In the words of Mr. Dixon: "The student ought constantly to bear in mind that, although the disease termed purulent ophthalmia has received its name from that symptom which readily attracts notice, namely, the profuse conjunctival discharge, the real source of danger lies in the *cornea;* and that, even if it were possible so to drain the patient of blood as materially to lessen or even wholly arrest the discharge, we might still fail to save the eye. It is not the flow of pus or mucus, however abundant, that should make us anxious, but the uncertainty as to whether the vitality of the cornea be sufficient to resist the changes which threaten its transparency. These changes are twofold,—*rapid ulceration* and *sloughing.* Now, has any sound surgeon ever recommended excessive general bleeding and salivation as a means of averting these morbid changes from any other part of the body except the eye? And if not, why are all the principles which guide our treatment of other organs to be thrown aside as soon as it attacks the organ of vision?"

CHAPTER XXI.

GONORRHŒAL RHEUMATISM.

THE question, Who was the first discoverer of a relationship between gonorrhœa and rheumatism? is not of much importance, but has attracted considerable attention. The first mention of such connection, that I am aware of, is to be found in the "Antonii Störck Libellus quo demonstratur," etc., Viennæ, 1769. Swediaur (1781) described this affection under the name of "Arthrocele, Gonocele, or Blennorrhagic Swelling of the Knee."[1] Hunter,[2] in 1786, said: "I knew one gentleman who never had a gonorrhœa but that he was immediately seized universally with rheumatic pains; this had happened to him several times. The blood, at such times, is generally free from the inflammatory appearance, and therefore we may suppose that the constitution is but little affected." Since that time, this disease has received particular attention from various writers on venereal diseases and diseases of the joints, among whom Sir Benjamin Brodie,[3] Sir Astley Cooper,[4] Ricord,[5] Bonnet, of Lyon,[6] Foucart,[7] Brandes,[8] Rollet,[9] and Fournier,[10] are especially worthy of mention. It has been the subject of lively discussion at the meetings of many learned societies, and notably before the Soc. méd. des hôpitaux de Paris, in 1866, a full account of which may be found in the *Gaz. hebdomadaire* and the *Union médicale* for 1866 and 1867. It has by no means been allowed to retain its place in the nosological system undisturbed, and there have been many who have attempted to explain it away on various hypotheses. Its claims to be considered a distinct complication of gonorrhœa will appear in the course of this chapter.

To an observer who had never heard of the connection between gonorrhœa and rheumatism, it might, indeed, appear a mere coincidence if a patient suffering from gonorrhœa should suddenly be seized with inflammation of the joints; but, should this same patient, after

[1] A Complete Treatise on the Symptoms, etc., of Syphilis, by F. Swediaur, M.D. Translated from the fourth French edition, by Thomas T. Hewson. Phila., 1815, p. 108.
[2] Ricord and Hunter on Venereal, Bumstead's 2d ed., p. 88.
[3] Brodie's Select Surgical Works: Diseases of the Joints. Phila., 1847.
[4] Lectures on the Principles and Practice of Surgery. London, 1835, p. 482.
[5] Notes to Hunter, 2d ed. Phila., 1859, p. 275.
[6] Traité des maladies articulaires. Paris, 1853, t. i., p. 376.
[7] Quelques considerations pour servir à l'histoire de l'arthrite blennorrhagique; in 8vo., pp. 45. Bordeaux, 1846.
[8] Arch. gén. de méd., September, 1854.
[9] Annuare de la syphilis; année 1858, Lyon.
[10] Union med., Paris, Nos. 9 and 10, 1867; also, N. Dict. de méd. et de chir. prat. Paris, tome v., p. 224.

