THE RELATION OF THE PROSTATE GLAND AND SEMINAL VESICLES TO THE ARTHRITIDES*

By COURTNEY W. SHROPSHIRE, M.D.,
Visiting Genito-Urinary Surgeon to the
Hillman and St. Vincents Hospitals;
Consulting Urologist to the Bir-
mingham Infirmary,
and

CHAS. WATTERSTON, M.D.,
Birmingham, Ala.

It is generally accepted that the absorption of toxic substances from diseased tissue, such as we find in tonsillitis, prostatitis, seminal vesiculitis, abscess at the root of a tooth, or inflammation of the accessory sinuses, may cause an inflammatory condition in, or about the joints, which manifests itself as an arthritis, a peri-arthritis, or a periostitis. This is probably due to the fact that the joints are subject to considerable traumatism during exercise.

In the course of a urethritis, produced by the gonococcus, it is not unusual for the patient to develop an arthritis, or a peri-arthritis. But strangely this does not occur while the inflammation is confined to the anterior urethra, which is no doubt because of failure on the part of the anterior urethra to absorb toxic substances, although absorption readily takes place from the posterior urethra, prostate gland, and seminal vesicles.

Fuller and others observing this were led to carefully study the relationship existing between inflammation of the joints and inflammation of the prostate gland and seminal vesicles with the result that drainage of the seminal vesicles was advised in seminal vesiculitis of an extreme nature complicated by perivesiculitis and joint involvement, when massage was ineffective. The result of operation supported the theory, for after draining the vesicle's improvement was noted in every case and complete recovery in many.

Following the primary work done by Fuller, Hitchens, Brown, Young, Ge-

raghty and Culver made extensive bacteriological studies of these infections and were able to isolate numerous pathogenic organisms, among which were found the staphylococcus, the streptococcus, the bacillus proteus, the colon bacillus, the gonococcus, diphtheroids, and in some cases an anaerobic streptococcus.

To fully appreciate the susceptibility of the prostate gland and seminal vesicles to infection it will be necessary to describe their anatomical structure and their physical and physiological relationship to other organs.

The prostate gland is situated between the bladder and the rectum, the base forming a part of the floor of the bladder. The apex is directed downward and forward and is attached to the triangular ligament. The posterior surface is in relation with the rectum an inch to an inch and a half from the anus. The anterior surface is loosely connected with the symphysis pubis by fatty tissue.

The gland anatomically is divided into a right and a left lobe. Lately, however, Lowsley, after examining the prostates of boys before the age of puberty, reached the conclusion that there were five distinct anatomical lobes, which he designated as the middle, right lateral, left lateral, anterior, and posterior. Surgically, four lobes are usually spoken of,—right, left, middle and posterior.

The true capsule is formed of mixed fibrous and muscular tissue, branches of which are sent into the gland to form the stroma or framework. This fibrous and muscular tissue forms the bulk of the gland.

The essential tissue is glandular of the tubular variety, the tubules uniting to form the prostatic ducts, or sinuses, eighteen to twenty-five in number, which open to either side of the verumontanum in the prostatic portion of the urethra. The gland is completely surrounded by a sheath of fascia, surgically known as the capsule. This sheath, or capsule, is very dense and usually limits inflammation of the gland, except on the urethral surface.

The arteries supplying the prostate are derived from the internal iliac, the inferior vesical and the middle hemorrhoidal. They divide and subdivide, giving

*Read before the Medical Association of the State of Alabama, Mobile, April, 1916.

branches to each acinus as in other glandular structures. The veins and lymphatics form a perfect network between the true capsule, and the sheath or surgical capsule of the gland, which may account for rapid absorption.

The seminal vesicles are located just above the prostate gland and are made up of two tubes one and one-half inches in length in the normal convoluted form; but when straightened the length is increased to four or six inches. The main tube presents four or five convoluted branches. The seminal vesicles leave each other at right angles, and the ampulla of the vas is found on their inner surface. They terminate in the ejaculatory ducts which are formed by a junction of the ducts from the seminal vesicles and the vas from the epididymis. The ejaculatory ducts, two in number, open on the surface of the verumontanum on either side of the sinus pubiculus in the posterior urethra.

