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LECTURES.

CLINICAL LECTURES ON THE PHYSIOLOGICAL PATHOLOGY OF SYPHILIS.¹

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IN seeking an explanation of the occurrence of this roseolous eruption, we naturally ask, then, What can and is most likely to produce, "*long-continued dilatation of capillaries and stasis of the blood?*" Inasmuch as it is known that the capillary vessels derive their nerve supply from the sympathetic nervous system; their loss of contractility, and consequent dilatation, could occur only through some impression upon the sympathetic system, which would cause a paresis, more or less pronounced, of the nerves supplying the walls of the capillaries.

In an article on the Physiology of Syphilitic Infection, published in 1872, I took occasion to discuss the evidences for and against the functional character of the roseola of syphilis. It now appears to me that I cannot do better than to quote the views of authorities on this subject, and my comments upon them at that time, which, after several years of further study and observation in this connection, I find no occasion to alter.

Thus Mr. Erasmus Wilson, a distinguished English authority on diseases of the skin and syphilis, says, "It is now (1871) well understood that the influence of the *vaso-motor nerves* is involved in the production of *roseolas*."

It is proper, however, to state here that while Mr. Wilson describes no less than eighteen varieties of roseola, he practically excludes the roseola of syphilis by attributing its occurrence to the presence of the syphilitic virus in process of expulsion from the system, and by assuming that it may subsequently be developed into other and later manifestations of syphilis. Inasmuch as this idea is, perhaps, the generally accepted one, it appears to me desirable to place the whole matter be-

¹ Concluded from page 400.

fore you in such a way that we may, if possible, be able to determine whether the roseola of syphilis is a true roseola, dependent simply upon an impression made upon the sympathetic nerves, like other roseolas, or whether it is a form of syphilitic manifestation, and pathologically different from other roseolas, which, in some curious and hidden way, gradually develops into other manifestations of syphilis. Mr. Wilson describes it thus: “*Roseola syphilitica* commonly presents itself in the form of undefined patches, giving to the skin an appearance identical with that of the common idiopathic roseola, or measles, and is due, like the two latter, to the manner of distribution of the blood-vessels of the skin. It is preceded by a peculiar fever called the syphilitic, and bears a resemblance in its pathognomonic symptoms to measles, scarlet fever, and small-pox: (1) in the nervous depression, showing the stagnating influence of the accumulated poison; (2) in the congestion of the mucous membranes, particularly that of the fauces, showing the effort made by the blood-vessels to eject the poison through the tissue; and (3) in the cutaneous exanthema, which completes the triumph of the pressure from within, and is the sign that the poison is driven to the surface, and is in process of expulsion.” There is, then, no uncertainty about the fact that Mr. Wilson considers syphilitic roseola the result of the process of elimination of the syphilitic material (whatever, in his opinion, that may be) through the skin. This view, elaborated more fully by Mr. Wilson than by any other writer on syphilitic or cutaneous diseases, I do not find contradicted by any except M. Diday, of Lyons, but it is accepted directly or tacitly by all the other authorities I have been able to consult. Very naturally, Mr. Wilson does not stop at this point, but goes on to trace a connection between syphilitic roseola and the subsequent manifestations of the disease. Thus in his last lectures on Dermatology (published in 1871) he says, “Chancere, the focus of inlet of the poison has run its course and healed up. Six weeks afterward, an exanthema, which is identical in appearance with roseola, is developed in the skin. . . . Another six weeks passes by, and a second exanthema appears; no longer a roseola, like the first, but an eruption of *papule*, corresponding to the common *lichen*. Then another interval of six weeks transpires, and the eruption may appear for the third time, *but with dimensions still farther augmented*, namely, as a large papule or tubercle.” In an earlier work on syphilis he says, “A roseolous patch may be seen to develop papules; . . . and I have furthermore seen the small papule of lichen converted into the larger elevation called *tubercle* by sudden aggravation of the syphilitic fever, or from exposure to cold.” It will be remembered that he was previously quoted as saying that “it is now (1871) well understood that *the influence of the vaso-motor nerves is involved in the production of roseolas*,” but it will be observed that for the syphilitic roseola Mr.

