EPIDIDYMITIS.

With the exception of posterior urethritis, epididymitis is the most frequent complication of gonorrhœa. It occurs in from 6 to 15 per cent. of all cases of acute gonorrhœa, and it usually makes its appearance during the third or fourth week of that disease. It frequently begins as late as the eighth week, and it may occur much later, though most of the cases appearing some months or years after an attack of gonorrhœa are undoubtedly due to an exacerbation of a chronic urethritis, to stricture, or to other causes. It is also found as early as the second week, and cases are reported as beginning during the first week, of gonorrhœa.

The epididymitis is usually single, the left testicle being involved somewhat more frequently than the right. When both testicles are implicated, the second follows several days or weeks after the first, simultaneous epididymitis of both testicles being very rare. The first attack is usually acute, and predisposes the patient to the disease, which may thus become chronic. Occasionally, in cachectic subjects or when due to stricture or chronic urethritis, it may be subacute from its origin. It is usually accompanied by inflammation of the tunica vaginalis, and less frequently by orchitis.

Etiology.—Epididymitis occurs during acute gonorrhœa without other apparent cause. It is more frequent in neglected and poorly-treated cases than in those treated in accordance with the hygienic and other rules given for the treatment of gonorrhœa. Any of the causes mentioned as capable of producing an exacerbation of the urethritis or irritation of the urethra may increase the danger of epididymitis. It is probably

always preceded by inflammation of the pars posterior, from which position the inflammation travels readily and continuously through the ejaculatory ducts and the vas deferens to the epididymis: evidences of inflammation of these intermediate parts are often wanting, and it is possible that in some cases the lymphatics convey the infection directly from the deep urethra to the epididymis. Some writers speak of reflected irritation as a sufficient cause. Some individuals are very susceptible to the disease, while others seem proof against it, despite neglect, reckless living, and poor treatment. One attack always predisposes to another. It occurs in subacute and chronic (also acute) forms in chronic gonorrhœa and stricture, especially when these conditions have been aggravated by improper treatment, disordered living, violent exercise, etc. Finally, it may occur independently of urethral disease, as a result of traumatism, or possibly from prolonged sexual excitement or exposure to cold.

Symptoms.—In observant and sensitive patients, and especially if the previous subjective symptoms of gonorrhœa have been slight, the inflammation of the epididymis is usually preceded by prodromal symptoms in the way of slight chills, fever, and malaise, with vague, uneasy sensations or slight pain in the groin and radiating to the kidneys and the testicle. Occasionally the inguinal pain is severe, and the cord is tender and feels as though it were suspending a heavy weight; or there may be a sensation of pressure in the perineum, with vesical tenesmus and difficulty in urination. Less frequently, inflammation and swelling of the cord are recognized for several days preceding an epididymitis; and in rare instances the process is limited to the cord.

In unobservant individuals and in those already suffering considerable inconvenience and distress from gonorrhœa the prodromal symptoms frequently pass unnoticed. In such cases the first recognized evidence of the complication is usually a sudden decided pain in the affected testicle. If examined at this time, some portion of the epididymis, usually the globus minor or major, is found to be slightly swollen and very tender. During the next twenty-four hours the pain and swelling increase rapidly; the entire epididymis soon becomes involved, and can be felt as an irregular, well-defined, moderately firm, half-moon-shaped tumor enclosing the superior, posterior, and inferior borders of the testicle. It is very painful, especially when the testicle is allowed to hang without support, and is exceedingly tender to the touch. Under favorable circumstances or with good treatment the disease may progress no further, and after a few days the symptoms will begin to subside: this result is not common even with the best treatment.

More frequently the inflammation extends from the epididymis to the tunica vaginalis, which becomes more or less distended with fluid, thus adding greatly to the swelling and pain and partially or wholly obscuring the outline of the epididymis and testicle. The testicle proper becomes engorged and distended with blood, and occasionally true orchitis (which terminates in resolution), with its intense and characteristic pain, may be present. The loose tissues of the scrotum become inflamed, œdematous, and swollen, sometimes forming irregular, thickened tumors that may be carelessly taken for the inflamed testicle itself. The testicle with its epididymis and their coverings thus form an irregular or oval tumor that may become larger than a man's fist, reddened, hot, exceedingly painful, and tender. The cord may become swollen and very painful, often drawing the testicle up toward the groin; in rare instances it becomes partly strangulated in the inguinal canal, resulting in intense pain, collapse, and all the symptoms common to strangulation with inflammation.

