the subsequent use of the sponge on a healthy eye may carry the contagion to it, and give rise to a dangerous malady.

This disease is truly a gonorrhœal conjunctivitis, and is easily separable from gonorrhœal ophthalmia, a disease impossible upon a given subject unless he is at the same time himself suffering from urethral inflammation. The so-called sympathetic (metastatic), gonorrhœal ophthalmia is of the latter variety, and should never be confounded with true contagious conjunctivitis.

Gonorrhœal conjunctivitis is rare; of 37,034 cases of disease of the eyes treated at the New York Eye Infirmary, it occurred 59 times, once in 628 cases (Bumstead). It is much more frequent in the male than in the female, on account of the greater opportunities for contagion. The right eye suffers more often than the left, since most patients handle the penis, and rub the right eye, with the right hand. Pénanguer[1] states the proportionate occurrence of the disease in the eyes to be four times in the right to once in the left.

The symptoms are those of purulent conjunctivitis intensified. The rapidity with which the symptoms aggravate is often appalling. The slight dry sandy feeling attending the first congestion of the eye is of the shortest duration, as is the secretion of tears and muco-pus. Within a few hours after contagion, the dischage is frankly purulent, and the inflammatory symptoms go on increasing rapidly in severity, until, in three or four days, often sooner, destruction of sight is inevitable. Sometimes the safety of the eye is compromised in a few hours (ten to twelve). The vessels of the conjunctiva rapidly fill with blood, and its tissues become distended with serum (chemosis). The border of the infiltrated conjunctiva overlaps and partly conceals the cornea, the latter lying, as it were, at the bottom of a cup filled with pus. The eyelids have an erysipelatous redness, are very œdematous, and swollen. The upper overrides the lower. There is spasm of the orbicular muscle. Pus is retained in large quantities. Pain, ocular and peri-orbital, is often intense. The cornea soon falls into ulceration, if the chemosis continue. There is, first, a purulent infiltration between its lamellæ, then softening and ulceration, superficial at first, and usually situated near the circumference of the cornea, perhaps obscured from casual inspection by the overhanging, chemosed conjunctiva. This ulceration progresses rapidly to perforation, the aqueous humor escapes, perhaps hernia of the iris occurs. The cornea may be pressed out into an anterior staphyloma, or be destroyed by the ulcerative process, or fall out, as a whole, like a watch-glass, allowing the contents of the eye to escape. The general symptoms are moderate. Fever is usually mild, except in rare cases of suppuration of the globe, and soon gives place to a nervous, depressed, irritable condition, attended by insomnia, agitation, inquietude, more rarely stupor.

[1] "De l'Ophthalmie blennorrhagique." Thèse, Paris, 1851.

Diagnosis.—The following table, prepared by Fournier,[1] sets forth the distinguishing characteristics of the two ocular affections, liable to be found upon a patient with a urethral discharge. The distinctions cannot be too strongly insisted upon, on account of the liability to confusion of two conditions, one of which is so harmless and so little benefited by remedies, the other so destructive and so positively under the control of treatment.

Gonorrhœal Conjunctivitis.	*Gonorrhœal Ophthalmia.*
1. Essential cause—inoculation of the conjunctiva with gonorrhœal pus.	1. Contagion plays no part in the production of the malady, which is developed under the influence of an internal cause, the nature of which is unknown.
2. A rare affection.	2. An infrequent complication of gonorrhœa, but still much more common than the contagious ophthalmia : : 14 : 1.
3. May affect subjects not suffering from gonorrhœa.	3. Only attacks patients already suffering from gonorrhœa.
4. Usually only one eye involved.	4. Commonly both eyes.
5. The symptoms are those of the gravest kind of purulent ophthalmia. They affect the conjunctiva primarily.	5. The symptoms are those of an inflammation of the membrane of Descemet, of an iritis, or of an oculo-palpebral conjunctivitis.
6. Symptoms fixed, not going from one eye to the other.	6. Sometimes the inflammatory phenomena are mobile, passing from one eye to the other.
7. No tendency to relapse in subsequent gonorrhœas.	7. Frequent relapses in the course of subsequent gonorrhœas.
8. No coincidence with rheumatic manifestations.	8. Coincidence with gonorrhœal rheumatism very habitual, almost constant.
9. Prognosis excessively grave. Often loss of the eye.	9. Prognosis without gravity.
10. The eye is only saved by a most energetic treatment.	10. Expectation, or the simplest treatment, sufficient for a cure.

Prognosis.—When a severe purulent conjunctivitis develops in an individual with a urethral discharge, or even in a friend, especially if any history of contagion can be elicited, the prognosis is most grave. Unless an energetic treatment be instituted, the eye is lost, and, if aid come a little late, some lesion of greater or less severity and affecting vision is pretty sure to remain behind. Fortunately, both eyes are rarely involved.

Treatment.—There is not a moment to be lost. Delay may sacrifice the eye. The essentials of treatment are four:

1. Relief of tension.
2. Relief of chemosis.
3. The early free repeated use of a strong cauterant.
4. Cleanliness.

Each of these four is about equally important.