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entirely recovering from both affections, and after several years of perfect health, again contract gonorrhœa, and again be seized with articular rheumatism, the occurrence would be sufficiently remarkable to excite a suspicion in the mind of the most careless observer that there was some connection between the two. Let this second attack be followed by a third, fourth, and fifth, and the suspicion would be converted into a very strong probability. Suppose that numerous other patients were met with in whom these two affections thus repeatedly coexisted, an attack of gonorrhœa in each of them being followed by one of rheumatism, with such certainty that the latter might be predicted immediately on the appearance of the former, and a manifest relation between the two diseases could no longer be doubted. Now, this repetition of these two diseases in the same person is not merely hypothetical, it is a reality; and it is observed in subjects entirely free from any rheumatic diathesis, who have inflammation of the joints at no other time than when they have gonorrhœa. Among the many cases which might be cited, none, perhaps, will better illustrate this point than the following, which I quote from the lectures of Sir Astley Cooper:

"I will give you," says this distinguished surgeon, "the history of the first case I ever met with; it made a strong impression on my mind. An American gentleman came to me with a gonorrhœa, and after he had told me his story, I smiled and said, do so and so (particularizing the treatment), and that he would soon be better; but the gentleman stopped me, and said, 'Not so fast, sir; a gonorrhœa with me is not to be made so light of—it is no trifle; for, in a short time you will find me with inflammation of the eyes, and in a few days I shall have rheumatism in the joints; I do not say this from the experience of one gonorrhœa only, but from that of two, and on each occasion I was affected in the same manner.' I begged him to be careful to prevent any gonorrhœal matter coming in contact with the eyes, which he said he would. Three days after this I called on him and he said, 'Now you may observe what I told you a day or two ago is true.' He had a green shade on and had ophthalmia in each eye; I desired him to keep in a dark room, to take active aperients, and apply leeches to the temples. In three days more he sent for me, rather earlier than usual, for a pain in one of his knees; it was stiff and inflamed. I ordered some applications, and soon after the other knee became inflamed in a similar manner. The ophthalmia was with great difficulty cured, and the rheumatism continued many weeks afterwards."

Similar cases are related by nearly every author who has written on this affection, and, further on, many are given in a table of the diseases of the eye which accompany gonorrhœal rheumatism. M. Rollet relates in detail five such instances occurring in his own practice, and this repetition took place in eight of thirty-four cases reported by Brandes, of Copenhagen, and in three of eight cases observed by M. Diday. According to Rollet's researches, this repetition

has been noted in nearly one-quarter of the total number of cases of gonorrhœal rheumatism which have been published.

The frequency of cases like these can leave no doubt in the mind that a close relation exists between these two affections, and additional evidence is found in the fact that the rheumatism attendant upon gonorrhœa presents certain peculiarities, which, in general, are sufficient to distinguish it from the ordinary forms of rheumatism.

CAUSES.—In comparison with the great frequency of gonorrhœa, gonorrhœal rheumatism is exceedingly rare. Very little is known of the causes which occasion it in the few, while the many affected with gonorrhœa escape. Its occurrence might naturally be attributed to a rheumatic diathesis, especially as the fact is well established that persons subject to rheumatism are particularly prone to contract gonorrhœa; and it is distinctly asserted by several writers, that a constitutional tendency to rheumatism is a predisposing cause of inflammation of the joints during an attack of gonorrhœa. There is reason to believe, however, that the plausibility of this opinion, founded on *a priori* reasoning, has given it greater weight than it deserves. Those who have expressed it, have failed to produce any evidence in its support; and if we examine the published cases of this disease, we frequently find it noted that the patient never suffered from rheumatism except when he had gonorrhœa. M. Rollet has made this point a special subject of inquiry, and states that in the great majority of cases of gonorrhœal rheumatism which have came under his observation, there was no rheumatic diathesis either in the patients or in their parents. He also states that he has had under treatment many patients with gonorrhœa who were predisposed to rheumatism, and yet in them, urethritis has not been attended by any inflammation of the joints; and this fact derives additional weight from the frequency with which gonorrhœal rheumatism, after having once occurred, is re-excited by a subsequent clap. These statements of M. Rollet go far to show that a rheumatic diathesis has no part in the production of gonorrhœal rheumatism; and the contrary opinion is now generally abandoned.[1]

In earlier times, when gonorrhœa was regarded as identical with syphilis, an evident explanation of the occurrence of rheumatism in the course of a urethritis was readily found, but the same is untenable with our present knowledge. The same is true of the "gonorrhœal diathesis," which some authors have maintained to exist, since gonorrhœa is a local disease, and does not affect the system at large.