The intensity of the symptoms, however, varies greatly in different cases. The swelling may be limited to a part or all of the epididymis, which is more or less indurated and tender, or it may be increased by fluid in the tunica vaginalis. This fluid may be scanty in quantity and may serve merely to form a fluctuating tumor which but partially obscures the outline of the testicle and epididymis, or it may be sufficient to forcibly distend the cavity, forming a tense, exceedingly painful tumor which conceals entirely all traces of the enclosed structures. Swelling and infiltration of the scrotal tissues may be slight, but they are usually marked and are often sufficient to make an examination of the deeper parts impossible. As a result of ill-fitting dressings, swelling of the scrotum may be pronounced in cases that are otherwise mild.

The pain in epididymitis varies greatly, but in acute cases it is usually intense. The organ is very sensitive, and the slightest pressure upon it causes the patient to feel nauseated and faint. Without proper support for the testicle walking is often impossible. Absolute rest and support of the scrotum in one groin or over the pubis lessens, but does not entirely remove, the pain. If there be much inflammation of the testicle proper or strangulation of the cord—both uncommon occurrences—position has little influence on the pain, which is even more intense than in epididymitis, and it may be compared to that of renal colic. A similar but less severe grade of

pain is produced when the tunica vaginalis is greatly distended, but usually the most tender part is the epididymis, which can thus be located by palpation even through a swollen and œdematous scrotum.

The course of the disease varies considerably, being, as a rule, much shorter and more even when the parts are put at rest and given proper treatment than in cases in which such rest and good management cannot be obtained. It is further influenced by the idiosyncrasies and general health of the patient. In an acute case the symptoms usually increase rapidly in severity for three or four days or a week, remain stationary for a few days more, and then decline, so that at the end of ten days or two weeks from the beginning the pain is practically gone and the swelling is limited chiefly to the epididymis, some portions of which are still indurated and tender. An uncomfortable sense of weight and soreness may remain for some time.

From the beginning, if the patient be kept on his back and the scrotum be well supported, the pain usually subsides rapidly, and it may become slight before the swelling has begun to disappear; but if he sit or stand and allow the testicle to depend, the pain promptly returns. As the pain subsides the patient often thinks himself able to get up and return to his business, but a few hours or a day of ordinary activity may send him to bed with the pain and swelling nearly as severe as before. Even at the end of two weeks, when he seems to be practically well, if he is very active and fails properly to support the testicle, a relapse may be expected. Relapses are not uncommon, and, while less severe than the first attack, may prolong the disorder indefinitely and result in a permanent induration of the

globus minor or major. As a rule, the globus minor, or less commonly the globus major, remains more or less swollen, indurated, and tender for some weeks; while the last traces of induration disappear gradually in the course of months or years, or persist permanently in the form of a hard, insensitive nodule.

For a few days during the height of the attack there is usually some fever with its attending symptoms; such constitutional disturbances are usually mild, but occasionally they are quite severe. The gonorrhœal discharge, which commonly diminishes with or just previous to the appearance of the swelling, may disappear entirely, but it returns when the swelling subsides.

Subacute attacks occasionally complicate stricture or gleet. The symptoms come on more slowly, are much less severe than in the acute form, and are usually confined to the epididymis or some portion of it and to the cord. The testicle, the tunica vaginalis, and the scrotum are not at all or but slightly involved, and constitutional symptoms are wanting. The epididymis, and frequently the cord, is somewhat swollen, tender, and sensitive, but a well-fitting suspensory or other support usually enables the patient to attend to his usual work without much discomfort, though violent exercise should be avoided. As in gonorrhœa, the gleety discharge disappears during the swelling, to return as the latter subsides.

As a result of repeated subacute attacks or of relapses in acute epididymitis, the inflammation may become chronic. Portions of the epididymis are then constantly swollen, thickened, and tender, simulating tuberculosis of the organ, except that the nodular enlargements are smoother and less irregular in outline, and that slight causes suffice to produce a subacute inflammation of the

entire body of the epididymis. The cord and the connective tissue about it may also be swollen, infiltrated, and sensitive, and may be the seat of neuralgic pains. Exceptionally there is chronic suppuration in portions of the inflamed tissues.