It can readily be seen from this description that any pathogenic organism gaining entrance to the urinary tract can easily enter the ejaculatory ducts, the prostatic ducts, or both. This is why so many pathogenic organisms from the upper part of the urinary tract, such as the staphylococcus, streptococcus and typhoid bacillus, reach the prostate gland and vesicles. The same may be said of infections of the anterior urethra. And when we look carefully at the anatomical relationship existing between the urethra, the vesicles and the prostate gland, we wonder why every case of acute gonorrhea is not complicated by a prostatitis or a seminal vesiculitis.

In addition to these two modes of infection, it will be necessary to consider infection by contiguity of tissues from the rectum, following proctitis, ulcer or infected hemorrhoids, and infection by means of the lymphatics or the blood stream, although the latter are rare.

Simple inflammation or congestion of the prostate gland and seminal vesicles, caused by constipation, excessive masturbation, the use of condoms, long-continued erections not followed by coitus, and abnormal forms of sexual intercourse, is said to be a predisposing factor of the greatest importance in infection; and the patient

should be questioned carefully regarding them.

The prostate gland, in view of its location, performs a double function. It is first concerned with the sexual act, secreting the prostatic fluid, and secondly forming, as it does, a part of the floor and outlet of the bladder, it assists in urination. The symptoms can therefore be divided into sexual, urinary and general.

Under the head of sexual would be placed impotence, increased sexual desire, due probably to irritation, deferred ejaculation, premature ejaculation and reflex nervous disturbances connected with coitus such as headache and vertigo.

A majority of the urinary symptoms are terminal and this is accounted for by the fact that the muscles in and about the prostate assist in forcing the last part of the urine from the bladder. They consist of pain at the end of urination, terminal hemorrhage, last urine cloudy, partial retention, and frequent desire to urinate.

The general symptoms are irregular, but the most consistent are pain in the lumbar region, severe pain in the coccyx, stiffness in the muscles attached to the tuberosity and the spine of the ischium, causing a stiffness when the patient arises after sitting for a few minutes, tender heel, inflammation in or about the joints, arthritis, peri-arthritis or periostitis.

Symptoms referable to the vesicles can also be divided into sexual, urinary, and general. Loss of sexual power, sometimes preceded by increased sexual desire, frequent painful erection, emissions, day or night, painful ejaculation, bloody semen and vesicular colic, point very strongly to disease of the seminal vesicles.

Urinary disturbances pointing to diseased vesicles would be blood, pus or shreds in the urine, failure of the bladder to hold a sufficient quantity of urine and recurrent urethral discharge, the last due to re-infection of the anterior urethra from the infected vesicle.

The general symptoms are approximately the same as in prostatitis.

Absolute diagnosis is made only after a careful examination, both general and local, has been conducted and a history of the case has been taken.

Contrary to the general belief, the prostate need not be enlarged to be diseased and a diagnosis should be made on the character of the secretion obtained. If this secretion after a massage, per rectum, contains pus, even though no pathogenic organism is found, the patient is suffering with prostatitis and should be thoroughly massaged until the pus disappears.

Our experience has been that it is almost impossible in old cases of prostatitis to find any organism whatever, unless a culture is made, and in some cases only after repeated cultures.

It is said that the vesicles are diseased if we are able to palpate them, and this is true in a majority of cases. In our experience ability to palpate the seminal vesicles, together with tenderness on pressure, is very suggestive of a pathologic condition which is confirmed by finding pus cells in the secretion.

In severe cases of seminal vesiculitis it is impossible to obtain any secretion whatever; for the ejaculatory ducts are occluded and the vesicle is felt as a fluctuating mass, sensitive to pressure. In some cases the vesicles can be massaged over a period of months without the contents being in the least disturbed.