[1] "Nouv. Dict. de Méd. et de Chir. prat.," p. 251.

The greatest care is necessary in handling the tender, swollen eye. No pressure is allowable. The dressings should be the lightest possible—even the pressure of the swollen lids upon the eye is prejudicial, and must be met by early, free canthoplasty at the external angle, an operation to be repeated if necessary. All the dressings should be performed by a skilled hand, else they will be inefficient. The utmost care should be used in protecting the sound eye from contagion. It may be hermetically sealed with lint and collodion where the nurse is not trustworthy. Old soft rags are most suitable for wiping off the discharges, and these should be destroyed at once by fire. The pus retains its contagious properties for hours after it has dried, and fresh pus has been found to be still contagious when diluted with one hundred parts of water. The rapid and virulent nature of the inflammation occasioned by the contagion of gonorrhœal pus has been amply demonstrated by certain oculists, who have treated pannus by inoculating the eye with this material for the purpose of exciting an acute inflammation.

If the patient is seen early, before his symptoms have run high, and before the secretion is frankly purulent—within the first twenty-four, at most forty-eight hours—if he is robust, it is advisable to take three or four ounces of blood from the temple, or mastoid process of the affected side, by leeches or cups. If the effect seem favorable, this local blood-letting may be repeated in ten or twelve hours, and even a third time if necessary. Irritant purgatives, and a low diet at first, are of advantage. Perfect rest of body, and, if possible, of mind, should be secured. The sick-room should be obscurely lighted.

If the patient is not robust, not an ounce of blood can be spared, a laxative rather than a cathartic should be given, while the diet must be nourishing and supportive, even stimulating if there be much depression. Under no possible circumstances is a mercurial course advisable, or a continued depressing treatment harmless.

The local treatment is the same for all cases. If the patient is seen very early, iced-water is to be applied locally upon a thin fold of cloth, which must be constantly changed. As soon as pus begins to form, a solution of gr. x to xx of nitrate of silver should be painted over the conjunctiva, and the iced-water continued. Every few hours the eye must be reinspected, and the nitrate-of-silver solution reapplied. As pus begins to form more abundantly, or if the patient is not seen until suppuration is profuse, the strength of the solution must be increased up to ʒ j to the ℥ j, or the solid stick may be employed, being carefully drawn over the entire ocular and palpebral conjunctiva. The cornea is of course spared in applying any caustic. After using strong solutions of the nitrate of silver, the excess should be washed away with a solution of common salt.

The object of these powerful applications is, to restrain the formation of pus and change the discharge into a sero-sanguinolent one.

They should be made sufficiently often, and sufficiently strong to produce this effect. The iced-water compress should be kept up for a number of hours after each application, then the lids should be anointed with cold cream, and left uncovered, simply shaded from the light. Cauterization should be repeated whenever the discharge gets abundant and thickly purulent.

The water or cerate will keep the outside of the eye reasonably clear, but the swelling of the lids and spasm of the orbicular muscle tend to confine much of whatever discharge there may be. Hence the value of canthoplasty. It allows dressings to be made easily, prevents the ball from suffering pressure (thus contributing to preserve the cornea), and makes cleanliness easy. The outer canthus should be continued by an incision down to the bone. A skilled nurse from time to time should gently separate the lids, and squeeze a few drops of warm water into the eye from a soft rag, removing all external pus with the same cloth. A syringe should not be used to wash the eye, for fear of spattering. A mild solution of nitrate of silver, gr. v to x, is sometimes of advantage, dropped into the eye between the cauterizations. The treatment must be continued unremittingly, the eye, being washed, dressed, and inspected, every two or three hours, until the symptoms abate. An anodyne may be required, to produce sleep.

Chemosis is treated by extensive and deep scarifications performed with the curved bistoury or scissors. These scarifications must be thorough. They should never be made before, always after a cauterization, otherwise the surgeon will have to wait some time for hæmorrhage to cease, or he will not apply his cauterization thoroughly, and, furthermore, an unnaturally hardened condition of the conjunctiva is liable to be left behind by the healing of the scarifications, the surfaces of which have been cauterized down to the bottom. Some of the chemosed conjunctiva may be snipped away, but deep scarification with a bistoury, often repeated, is better.

When the cornea becomes opaque, use atropine at once, and, without waiting for ulceration, puncture the anterior chamber, repeating this operation as often as the cornea becomes tense. It is better to do this, especially if there be ulceration, than to run the risk of hernia of the iris, or possible escape of the contents of the globe.

Peri-orbital pains are combated as are those of gonorrhœal ophthalmia (p. 87).