Diagnosis.—The characteristic symptoms appearing during the course of a gonorrhœa usually render the diagnosis easy. Orchitis, the only other disorder for which it might be mistaken, is rare and is not associated with urethral inflammation, but is caused by injuries, mumps, cold, and constitutional disorders. The swelling in orchitis involves the testicle proper, comes on more slowly, and forms a smaller tumor which is oval, smooth, peculiarly hard and tender, and not obscured by fluid in the tunica vaginalis. The pain is more intense and unbearable than in epididymitis, and is not influenced by position. Its course is slower, and it may result in destruction of portions or of all of the testicle through atrophy, suppuration, or gangrene.

Cases have been reported in which epididymitis of an undescended or abnormally situated testicle has been mistaken for strangulated hernia, etc. Such an error can be avoided by an examination of the scrotum, which would show the absence of one testicle. There have also been reported cases in which the inflammation has been limited to the vas deferens, with the formation of a rounded painful tumor extending from the ring to the epididymis. There are on record a few cases in which an ordinary epididymitis has been preceded by partial strangulation of the cord, with symptoms suggesting strangulated hernia or obstruction of the bowel with peritonitis.

Treatment.—Since epididymitis is almost invariably a

complication of urethral inflammation, its prophylactic treatment lies in th proper hygienic and other management of the primary disorder. If an individual has had a previous epididymitis, he should wear, during the course of his gonorrhœa, a well-fitting suspensory bandage, live as quietly as possible, and avoid active exercise (especially lifting, jumping, dancing, etc.) and all irritation of the sexual organs, following faithfully the hygienic rules given for the treatment of gonorrhœa. Epididymitis can sometimes be prevented if, upon the first appearance of pain or uncomfortable sensations in the testicle or the groin, the patient lie on his back, with the scrotum elevated and covered for a few hours with hot applications.

In acute cases of epididymitis the objects of treatment are to lessen the inflammation and pain and to promote resolution. The essential requirements are complete rest, elevation and support of the testicle and scrotum, and the application of heat. A light diet and simple laxatives to produce free evacuation from the bowels constitute the only internal treatment, unless the condition of the individual calls for special medication. All treatment for gonorrhœa, except that necessary to keep the urine bland, should be suspended. The patient should rest quietly on his back. The scrotum should be covered completely with fomentations or poultices, and should be supported carefully, by means of a sling or a bandage, in a comfortable position over the symphysis or in one groin. The most satisfactory bandage for this purpose is the last of those recommended for dressing the organs during gonorrhœa, as it can easily be made to fit a testicle and its dressing of any size or shape. Another simple device is found in a large handkerchief or napkin folded once to form a triangle; the middle of the long (folded) side is

placed under the scrotum, and an end (acute angle) is fastened on each side to a belt made of any convenient and comfortable material. The free (right) angle is brought up over the genitals and dressings and fastened to the belt in front. To keep the handkerchief from slipping upward it may be necessary to sew to its posterior border a narrow band that can be pinned to the belt behind.

Heat is best applied by means of fomentations, which, when skilfully employed, are more effective than poultices, and, being light, are often more comforting to the patient, for in a severe case the testicle may be so sensitive that the weight of a poultice cannot be tolerated. They may be made of a number of layers of gauze, or of from one to four thicknesses of a light white flannel faced with a piece of gauze, linen, silk, or cotton, which will be less irritating to the skin than the flannel. They should be large enough to more than cover the scrotum completely, and they should be covered in turn by a larger piece of oiled silk or of rubber tissue, which will serve to retain the heat and to keep the clothing dry. They should be applied as hot as the patient can tolerate them with comfort, and should be changed often enough to keep them hot (from once in half an hour to once in two hours). Two sets of cloths are necessary, that one may be hot and ready for immediate application when the other is removed, as much harm may be done by having the parts exposed to a lower temperature while preparing the fomentation. It is equally important that in making changes the testicle be moved or disturbed as little as possible. The cloths may be wrung out of simple hot water, but it is better to add a teaspoonful of boric acid to each pint of water.

When the patient has neither the assistance nor the conveniences necessary for the frequent application of fomentations, an ordinary flaxseed poultice may be substituted. This poultice should be from a quarter to half an inch thick, faced with a thin soft cloth to keep the wet meal from adhering to the scrotum, and the whole should be covered with oiled silk. Poultices retain the heat longer than fomentations, and need not be changed so frequently (from once in four hours to once in eight hours).