[1] M. Rollet weakens his position by asserting an antagonism between a rheumatic diathesis and gonorrhœa, in virtue of which, he believes that a clap sometimes cures a patient of a tendency to rheumatism, from which he has previously suffered for years! He says that he has observed one such case, and quotes another in detail which occurred in the practice of M. Diday; but surely it is more reasonable to suppose that the disappearance of the rheumatism in these two cases was a mere coincidence.

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It should be observed that this form of rheumatism does not accompany inflammation of all portions of the genital organs, but only that of the urethra. No attack of balanitis in the male, or of vulvitis or vaginitis in the female, has ever been known to be attended by it. It appears only in cases of urethritis. Hence the impropriety of the name "genital rheumatism" given to it by Lorain; and hence also, perhaps, its rarity in women, whose attacks of gonorrhœa are usually limited to the vagina and vulva.

It may be remarked *en passant*, that the most appropriate name for this affection is that applied to it by Fournier, viz., "urethral rheumatism," since it is not necessarily connected with gonorrhœa, but may be produced by the simple passage of a sound or other cause of *urethral* irritation.

The idea, advanced by some authors, that urethral rheumatism is due to a mild form of purulent infection, is a mere supposition, unsupported by any evidence. In short, the mode of connection between the disease of the joints and the urethritis is at present entirely unknown.

The exciting cause of gonorrhœal rheumatism cannot be found in the use of copaiba and cubebs, as has been sometimes asserted, or in exposure to cold and sudden changes of temperature. Inflammation of the joints has frequently been known to occur in patients who have taken neither of these drugs, and who have been confined to the wards of a hospital during the whole course of their attack of gonorrhœa. On the other hand, how frequently are copaiba and cubebs administered for gonorrhœa, and how often must the subjects of clap be exposed to cold and moisture, and yet how rare is gonorrhœal rheumatism!

The phenomena of gonorrhœal rheumatism are also inconsistent with the idea of a metastasis from the urethra to the joints, since in most cases there is an exacerbation of the urethral discharge preceding the articular inflammation. This is especially noticeable in chronic cases of gleet in which gonorrhœal rheumatism supervenes.

Gonorrhœal rheumatism is comparatively rare in women, indeed, its existence in this sex was formerly denied. Further observation has, however, shown that women are not exempt from it, and no small number of cases have been reported by various authors, as Ricord, Vidal, Cullerier, de Meric,[1] Mr. Hardy,[2] Dr. Angelo Scarenzio,[3] Langlebert,[4] and Fournier. The last-named author saw seven cases in women within about two years' time.

Frequency.—This is a rare affection if compared with the frequency of gonorrhœa. Thus Fournier states that in 1912 cases of gonorrhœa which have come under his observation, he has met with

[1] British Med. Journ., 1867, vol. ii., p. 335.
[2] Dublin Quart. Journ., vol. xlvi., p. 241.
[3] Giornale Italiano, Miliano, 1874, vol. ii., p. 129.
[4] Gaz. Méd. de Lyon, 1865, p. 484.

31 cases of rheumatism, or about one in 62 cases; but as Fournier remarks, this proportion must be above the truth, when we consider what a large number of cases of gonorrhœa are neglected or treated by the patients themselves without surgical advice.