Wilson, in the foregoing statement, has assumed a pathological importance, which could not attach to it were it shown to be, possibly, due to the impression made upon the sympathetic nervous system by the syphilitic influence.

Characteristic prodromata are recognized by modern syphilographers as usually associated with the advent of constitutional syphilis in representative cases. They are numerous and varied, as follows: *general malaise, headache, rheumatoid pains*, irregular and chiefly nocturnal, *loss of appetite, indigestion, nausea, diarrhœa, giddiness, mental irritability, sleeplessness, great prostration, unnatural acceleration of breathing on slight exercise*; in some cases *exacerbations of an intermitting fever*, temperature running up to 103° or 104° F., followed by profuse sweats, etc. These are among the most prominent of the prodromata cited by authors, and are grouped together under the general title of *the syphilitic fever*. This title is then applied, not simply to an acceleration of the pulse, elevation of temperature, etc., which is usually understood by the term fever, but any one of the foregoing conditions or symptoms, or any modification or combination of them, occurring about the time of the appearance of the syphilitic roseola, is claimed to merit this title. (Diday uses the more exact and appropriate term *syphilitic prodromes*.) It will then be readily seen that when authors speak of *syphilitic fever* as ushering in, or being associated with, the syphilitic roseola a very considerable degree of uncertainty may be claimed as to the dependence of such varied and common aberrations from the healthy state upon the development of syphilitic roseola. The intimate connection between syphilitic fever and roseola is *not*, however, universally accepted. On the contrary, Ricord says that the syphilitic roseola is *never* associated with fever except as an accidental coincidence, and that when fever is present *it is invariably due to some cause quite independent of the roseola*. Bassereau affirms that it was entirely absent in fifty-six out of the one hundred and ninety-nine cases critically observed by him, *but that it occurred in thirty-four out of fifty cases of the later papular eruption*. Coulson states that one third of the cases of syphilitic roseola are not preceded by *any* premonitory symptoms. McCarthy (quoted by Lancereaux) says that of sixty cases twenty-one had nocturnal cephalalgia alone, eleven cephalalgia and rheumatoid pains, and eight the latter alone, leaving twenty cases, or one third, occurring *absolutely without any premonition of any sort*. Bumstead says that syphilitic roseola is so free from febrile excitement, heat and pruritus, that the patient may not discover its presence except by accident. In one of the cases already presented to you the surprise of the patient on our discovery of the eruption will be recalled, and this, in my experience, has been the rule rather than the exception. Besides the records of observations covering a period of nearly two

years in the Blackwell's Island Venereal Hospital, in 1851 and 1852, and during subsequent years, noting frequent cases in hospital and private practice, I have called especial attention to this matter in every case presenting at my clinic in this college for several years past; and I do not hesitate now to express my entire accordance with the views of M. Ricord, namely, that the syphilitic roseola is *never preceded by, nor associated with*, any fever, pain, or other prodromata that cannot readily and reasonably be accounted for through causes entirely independent of the approach or the presence of the roseola. For almost thirty years past Mr. Wilson has taught without qualification, and almost without contradiction, that syphilis, with roseola as its early exponent, was a mysterious, but a distinct element; that the organism in process of infection was gradually invaded by it, until nature, no longer able to endure its presence, concentrated all her forces, at a given stage, to expel it, and with the directness and urgency of a woman in labor, as he puts it in his climacteric in describing the syphilitic roseola, "*completes the triumph of the pressure from within, and is the sign that the poison is driven to the surface and is in process of expulsion.*"

