudy condition, while in 11 cases it is recorded that the urine was clear. Six cases showed blood in the urine, 3 being proved later to be carcinoma. In 25 albumin was found, ranging from one-half up to 5 per cent. Five showed casts, while in 39 out of 54 pus was in greater or less abundance.

By means of the stone searcher, it was demonstrated that 2 of the cases had a complication of calculi; 1 of these cases was also demonstrated by cystoscope before operation.

The urine, when examined in the first stage, showed a perfectly clear fluid, so far as verbal report can be depended upon, without impairment of kidney function.

Loss of Weight.—The loss of weight averaged between 10 and 15 pounds in our series of cases, accompanied by the usual cachexia, loss of appetite, irritability, sleeplessness, impairment of mental functions, impairment of heart conditions, inability to transact business, general malaise and weakness. One-fifth of the total number of cases exhibited such dangerous lesions of the heart or of the circulatory system, in conjunction with the other symptoms, as to preclude operation.

Bacteria.—The usual bacteria found when the urine was cultured out were those of the mild

staphylococcus group, accompanied by the colon bacillus, which latter was seen mostly in the advanced stages. In the tubercular case under consideration we were unable to culture out tubercle bacillus, even though the case seemed simple. It was necessary to make a differential diagnosis between the smegma and tubercle bacillus where extraordinary care had not been utilized in cleansing out the urethra before catheterization. In such conditions inoculations of the guinea pig led to a correct negative diagnosis.

In conjunction with the examination of the urine we found that 25 of the cases suffered at the same time from a cystitis, nine had nephritis of varying degrees, three had at the time, or developed later, a general carcinoma, two were suffering from locomotor ataxia, five had partial atony of the bladder, two exceedingly vigorous old gentlemen were suffering from acute gonorrhea at the time of entrance to the hospital, four of the malignant cases had well developed hemorrhoids, five had chronic endocarditis, three of these cases being diagnosed at autopsy, and in the whole series but one suffered from a stricture, according to the record. (This is questionable.)

So far as the malignant conditions were concerned it may be said that only two-thirds of the 13 cases of the malignant type, or 9 of the total of 41 cases recorded pathologically, were diagnosed clinically or macroscopically, the rest being considered simply as a benign enlargement. And I wish to emphasize this point most distinctly, by reason of the fact that I imagine a number of cases in the country and the smaller cities are allowed to die from a general carcinoma where the acute infection has originated in the

prostate and been carried throughout the general system—to the liver in particular.

Every physician should make a careful examination by means of the finger introduced into the rectum and by bimanual palpation, thereby noting whether a tumor can be felt, as to whether there are any hemorrhoids entering in as a complication; for it is many times to be observed that in malignant conditions of the prostate there are present greatly engorged hemorrhoids, and it was by this observation in two cases that we made a clinical diagnosis of malignant disease where our other diagnostic methods had seemed negative. These two developed general carcinoma later.

As to the methods of examination of the patient I might say that we should take a careful history of the patient, *careful throughout* and in every detail; second, make a careful physical examination of the heart, lungs, nervous system, etc., in order to offset misleading diseases which manifest themselves in a secondary manner in the genito-urinary system; third, a careful abdominal examination, including a bimanual one; fourth, the observation as to hemorrhoids; fifth, the direct examination of the part involved, ascertaining as to how the patient voids, etc., then filling up his bladder we proceed to ascertain the quantity of urine which it can contain; or we may just previous to this ascertain the residual urine, by means of a catheter introduced, under the strictest of aseptic precautions, within the bladder. Once more, with the Thompson searcher one can sometimes tell which lobe is involved, where the same cannot be felt through the rectum, and if there is a calculus present; or by means of the cystoscope (which should be

among the diagnostic instruments at hand), the condition of the bladder, the hypertrophy of the muscular tissue and the hypertrophy of the gland itself can be noted. This last examination, of course, should only be made by those skilled in the art, because the ureteral orifices are at times so widely dilated from the previous retention, and also because of the fact that the cystitis may be distinctly localized in the bladder, and the kidneys be uninvolved, and the introduction of a new series of bacteria may cause a lighting up of the old infection, as well as giving new families a chance to grow.

Lastly, we should not fail to note the amount of urine voided in 24 hours, together with a complete examination of the same in every detail, that we may be able to prognose regarding the results of an operation.

In general, the method of operating upon these cases has been that of the perineal route, giving means of entrance into the bladder through the posterior urethra, and the introduction of Young's tractor. The prostate has been drawn downward to the engaging finger, and thereby enucleated. This has necessitated what we have been pleased to call—a deal of finger work, and one which has given great satisfaction. There is, however, one great drawback, from the fact that the finger may be too short and that the hemorrhage may be severe, while the danger to the rectum is, of course, not to be disregarded. Then, too, one occasionally sees a patient where the perineum is exceedingly short, and in such cases there is an embarrassment in not being able to enjoy a satisfactory perineal incision. Following the enucleation of the prostate, we

have latterly adopted the custom of taking a deep suture on each side of the perineal wound laterally and in this way obviating the former danger of hemorrhage from the deep urethra. A T-drainage tube has been introduced sometimes into the bladder directly, but more often simply into the wound up to the neck of the bladder, and the external aspect has been drawn together with several stitches of chromocized catgut or silkworm gut.

If it were not unprofessional I feel that each physician should honestly advise every elderly patient who comes to him complaining of bladder conditions from an enlarged prostate that he should seek advice from those who are versed in genito-urinary troubles, and be prepared to undergo an operation for the removal of this organ, which has probably long since become useless in its histological function.

SCHEDULE OF OPERATIONS, ETC.

Condition	Benign operated on	Carcinoma operated on	Benign not operated on	Carcinoma not operated on	Totals
Dead	**9**—mostly earlier cases. — 1 Bleeding polypus. 6 Uræmia. 1 Pneumonia. 1 Atony bladder—uræmia.	**6**—Usually 4 to 8 weeks after operation. — 3 uræmia; 3 days after. 1 embolus. 2 infection of bladder from fistula.	**2**—Uræmia. —	**8**— — All in hospital, or within 1 year.	=25
Unimproved	**1**— — Tuberculosis of organ.		**4**— — 3 dead after 2½ years. 1 not located.	**1**— — Died 4 months later after X-ray treatment.	=6
Improved	**8**— — 5 cases, located by letter, still improved (some dribbling, etc.)	**1**—Only to die 1 year later. —	**7**— — 5 died before three years, following discharge from hospital. 2 not located.		=16
Recovered	**14**—Practically each case in last 20, save where complication killed. — 10 cases followed by letter.	**6**— — 3 known to be living today after 3 years, 4 years and 5 years. 1 living after 2 years. 1 living after 1 year. 1 not located.	**0**— —		=20

Grand Totals—Living in 5 years..... 21
Dead in 5 years..... 35

Number of operations, 45.
Number not operated on, 22.
2 carcinoma cases still have fistula after 1 year and 3 years.