Seat.—None of the joints are exempt from an attack of gonorrhœal rheumatism, but this disease affects the knee far more frequently than any other joint. The following table exhibits the order of frequency with which the various joints were affected in 81 cases observed by MM. Foucart, Brandes, and Rollet:

Articulation of the knee,	64
" " ankle,	30
" " hips,	15
" " fingers and toes,	15
" " shoulder,	10
" " wrist,	10
" " elbow,	8
" " sternum and clavicle,	3
" " tarsal bones,	2
" " sacrum and ilium,	2
" " lower jaw,	1
" " tibia and fibula,	1
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Fournier gives the following table of his observations:

Synovial membranes of the joints,	51
" " " tendons,	10
Muscles,	10
The bursæ,	6
The sciatic nerve,	5

And nine cases in which it was impossible to determine the exact seat of the pain complained of by the patients.

Besides the joints, gonorrhœal rheumatism frequently affects the ocular tunics; also the bursæ connected with the muscular tendons, especially the tendo-Achillis; and sometimes the sheaths of the muscles, as in muscular rheumatism. Again, Ricord states that he has met with several patients who suffered from severe pain in the plantar region, apparently seated in the fasciæ. Dr. Liebermann[1] reports a case of supposed gonorrhœal rheumatic inflammation of the crico-arytenoid joint of the larynx.

The knee-joint, therefore, is the favorite seat of gonorrhœal rheumatism, though all the joints of the body are liable to its attacks. This disease, however, is less prone to change its seat from one joint to another than ordinary articular rheumatism. This fact is evident from an examination of the above table, which shows that there were but 161 joints affected in 81 cases; an average of about two joints to each case. I know of no similar table exhibiting the number of articulations affected in a given number of cases of ordinary rheumatism,

[1] Med. Chir. Centralblatt, No. 41, 1874, as quoted in the N. Y. Med. Jour., Sept., 1878, p. 327.

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but the proportion is undoubtedly much greater. Again, in 10 of the 19 cases in the above table, furnished by M. Foucart, only one joint was affected; of the 34 cases of M. Brandes, the rheumatism was mono-articular in 5, and also in 10 of the 28 cases collected by M. Rollet. These facts, however, would give us a ratio of about one-third, in which gonorrhœal rheumatism attacks but a single joint, but more extended statistics are required before this proportion is received as accurate.

Even when gonorrhœal rheumatism does not remain confined to one joint, but extends to others, the articulation first affected does not recover its normal condition, as it often does in ordinary articular rheumatism, but generally continues in a state of inflammation after the disease is lighted up in other joints. In this respect, gonorrhœal rheumatism again differs from acute rheumatism, but approximates to the character of rheumatic gout.

There can be no question, I think, that gonorrhœal rheumatism sometimes attacks the heart, but it is equally certain that this complication is much less frequently met with than in ordinary acute articular rheumatism.[1] Ricord states that in several clearly marked cases of gonorrhœal rheumatism, he has observed symptoms of endocarditis, and also of effusion within the pericardium, but it is to be regretted that he has not given these cases in detail. The rarity of any mention of heart disease, however, in the reported cases of gonorrhœal rheumatism, proves the correctness of the above assertion that this disease is usually free from such complication. The following case is reported by M. Brandes:

A man, 50 years of age, had had five attacks of gonorrhœa within ten years; each attack being attended with disease of the joints. In a sixth attack he was seized with violent pain and swelling of several joints, especially the knee. A few days after, inflammation of the eye and pericardium ensued. The friction-sound was well marked; and the pulsations of the heart were irregular. There was dulness on percussion over a considerable space, with palpitation and pain in the precordial region. The symptoms improved under venesection and mercurials. Meanwhile the iris became inflamed in the right eye, and a week after this eye recovered, the left was attacked. The patient finally recovered, but suffered from weakness of the lower extremities for a long time, so that he was obliged to walk with crutches for several months.

