

trouble from it except the pain in passing water. This case appears to me a clear one of syphilis. If the induration and its history were not sufficient, we have positive proof in the additional evidence furnished by the glandular swellings and the coppery papular eruption—the significance of which I shall have occasion to refer to on a future occasion. An operation is here called for, to remove the indurated mass on account of the phymosis which it has occasioned. I shall, therefore, proceed to remove the entire prepuce by the introduction of a director upon the superior surface of the glans, and back as far as the fossæ; then passing along it a curved bistoury, I bring it out over the fossæ glandis, and, dividing the intervening tissue, remove the redundant mass, including the induration, with a single cut on either side, completing the incisions at the frenum.

You will observe that the hemorrhage here is very slight, no vessels of much size having been severed. Usually there is quite free bleeding from the vessels of the frenum, in such case requiring ligature. The operation will be completed by bringing the cut surfaces into apposition with a very fine silk thread, by the Glover's suture, which I invariably use in bringing the cut edges together after a circumcision.

## LESSON II.

Non-Auto-inoculability of Chancre—Exceptional Cases—Prevention of Constitutional Infection through Excision of the Chancre Denied—Rapidly of Infection through Germinal Material in Proportion to the Rapidity of the Cell Proliferation and Size of Corpuscles Diminishing in same Ratio—Syphilis Characterized by Comparatively Slow Proliferation—Infective Cells in Syphilis not necessarily Differing greatly in Size from Normal Germinal Cells—Differing only in Amount, Peculiar Aggregation, and Characteristic Infective Property—Gross Appearances of the Excised Chancre—Microscopical Examination—Beisiadecki's Observations in Twenty Specimens—Confirmation of the Claim that the Initial Lesion is Formed by Cell Proliferation, *in loco*, and not the Result of Inflammatory Action—The Open Lesion a Legitimate Result of Interference with the Vessels of Nutrition from Mechanical Pressure caused by the Cell Accumulation—Clinical Cases Illustrative of Characteristics of Chancroid.

In briefly characterizing the initial lesion of syphilis, in the previous lesson, I spoke of it as *non-inoculable upon the person bearing it*. This may be laid down as a rule where the *Chancre* (as this lesion is usually termed) has not been subjected to irritation sufficient to set up a purulent discharge. When pus is present, however, inoculation may result in an ulcerative lesion. In Case III., previously cited (p. 25), the lesion was apparently free from this complication, so that its removal will not be liable to inoculate the cut surfaces.

The effect of removal of indurated chancre by excision has been the subject of controversy, some authorities claiming that early excision of the initial induration may wholly prevent systemic infection. Auspitz and Kölliker, of Vienna, the former in 1877 and the latter in 1878, reported cases, in all numbering about 40, where such excision was believed to be effectual in preventing the occurrence of constitutional syphilis. It was even stated that in several of these cases enlargement of the inguinal glands was already well marked at the date of the operation. It is difficult to understand how such a claim can be seriously advanced when there is such

positive proof that the disease has already involved the lymphatic system beyond the site of the initial lesion; and when we consider the fact that the inguinal glands are involved, as a rule to which there are few exceptions, by the time the induration of the initial lesion is distinctly recognizable, we must deny, absolutely, even the possibility of the cure of syphilis through excision of the initial lesion alone. It is now beyond question that the infective principle of syphilis entering at a given point gradually invades the system—and as far as we are able to trace it by gross appearances and microscopic examination it is confined to the lymphatic vessels and glands until it enters the blood through the great lymph channels. Its presence, as has been previously stated, is signalized by local cell accumulations, producing the characteristic enlargement and induration, first at the point of inoculation, then of the adjacent lymphatic glands, and subsequently of every recognized lesion of the active stage of the disease. Inoculation of all or any of the juices or secretions of these lesions upon healthy persons will surely communicate syphilis to such persons. Such secretions, under the microscope, are found laden with cell material: germinal matter analogous to that which has been demonstrated by Beale, Chauveau, Burdon-Sanderson and others to contain the infective principle of variola, relapsing fever, the cattle-plague,\* etc., previously referred to. The rapidity with which the infective germinal material is proliferated, would appear by the statements of the authorities just mentioned, to be in proportion to the malignity of the disease, and the size of the infective cells or corpuscles to diminish in the same proportion. It is not then remarkable that in a disease like syphilis, when its development is so gradual that months elapse before its climax is reached, the cell element should vary but little from the normal conditions. This would appear to be not improbable, for the closest microscopic investigations have failed to dis-

\* Disease Germs, their Nature and Origin. Lionel Beale. London, 1872. Page 143, etc.

tinguish the diseased from the healthy cell material, and it is only by its abnormal amount and peculiar aggregation, together with its infective property, that it can be differentiated from the most healthy germinal matter. I will now call your attention to the gross physical characteristics of the initial lesion (Case III.) just removed by excision.