When the acuteness of the symptoms begins to subside, milder astringent collyria may take the place of the nitrate of silver; such as—

℞. Alum exsic., gr. vj–xij to the ℥ j.

or—

℞. Zinci sulph., gr. j–iij " " "

or—

℞. Sodæ biborat., gr. v–x " " "

These may be applied to the eye by means of any of the ingenious "droppers" which the shops afford, or, if the patient can slightly open and close the lids, he may diffuse the solution over his eye by throwing back the head until the plane of the face becomes horizontal, then closing both eyes, and dropping a little of the solution (not too cold) over the inner canthus of the one to be medicated. Now, by several times rapidly opening both eyes to their widest extent and then shutting them, the fluid enters the eye and circulates over the globe. This method does not succeed with strong solutions, causing pain, and should not be used with solutions which stain the skin. Nitrate of silver should always be applied by an experienced hand, and be brought into contact with every portion of the conjunctiva.

The inflammation once reduced to a subacute state, tends to get well slowly. The discharge drags along on an average for from two to four weeks—often longer. In these cases blisters behind the ears, on the temples, seton at the nucha, etc., have been recommended, together with plenty of good food, fresh air, tonics, stimulants, etc.

Granular conjunctivitis and anterior staphyloma may be mentioned as not very rare complications of gonorrhœal conjunctivitis. They have no essential connection with gonorrhœa, and the student is referred for their treatment to works on diseases of the eye.

CHAPTER V.

STRICTURE OF THE URETHRA.

Definition.—Varieties: Muscular, Organic.—Organic Stricture.—Form.—Number.—Seat.—The Lesion in Stricture.—Causes.—Time of Occurrence of Stricture.—Irritable and Resilient Stricture.

An unnatural narrowness of any portion of the canal of the urethra constitutes stricture; or, since the urethra is naturally a shut canal, Sir Charles Bell's definition may be more accurate, and any loss of dilatability may be termed stricture. This contraction of the canal, following the first definition, to constitute stricture, must be unnatural, for the urethra has certain points of normal contraction—namely, the meatus and the beginning of the membranous urethra, and these are not strictures. They become so, however, if they are unduly small. Thus, an individual with an average-sized penis and urethra, whose meatus will only take No. 8 or 9, has stricture (congenital) of the meatus, although he may never suffer any inconvenience therefrom. Again, any inflammatory condition of the walls of the canal, or spasmodic contraction of the same, constitutes stricture, as does also any growth upon or beneath

the mucous membrane—cancerous, tubercular, syphilitic, membranous, polypoid.[1]

A collection of fluid outside the canal may constitute stricture, abscess, serous or hydatid cyst, etc.—any thing, in short, which lessens the size of the canal when distended by the stream of urine—foreign bodies of course excepted. In all the last-named conditions, however, stricture is only an epiphenomenon, and not the disease itself.

In this section, pure stricture only will be discussed.

Stricture is of two kinds: 1. Muscular, or spasmodic; 2. Permanent, or organic—the latter congenital, or acquired. Inflammatory stricture does not exist as a disease of the urethra. The smallest amount of inflammation will lessen the calibre of the canal, just in proportion to the amount of turgescence of the mucous membrane; but this is unimportant. No amount of simple inflammation of the urethral mucous membrane gives rise to enough diminution of the size of the canal to occasion serious inconvenience (retention), unless occurring in connection with organic stricture, assisted by muscular spasm or complicated by prostatic congestion. A croupous membrane may exist within the urethra and obstruct more or less the flow of urine; but this is exceedingly uncommon. Rokitansky[2] speaks of "very rare cases" where "we find primary croup occurring on the urethral mucous membrane"—this chiefly in children. Membranous deposits may occur upon the surface of organic stricture, or behind it; but these are not to be confounded with true croup.

1. Muscular or Spasmodic Stricture.—Spasmodic stricture is of the commonest occurrence; but, as in the case of inflammation, unless complicating preëxisting organic stricture, it is usually an affection of no special importance. The predisposing cause of spasmodic stricture is a sensitive, high-strung, nervous organization, often in connection with an irritable, gouty, or rheumatic constitution, and particularly in those whose sexual functions are not regularly exercised. The exciting causes are any local irritation, inflammation, foreign body, irritation of the rectum (reflex action), ingestion of certain substances, cantharides, turpentine, etc., mental emotions, malaria. The seat of contraction is in the unstriped muscular fibres which surround the urethra at the irritated point (stricture, foreign body), or at the membranous urethra in the voluntary "cut-off" muscle.

The action of many of these causes may be readily illustrated. Take a nervous, excitable young man with a healthy urethra—*a fortiori*, with an irritable bladder or inflamed urethra—and attempt to pass a

[1] (Polypi very rarely grow in the spongy urethra. They are chiefly found—discovered after death—in the prostatic sinus; sometimes in the fossa navicularis, where they can be felt and seen during life. Their symptoms are those of stricture. When within reach, they may be excised or torn away, and the base from which they grow cauterized. They seem always to spring from the floor of the urethra.—Beyran, "Polypes de l'Urètre chez l'Homme."—*Gaz. Méd.*, 47, 1863.)

[2] Sydenham translation, vol. ii., p. 235.