Dr. Marty reports a case of gonorrhœa in a man, 22 years of age, which was complicated by acute endocarditis located at the aortic valves. There was no rheumatism or metastatic articular affection. He has collected nine other cases in which a disease of the heart or pericardium developed itself four or five weeks after the commencement of a gonorrhœa. Of the ten (including the above), seven were endocarditis and three pericarditis. In eight of the cases the cardiac

[1] "I am induced to think that, under ordinary circumstances, some heart affection arises in about half of all cases of acute rheumatism." (*Fuller on Rheumatism.*)

affection was preceded by gonorrhœal rheumatism; in the other two, there was none. The urethral discharge was re-established when the acute symptoms disappeared. Dr. Marty concludes that any serous membrane may be attacked during the existence of gonorrhœa, and that the inflammation is due to the disease of the urethra (*Med. Record*, Aug. 11, 1877, from the *Archives gén.*).

M. Desnos[1] read a case of this affection before the Paris Hospital Society. At the autopsy a small ulcer was found on the mitral valve, together with a considerable vegetant endocarditis of the aortic valves and the whole of the interior of the heart.

Ricord is the only authority, so far as I am aware, who has seen any affection of the nervous centres in gonorrhœal rheumatism. This surgeon states that he has met with symptoms of compression of the spinal marrow and of the brain, such as paraplegia and hemiplegia, which appeared to be produced by increased effusion within the serous membranes of the brain and spine, and which followed the same course as the affection of the joints.

No affection of the lungs or pleura has ever been observed in gonorrhœal rheumatism.

Gonorrhœal rheumatism is essentially a hydrarthrosis, and in many instances the inflammation is confined to the synovial membrane of the joint during the whole course of the affection. The predilection of this disease for serous membranes is shown by its attacking the bursæ connected with the tendons, especially about the wrist and ankle. Rollet states that he has seen one case in which the seat of the disease appeared to be a bursa accidentally developed over the acromion process, and Cullerier has met with the same in the bursa in front of the patella.

Symptoms.—In describing the symptoms of gonorrhœal rheumatism, it is desirable to take those of ordinary articular rheumatism as a standard of comparison. Proceeding in this manner, we find that gonorrhœal rheumatism is generally ushered in with less febrile disturbance than its more frequent congener. In some cases there is an entire absence of premonitory symptoms, and the patient's attention is not attracted to the joints until effusion has taken place and motion has thereby been rendered painful and difficult. In other instances, a slight chill and wandering pains have been experienced, before the morbid action has become settled in any one joint; and those cases are exceptional in which the inflammatory symptoms at the outset are comparable in violence to those of acute rheumatism.

When the articular disease is fairly established, the pain is increased and is often severe; but here, also, we find the symptoms less acute, as a general rule, than in ordinary rheumatism. Even in those cases in which the local pain is great, there is much less general febrile excitement; and an examination of the blood drawn in five cases by

[1] Gaz. hebd., Paris, Nov. 16, 1877, quoted in the Monthly Abstract of Med. Sci., vol. v., p. 23.

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M. Rollet and in one by M. Foucart, failed to show that buffed and cupped condition of the clot which is so frequently met with in acute rheumatism.

Sweating, which is so abundant in ordinary rheumatism, is absent in the form of the disease accompanying gonorrhœa.

The integument covering the affected joint generally retains its normal color, though it sometimes puts on the blush of inflammation. When the knee-joint is the seat of the disease, as is frequently the case, the symptoms of a serous effusion within the capsule are readily detected. The patella is elevated above the femur and is freely movable; the joint has the form of a cube, the usual depression on either side of the patella being replaced by swellings, and fluctuation can be detected without difficulty. It is evident that the inflammatory process is confined to the synovial membrane, and that the fibrous and osseous tissues are unaffected. The collection of serum necessarily impairs the mobility of the joint, and pain is excited by pressure or by any attempt at motion. If the disease do not yield readily to treatment, other tissues about the joint become involved, and we may then find redness of the skin, together with fulness of the vessels and a corresponding increase of the pain and general febrile disturbance, assimilating the case to one of acute rheumatism.