"In the effort to understand the mysterious workings of syphilis in the human organism, analogical reasoning has naturally been resorted to. From the fact that there occurs an apparent period of rest in its early development, that in certain cases it is associated with varied disturbances of the nutritive functions and of the nervous and vascular systems, that preceding, during, or succeeding these disturbances an exanthematous eruption occurs, it has been the fashion, for want of a better place, to class it among the exanthematous fevers; and further, inasmuch as it has been, to a greater or less extent, an accepted conclusion that these diseases are the result of an effort of nature to get rid of the peccant material causing them, a like interpretation has been seized upon to explain the significance and value of the syphilitic roseola." But it may be urged that, if it is granted that the largest proportion of syphilitic roseolas are ushered in without marked constitutional disturbance, yet in two thirds of the cases reported by McCarthy and quoted by Lancereaux, pains in the head or bones, or both, were present. Was this a simple coincidence, and not the sign that the roseola was in process of development? If there was nothing else, at this stage of syphilitic disease, to account for the constitutional disturbance but the roseola, I should certainly look upon it as a coincidence, simply; first, because the fullest development of the roseola does not relieve the pains, and secondly, because the most profuse roseolas occur independently of them. But I think with a little care we may be able to find another and most important manifestation of syphilis present, with or soon following the advent of the roseola, and that is enlargement and induration of glands and groups of glands, to a greater or less degree, *through-*

out the entire lymphatic system, especially prominent and most readily recognized in the cervical and epitrochlear regions.¹ I pass my fingers along the posterior border of the sterno-cleido mastoid muscle of this patient, with the almost absolute certainty of finding well-marked enlargement of the group of lymphatic glands peculiar to this region, and not only do I find them, varying in size from a small shot to a pigeon's egg, but hard and movable, and also painless, as you may judge by the serene expression of countenance here preserved, under the by no means superficial examination which I am making. I find an enlarged gland, also, over each mastoid process, also in the post cervical region, at several points; also, in the epitrochlear space, just above the bend of the elbow. Here they are most valuable, in a diagnostic point of view, being rarely present before or absent after, the tenth or twelfth week succeeding inoculation of syphilis, whether any roseola can be detected or not. Sometimes only one gland is enlarged, sometimes it is found higher up, along the inner border of the biceps. I also call your attention to two other cases of syphilis, drawn from my service in Charity Hospital (which you may note as VI. and VII.), one in the fourth and the other in the sixth month of the disease, and this simply that you may examine them in regard to the matter of gland enlargements. In each you will find well marked and characteristic hyperplasia, not only of the inguinal glands but of those in the cervical and epitrochlear region. In case VI. you will find absence of enlargement of the epitrochlear gland on the right side, while it is present and as large as a marrowfat pea on the left. What I desire now particularly to show in these cases is the uniformity of the general gland enlargement, and this will be found to hold in all cases, to a greater or less degree. Where you do not find them after the third month of the disease it will be because the examination has been interfered with by excessive accumulation of adipose tissue, or because the examination has been inefficiently conducted. It may be still held as an open question as to whether this gland enlargement, remote from the point of inoculation, takes place by means of cell elements carried from the glands first affected directly to glands remote from the point of inoculation by chan-

¹ "Its occurrence in the lymphatic glands in the interior of the body has also been verified in post-mortem examinations by Von Barendsprung and Virchow." (Beaumont, Ziemssen's Encyc., vol. iii., p. 182.) Also, "In the collection of the Hôpital de Lourcine, there are those preparations of women who died of intercurrent diseases, while affected with syphilitic sores on the vulva. In these preparations, not only the inguinal glands are swollen, but there is a hyperplastic enlargement of a number of glands above Poupart's ligament. In the second case, there occur in the fossæ iliacæ, along the blood-vessels, nine enlarged glands, arranged in three groups, one above the other, the uppermost at the origin of the art. hypogastrica. The enlargement of the glandulæ iliacæ had attained nearly the same degree as that of the gl. inguinalis, among which, one or two on each of the three preparations were distinguished, through their greater size, as the ones first attacked." (Ibid., page 122. 1875.)

nels not yet fully demonstrated, or whether they receive the syphilitic infection primarily through cells carried out by the blood current at the period of general infection or dissemination of the diseased germs. The fact that general gland enlargement is sometimes present before the appearance of the roseola is considered evidence in favor of the former view.¹ Of one thing, however, we are certain, namely, that at about the time, within a very few days, of the appearance of the roseola (sometimes before, sometimes after), this characteristic general gland hyperplasia takes place; that, in connection with this enlargement, a marked proportional increase of the white blood cells over the red has also been observed.² Now we have arrived at a point where, perhaps, we may be able to account for some of the so-called prodromata of the syphilitic roseola, without the necessity of considering them the result of nature's effort to expel the unknown element, in opposition to all known physiological laws, through the skin and mucous membranes. We have here a well-marked disturbance in a system of important functional use, one now recognized as occupying a place of acknowledged value among the hæmatopoietic organs; we have a condition which admits of explanation through known physiological processes, fully competent to cause all the nutritive, nervous, and vascular disturbances which have been recited under the title of *syphilitic fever*, or the prodromas of syphilitic roseola.