It has exactly the appearance and feel of a mass of cartilage, and the sensation transmitted through the fingers as the knife is drawn through it is the same as if cartilaginous material were divided. There is no appearance of vascularity. The preputial tissue in which it is imbedded, and in which it is freely movable, is apparently free from disease. The microscopic examinations of such indurations show that they are made up of cell accumulations which involve even the walls of the blood-vessels, and bear out very strongly the claim that they are not the product of an inflammatory process, but of a local cell proliferation at this point. Alfred von Beisiadecki, of Krakow, has given us the results of a very exhaustive microscopical examination of twenty specimens of this variety of indurated tissue.\* He says: "The *induration* consists in a cell infiltration of the papillæ of the corium and subcutaneous connective tissue. The infiltrated cells are similar to those of dermatitis. They are round, have one or two nuclei, have a finely granular protoplasm, and separate the connective tissue equally. These fibres retain the normal size, are not infiltrated as in dermatitis; they are apparently denser and more resistant to chemical reagents. But the arrangement of the cells differs from that in dermatitis. In those places where a rich cell proliferation has taken place, and in their vicinity still more, we find that the neighboring tissues of the vessels, *as well as of their walls*, are abundantly infiltrated with cells. The walls of the capillary vessels of the papillæ are thickened, have a shining and rigid appearance, and *enclose numerous nuclei, which project even into the lumen of the vessels*. The adventitia of

\* Archives of the Academy of Sciences of Vienna, 1867.

the arteries and veins is three times its normal thickness, *in consequence of the* presence of numerous round, spindle-shaped and branched cells. The calibre of the cells is diminished, but the vessels are permeable. If the induration still increases, we find in its vicinity an abundant proliferation in the adventitia of the vessels, and subsequently the adjoining connective-tissue cells enlarge and proliferate and anastomose with those situated in the adventitia by means of their processes."

"The induration is explained, however," he further remarks, "neither by the number of cells nor by their peculiar properties, but by the fact that while in *dermatitis* we have a proliferation of cells, and also a serous exudation which infiltrates the tissues and fibres, in the induration of syphilis we have a dry anæmic tissue, resistant connective-tissue fibres, considerably thickened walls of vessels. The dryness of the induration, which produces the hardness and also the anæmia, is caused by the *proliferation in the walls of the vessels*, which makes it difficult for the serum to leave the vessels, and also diminishes their calibre. And this," he says, "explains why the syphilitic induration breaks down into a molecular mass, and why resorption takes place so slowly."

Now, in contrast with the indurated tissue associated with and characteristic of the initial lesion of syphilis, I wish to direct your attention to another patient, Case IV., who presents a sharply defined ulcer occupying the central portion of the fossæ glandis, encroaching upon the glans and also upon the reflexion of the prepuce. It is fully as large as a dime, and, as you see, something like a figure 8 in form. The history given by the patient is that a little over a month ago he had a suspicious connection, and within a few days—he is not quite certain, but not more than five—he observed "two small festers" (pustules), which soon discharged and grew until they formed a single sore. He has made repeated applications of "blue-stone" (cupri sulph.), and thought he was getting better, when, a few days since, his right groin began to be swollen and painful, and he has come to us for relief.

On pressing this ulcer between the thumb and finger it is found to be quite free from hardness, although the caustic treatment to which it has been subjected would be likely to develop more or less induration. The edges are abrupt, the floor is irregular and covered with a yellowish débris composed of pus and disorganizing tissue; the surrounding border is red and somewhat swollen, and also quite tender, as you can observe by the shrinking from our very careful manipulation. We have here, then, judging from the history and appearance and condition, a characteristic example of the contagious venereal ulcer, previously referred to as second among the contagious venereal disorders, and called chancroid. If there was still a doubt as to its nature, it is dispelled by the inflamed and swollen condition of the right groin. We recognize by gentle palpation a small abscess of one of the inguinal glands, a not uncommon result of the chancroidal action. Pus from the chancroid, gaining access by ulceration to the interior of a lymphatic vessel, passes at once into the gland in connection with it, and through its contagious and destructive property goes rapidly on to the production of a virulent abscess, the pus of which is contagious and destructive equally with that of the chancroid. The chief characteristic of the chancroid, you will observe, is its destructiveness. It begins as a pustule, resulting from necrosis of tissue, set up by contact of a molecule of chancroidal pus. Throughout its existence its secretion furnishes pus which, brought into contact with healthy tissue, sets up a destructive action of greater or less activity. It is simply, only and always destructive, and without the destructive property it cannot be chancroid. It is the antithesis of the initial lesion of syphilis, which in its inception is a process of growth instead of dissolution, and in which loss of tissue occurs not by any virulent agent, but by such an accumulation of new material as to embarrass and finally to arrest the processes of nutrition, and in this way result, in instances like that of Case III., in an open lesion. The microscopic examinations of Beisiadecki, which have been amply verified by Auspitz, Verson, etc., prove this almost beyond question.