In the majority of cases a few hours of the above treatment will make the patient comfortable while he remains quiet. If these measures do not give relief, from ½ ounce to 1 ounce of fine-cut tobacco should be stirred thoroughly in a pint of the boiling water which is to be used for fomentations or poultices. This is a very effective anodyne, but it may produce nausea. Instead of tobacco, 10 grains or more of powdered opium to the pint of water may be used. Sometimes sprinkling the surface of the fomentation or the poultice with fine-cut tobacco or with laudanum gives good results. Other anodynes may be applied, under the poultice, in the form of powder, liquid, or ointment, but they are rarely needed. If these measures are not sufficient, and if the pain be due to extreme distention of the tunica vaginalis, puncture will allow of escape of the fluid and will give immediate relief. In exceptionally acute cases, with strangulation of the cord and extreme pain which is not relieved by the usual treatment, ten or more leeches may be applied above the groin, along the course of the cord, followed by the use of hot water to encourage bleeding: the effect on the pain is often prompt and decided.

In all cases of epididymitis, when the patient can afford the time, rest in the horizontal position and elevation of the scrotum should be continued for ten days or two

weeks, or until all symptoms have disappeared except a small, tender, indurated swelling of the globus minor. The fomentations or poultices hasten absorption of the inflammatory products, and should be continued when practicable, though after the first few days, when the symptoms have begun to subside, they may be replaced by a more convenient and nearly as efficient dry dressing formed by wrapping the scrotum in a layer of wool and covering all closely with an impervious covering of oiled silk or of rubber tissue. The heat and moisture natural to the parts are thus retained, forming what is known as a "dry poultice."

When a patient with acute epididymitis refuses to go to bed for a few days, other methods may be tried; but he should first understand that his recovery will be slower and that a permanent induration of the globus minor and obstruction of the vas deferens will probably follow. The scrotum over the affected testicles may be smeared lightly with an opium-and-belladonna ointment, covered with a "dry poultice," and the whole supported and made as immovable as possible with the wide bandage already recommended, or—what is often more effective when the patient is on his feet—with the Horand-Langlebert suspensory, which may be obtained from the makers of surgical appliances. By avoiding sudden and rapid movements the patient is often enabled to move about with comparatively little discomfort. For these cases Dr. W. S. Halstead and others touch the surface of the scrotum lightly in several places with the point of the cautery at a white heat; iodoform ointment is then applied, and the testicle is properly supported. This method frequently relieves the pain and allows the patient to remain up and to move about. Tincture of

iodine and strong solutions of nitrate of silver have been used to paint the scrotum and to produce counter-irritation, but they usually fail to do much good, and they often cause a severe dermatitis of the scrotum.

When possible, every patient with epididymitis should be kept on his back until the pain has subsided and the swelling has been reduced somewhat (from three to eight days); but if he is then unwilling to spend more time in bed, he may be allowed to rise and go about if his testicle is first properly strapped. To determine if a testicle is ready for strapping, the organ is taken in the hand and gently manipulated for several minutes, gradually bringing the testicle to the bottom of the scrotum, which is encircled, just above the testicle, by the thumb and forefinger, forming a ring which gentle pressure is making gradually narrower. These manipulations will probably cause some pain in the testicle or in the groin, but this pain will usually disappear without relaxing the pressure if the operating hand be held motionless for a few seconds. If the pain is but slight when the ring formed by the thumb and the finger is too small for the testicle to escape through it upward, and the testicle is thus secured in a smooth, tense, and shining pouch of the scrotum, strapping is proper.

For strapping the testicle rubber adhesive plaster or lead-plaster may be used, in strips half an inch wide. The hairs should be cut from the scrotum, to prevent their being pulled by the plaster on its removal. The most difficult and most important part of the whole procedure lies in applying the first strip of plaster, which must be made to take the place of the thumb and the finger in forming a ring to hold the testicle in the position described above. The strip should be half an inch

wide and three or four inches longer than necessary to encircle the testicle. To its under (adhesive) surface is fastened a cotton bandage an inch and a half wide and enough shorter than the plaster to leave one end of the latter uncovered for two or three inches. The bandage is used to prevent the edge of the plaster from cutting the scrotum.