It is the opinion of every one who has had much experience with seminal vesiculitis that there are some cases that will not respond to massage or vaccine treatment. Brilliant results are reported by Fuller in these conditions following his operation of seminal vesiculotomy; and this in our estimation is the logical method of treatment.

The following histories taken from our records will, we think, be of interest in describing the symptoms, course and treatment of cases of prostatitis, accompanied by seminal vesiculitis and joint involvement:

Case 1.—H. R., white, age 30. Pain in the region of the appendix, cramp-like in character, terminal hemorrhage, general stiffness in the muscles of the buttocks and thighs and arthritis of right wrist.

Tonsils had been removed; teeth and accessory sinuses negative.

On massage, a bloody secretion was obtained from the vesicles which contained pus. Vesicles and prostate very sensitive to pressure. Several

weeks later the patient had another attack of vesicular colic, which was so severe that it was necessary to administer morphine. Three days later a cystoscopic examination was made and shadow catheters were passed to the pelvis of the kidney. Kidney function normal. Roentgenogram negative.

Patient was massaged over a period of six months at intervals of three days, each massage being followed by the instillation of silver nitrate one-quarter of 1%. Outdoor exercise was advised. Result: complete recovery, stiffness of muscles disappearing, and inflammation leaving right wrist. Secretion from prostate and vesicles negative for pus.

Luys calls particular attention to vesicular colic and says that a great many cases go to the general surgeon and are operated upon for renal stone, ureteral stone and appendicitis. The colic is very severe and is sometimes accompanied by temperature and simulates intra-abdominal or renal pain to a marked degree. Differential diagnosis is made by massage of the vesicles, which will in every case contain blood uniformly mixed with the secretion.

Case 2.—S. P. A., white, age 28. Gonorrhea four times, including present infection; prostate had never been massaged. Developed an inflammation in the small joints of both feet on the fourth day. As soon as the urethral discharge was checked, massage of the gland and vesicles was instituted.

On the first massage, about a half ounce of secretion was secured from the right vesicle and prostate gland.

The left vesicle was about the size of the thumb, and on palpation fluctuation was noted, but no secretion could be forced through the ducts.

Mixed vaccine was administered, the dose being increased to one billion organisms; massage every other day together with hot baths and hot rectal irrigations.

Vesicular and prostatic massage was continued over a period of six weeks without forcing the contents of the left vesicle into the urethra. In the meanwhile the urethral discharge disappeared and the arthritis improved, but the patient still walked with great difficulty and had to use a cane. Drainage of the vesicles was advised, but the patient refused to be operated upon and left for his home in Kentucky, where he hopes to obtain relief by complete rest.

This patient was absorbing toxic substances from his left vesicle and it was impossible to force the contents into the urethra because of some occlusion of the left ejaculatory duct.

Case 3.—J. M. C., white, age 22. Gonorrhea two years ago. Feet and knees are stiff and swollen. Tonsils had been removed; teeth and sinuses negative.

Seminal vesicles and prostate inflamed and sensitive to pressure. Secretion contains pus. Massage instituted at once. Cultures reveal the presence of the staphylococcus. Autogenous vaccine administered. Vesicles were partially emptied of their contents, but there were four or five nodular spots which did not respond to massage. Patient was anxious to have his vesicles drained, which was done, the result being marked improvement in his arthritis which will, we think, disappear entirely within the next few months under proper exercise.

We cite this case to show that it is impossible in some instances completely to empty the vesicle even though the ejaculatory ducts are not occluded, due to the fact that the vesicles are first convoluted, and secondly, that there are four or five convoluted branches which must also be drained.

BIBLIOGRAPHY

- Fuller, Medical Record, October, 1909.
Young, Journal of the American Medical Association, September, 1915.
Culver, Journal of the American Medical Association, February, 1916.
Hitchens and Brown, Journal of Public Health, III, 9
Lowsley, Medical Record, September, 1915.
327 First National Bank Building.