And now as to the cause of the roseola. We may accept it as localized hyperæmia, due, as Mr. Wilson says, "to the manner of distribution of the blood vessels of the skin," as in the common idiopathic roseola, the single patch of the eruption of which "represents the ramifications of a single arterial trunk," or "the small district of skin, the circulation of which may be governed by the ultimate divisions of one small nervous twig," a branch of the great sympathetic nervous system. Virchow states that on a section of the sympathetic nerve in the neck of an animal, "a state of hyperæmia ensues in the whole of that half of the head. The ears become dark red, *the vessels greatly dilated*, the conjunctiva and nasal mucous membrane turgidly injected; and this," he says, "may continue for days, or weeks, or months, without the least appreciable nutritive disturbance necessarily arising thereupon."³

From deductions based upon the electric experiments of Claude Bernard, upon a bisected sympathetic, he states that, "whether the relaxation of the muscular fibres of a vessel be produced directly by a par-

¹ Beaumler says: "It is probable that the poison circulating in the blood may cause hyperplasia of the lymphatic glands directly, for sometimes we see these glands reacting to the poison before the skin or mucous membranes." (Zeimssen, vol. iii., page 181.)

² Section of these hyperplastic glands is found under the microscope to present the same closely packed cell accumulation which has been seen in immediate connection with the initial lesion of syphilis, and in lymphatic glands in direct connection with it.

³ Physiology of Syphilitic Infection. Otis, 1872.

alysis of a nerve, or by an interruption of the nervous influence, or whether it be the indirect result of a previous stimulation, giving rise to exhaustion, in every case, we have to deal with a *kind of paralysis* of the walls of the vessel, and that the process is incorrectly designated *active* hyperæmia, inasmuch as the condition of the vessels is always a completely passive one." Belladonna is well known as a relaxing agent in nerve tissue notably seen in its effect upon the iris, and also in the production of an eruption in some respects similar to the roseola of syphilis. Mental emotions are also recognized as the cause of contraction of the calibre of the blood capillaries, producing pallor, and dilatation producing the blush. Also, in producing an eruption similar to the roseola of syphilis. I had, some time since, under my care a lady upon whom an eruption, in no way to be distinguished in appearance from a classical recent syphilitic roseola, was brought out upon the breast, back, and arms, chiefly, however, upon the neck, whenever she was subjected to any unusual mental excitement, and which remained distinct for several hours. And another case, at the present time (1879) under my care, when the passion of anger, or a sudden pleasure, or sense of mortification, will bring out a roseolous eruption, while a paroxysm of grief, no matter how severe, will have no such effect. We know that similar roseolas are initiated by digestive derangements and other causes that can be referred only to impressions made upon the sympathetic nervous system. Is it then remarkable that a cause dependent upon actual and more or less sudden changes in the blood proportions and quality should be found capable of producing equally important effects? May we not then reasonably infer from the foregoing, and in the absence of any other explanation of it, and of any proof to the contrary, that the syphilitic roseola is, like the simple roseolas, the result of an impression upon the sympathetic nervous system, a paresis of the vaso-motor nerves of the cutaneous envelope, caused by a special but limited paralyzing influence exerted upon the great sympathetic nerve, through positively recognized blood changes, immediately preceding, accompanying or following an initiation of the so-called secondary or active period of syphilis? This period, from a physiological point of view, I have ventured to term **THE PERIOD OF GENERAL INFECTION AND SUBSEQUENT LOCALIZED CELL ACCUMULATION.**

A PLEA FOR THE LANCET.

BY T. H. BUCKLER, M. D., BALTIMORE.

No one familiar with mortuary tables can have failed to observe the long list of deaths from pneumonia during the past winter in all the Atlantic cities. Unfortunately only the fatal cases are recorded, there being no note as to the number of pneumonias or of pleuro-pneumonias