Those cases of gonorrhœal rheumatism which commence with the most decided inflammatory symptoms are generally the most amenable to treatment; those, on the contrary, in which the febrile action is but slight, and in which there is but little more than a passive effusion into the synovial sac, are more obstinate.

Recovery, in any case of this disease, can rarely be expected in less than a month or six weeks, and is often delayed for several months or even years, especially when the patient is debilitated, and when the affection of the urethra is allowed to run on or does not yield to treatment.

Fournier[1] has called attention to an interesting and comparatively rare symptom of gonorrhœal rheumatism, viz., sciatica. He states that he has observed seven instances, and that an eighth is reported by Tixier.[2]

It is unnecessary to describe the symptoms of the cardiac affection which sometimes complicates a case of gonorrhœal rheumatism, since these do not differ from those of endocarditis and pericarditis attendant upon ordinary acute rheumatism. The inflammation of the eye which frequently precedes or accompanies, or sometimes alternates with the disease of the joints, and which is evidently dependent upon the same condition of the general system, will presently receive special mention.

Most cases of gonorrhœal rheumatism terminate sooner or later in complete resolution, although they may render the patient a cripple

[1] Note pour servir à l'histoire du rhumatisme uréthral, Paris, 1866.
[2] Thèse, considerations sur les accidents a forme rhumatismale de la blennorrhagie, Paris, 1866.

for a long period. Suppuration within the bursa very rarely occurs. It is admitted by Ricord, who says, however, that it is always due to some accessory cause of inflammation; and Vidal mentions one case occurring under his charge in which it was necessary to open the joint and evacuate the purulent collection. Zeissl mentions an interesting case communicated to him by Dr. Eisenmann in which death ensued. Again Dr. Prichard[1] reports two cases, in one of which an abscess communicating with the joint formed on the thigh just above the knee, and another in the popliteal space. Amputation of the thigh was resorted to, and an examination of the joint showed extensive ulceration of the cartilages, with marked increase of vascularity of the neighboring parts. Anchylosis, especially of the smaller joints, is a more frequent termination of gonorrhœal rheumatism, and in scrofulous subjects this disease has not unfrequently been followed by that strumous affection of the joints known as "white swelling;" here, as in other well-known instances, a constitutional cachexia selects the weakest part of the body as the seat of its manifestation.

Dr. Holscher[2] reports a case in which death is said to have occurred from gonorrhœal rheumatism. An abscess formed in the affected joint, and purulent infection ensued, terminating fatally.

The period at which rheumatism makes its appearance in the course of gonorrhœa appears to be more variable than that of epididymitis. Some cases are met with in which the affection of the joints occurs during the acute stage, or first week or two of the duration of the clap; indeed it may occur coincidentally with, or even before the appearance of any discharge from the urethra, and it is worthy of notice that such early cases are generally more acute in their character than later ones. Yet in the majority of cases we find that the rheumatism manifests itself at a later period, when the urethral discharge has passed its climax. Generally, we find that the running has been more copious for a few days preceding the outbreak of the rheumatism, and this is especially noticeable in long-standing cases of clap which have been accompanied by several repetitions of the articular affection, each of which has followed an exacerbation of the discharge. Cases in which the running suddenly diminishes or entirely dries up before the rheumatism appears, must be regarded—in spite of the opposite opinion so frequently expressed—as rare and exceptional, and not sufficient for the basis of a theory of metastasis. In deciding this point—to which much importance has been attached—it should be recollected that if the rheumatism occurs several weeks after contagion, the discharge will probably have somewhat diminished, following the course which it usually pursues in cases entirely free from any complication. After the disease of the joints is established, the running sensibly decreases in most cases, as a consequence of revulsive action. In other instances—estimated by Rollet at about one-third—it remains without much change. It rarely disappears entirely, except as the result of treatment.

[1] British Medical Jour., Apr. 6, 1867.
[2] Annales de Holscher, 1844.

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