The patient stands, or sits on the edge of a chair, in front of the operator, who has taken the precaution to have his strips of plaster, bandage, scissors, etc. ready and within easy reach. When the left hand has once more secured the testicle in the desired position, the pressure may be relaxed without changing the position of the hand, and the prepared adhesive strip is placed around the scrotum in the position just vacated by the thumb and the finger. The thumb and the finger again encircle the scrotum above and outside of the adhesive strip, holding the end covered by the bandage in position and forcing the testicle down, while the right hand brings around the free end of the plaster and fastens it to the back of the fixed end. If properly done, the testicle is secured in a smooth, tense, purplish pouch of the scrotum, the adhesive strip forming a ring too small to allow the escape upward of the testicle. After waiting two or three minutes to allow the pain to subside (as it will do if the plaster be not drawn too tight), the operator applies several more circular strips parallel with the first, each strip overlapping the one last applied by about half its width. When strips applied in this direction will no longer fit the surface, others may be fastened to the first strip on one side, carried over the testicle, and fastened to the first strip on the opposite side, until the entire surface below the ring is firmly and

completely covered. A long circular strip should finally be applied to cover and hold the ends of the strips last applied. When finished the covering should exert even pressure upon the entire surface, thus encouraging absorption and preventing the possibility of a return of the swelling.

It is always best to have the patient rest quietly for half an hour or more after strapping the testicle, until the pain caused by the manipulations has disappeared, when he can support the scrotum with a suspensory bandage (made to fit by lining it with cotton), and go about his business in comfort and without fear of a relapse. If the dressing remains painful after an hour, or if it becomes so at any time, it should be removed either by cutting the separate strips or by immersing the whole in hot water until it can be slipped off. Pain will follow strapping if the testicle is not ready for it, if the ring formed by the first strap be too tight, or, as frequently happens, if the ring be so large that the testicle is forced partially into it by the other straps. At the end of from twenty-four to forty-eight hours the swelling will have been so reduced in size that the dressing no longer exerts pressure upon the testicle, which sometimes escapes through the ring, and a new strapping is necessary. The procedure is repeated four or five times until all that remains of the swelling is the indurated globus minor.

For several weeks, until all swelling is reduced to a painless induration, a well-fitting suspensory should be worn. This is done to prevent a relapse and to hasten absorption, a process that may be aided by daily inunction over the nodule with oleate of mercury (2 to 10 per cent.), and by lining the suspensory with oiled silk

and a thin layer of wool to form a light "dry poultice." Too early suspension of treatment, and especially of support for the parts, may lead to chronic inflammation of the epididymis and the cord.

The treatment of subacute and chronic epididymitis is that of the declining stages of the acute process. In addition, all predisposing and exciting causes should be removed.

Prognosis.—Epididymitis almost always terminates in resolution; suppuration is very rare except in the uncommon chronic cases. Absorption of inflammatory products is rapid at first, and at the end of a few weeks of good treatment all pain and tenderness have disappeared, and there remains only some swelling and induration of the globus minor or major. This remaining induration may require months or years for its final absorption, and frequently persists permanently in the form of a hard nodule found to be composed of inflammatory deposits in and surrounding the seminal canals, which are thus completely occluded.

Permanent induration is most common in the globus minor, and, as this body is composed of the convolutions of a single tube, the blocking of any portion of it prevents the passage of the semen from the testicle proper to the vas deferens. Even when all apparent induration has disappeared, and this portion of the epididymis again feels normal to the palpating finger, the canal may be filled and obstructed at some point. Complete absorption of the deposit and reopening of the canal in the globus minor can be expected in but a small minority of cases. In the globus major complete absorption is more common, and even if it does not occur, some of the tubules may escape

obstruction. It follows that the large majority of men who have had epididymitis on both sides are sterile. The cause of their sterility lies solely in mechanical obstruction to the passage of semen, since the testicle does not atrophy nor is the man impotent. He retains his sexual appetite and power, and ejaculates a fluid resembling semen except that it contains no spermatozoa.

In a tubercular or syphilitic patient epididymitis may be followed by the appearance of the constitutional disease in the epididymis.

Subacute and chronic cases of epididymitis terminate favorably when proper treatment is continued for a sufficient period.

PROSTATITIS.

I. Acute Prostatitis.—When gonorrhœal inflammation reaches the posterior urethra, it frequently includes the superficial glands and follicles of the prostate, and it may readily involve the entire structure of the organ. Prostatitis commonly appears after the third week of gonorrhœa, its symptoms following or appearing simultaneously with, and possibly obscuring, those of posterior urethritis. It occurs also with chronic urethritis and with stricture. The exciting causes are practically those of posterior urethritis and epididymitis—namely, coitus; prolonged or intense sexual excitement; violent exercise; excessive use of alcohol, tobacco, or highly seasoned foods; exposure to cold; and mechanical or chemical injury due to the use of instruments or injections, or possibly to a concentrated and irritating urine. It is possible that these causes may produce prostatitis independently of gonorrhœa.