AUTHORS' ABSTRACTS

Surgery, Gynecology, Obstetrics, and Genito-Urinary Diseases

Multiple Acute Gastric Ulcers After Using Percy's "Cold Iron" for Inoperable Carcinoma; Preliminary Report of a Fatal Case; V. N. Leonard, Baltimore, Md., Journal of the American Medical Association, May 13, 1916, p. 1549.

In the case reported, prolonged "cooking" of carcinomatous masses resulted in acute systemic effects similar to those following extensive cutaneous burns. Histologic examination of the pelvic tissue showed viable carcinoma four days after the use of the "cold iron."

History.—Woman, aged 52 (two children), had had no bleeding since the menopause at 42 until five months before admission. Then she had profuse vaginal bleeding, lasting five days, with loss of weight, slight pain, constipation, and painful defecation. Examination showed inoperable carcinoma, the cervix being entirely destroyed by a hard mass which extended far out into each broad ligament. Hemoglobin was 56%.

Operation.—The technique most recently advocated by Percy was followed in every detail. Midline incision and ligation of both internal iliac arteries and both infundibulo-pelvic ligaments. A Percy cautery (Point "A") was introduced into the uterine cavity for an hour at a temperature low enough to avoid all charring. A Percy cautery (Point "E") was then introduced for one half hour each into the right and left broad ligaments, respectively. Acute gastric dilatation, a urinary fistula and a paralytic ileus

followed operation, and the patient died suddenly during preparation for enterostomy.

Autopsy.—Peritoneal cavity contained 100 c. c. of serosanguineous fluid. Extensive pulmonary edema. Stomach mucosa was perforated by about 24 clean, round ulcers from 1 to 7 mm. in diameter. Microscopically the loss of substance extended to the submucosa and was unassociated with any cellular change. Operative site extensively softened. Grossly and microscopically intact squamous cell carcinoma was found peripheral to large areas of general necrosis.

Thyroid Tumors of the Bones. By J. Philip Kanoky, Kansas City, Mo., Surgery, Gynecology and Obstetrics, June, 1916, p. 679.

Special reference is made to non-malignant tumors of the skull.

From the literature the majority of investigators conclude that primarily all metastatic thyroid tumors are histologically benign.

Metastatic tumors can result from small particles of thyroid tissue which have found their way into the circulatory apparatus and lodged in the cellular structure of the bone.

Mechanical disturbance of the thyroid gland, aside from radical surgical interference, may be a causative agency in liberating thyroid cells that may find favorable soil in the bone for development.

In many cases of thyroid metastases there is no hyperthyroid or apparent pathological condition of the thyroid gland.

The malignant character of some of these tumors is due to some secondary influence possibly engendered by the thyroid cell acting as a focus.

The theory of misplaced embryonic thyroid cells is tenable and may be a factor in the production of thyroid metastases. The growth of such cells outside of its direct environment is made possible by some peculiar systemic condition as yet unknown.

Observation on Fissure in Ano. Rollin H. Barnes, St. Louis, Mo. Read before American Proctologic Society, Detroit, Mich., June 11-12, 1916.

The author considers fissure as an ulcer and believes that traumatic causes are not true etiological factors in the production, but it is necessary that the tissues become inflamed and hence friable and thus easily torn in order that fissure be formed. He believes that catarrhal inflammatory conditions are frequently the result of an excessive carbohydrate diet and sometimes an excessive fat diet.

In the treatment of fissure he recommends palliative measures by correcting the excessive diet with reference to carbohydrates and fats, and placing the patient upon a protein diet for a time. When operation is necessary (which is seldom) he believes that the object should be drainage rather than paralyzing the muscular fibers. He also advocates the use of a small (pint) enema before defecation in order to avoid irritation from the stool. It is very important to keep the wound clean by hot sitz baths and the hot enema, in order that any foreign substance may not remain in the wound.