A Case of Syphilis in which Several Fingers of Both Hands Became Cold and Livid; Suspected Arteritis.

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A CASE OF SYPHILIS IN WHICH SEVERAL FINGERS OF BOTH HANDS BECAME COLD AND LIVID; SUSPECTED ARTERITIS.

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The title of this paper has been adopted from one published by Mr. Jonathan Hutchinson, of London, in 1884 (*Medical Times and Gaz.*, 1884, i. p. 347). The close resemblance which my case bears to that of Mr. Hutchinson will, I believe, justify its adoption.

John W., twenty-five years of age, born in New York, a butcher by trade, applied for treatment at the German Dispensary on February 28, 1889, and gave the following history: He had a chancre about three years ago. As soon as it was healed, he got ulcers on the back, of which large scars remain. He took medicine until all the ulcers were healed up, but none afterward. In February, 1889, ulcers broke out again on the back, penis, nose, and scalp, and are still present, showing unmistakably a syphilitic character. Besides, he complains of an affection of several fingers of both hands.

About a month ago he noticed that the tip of the right fifth finger was white and somewhat shrivelled in the morning. After three days the finger became blue and very painful near the tip. The pain was spontaneous—not increased by touch or pressure; it lasted day and night, and was so severe as to prevent the patient from sleeping. After a few days the pain decreased, the tip of the finger remained blue and showed a thickening of the skin under the free border of the nail. The fourth finger of the same hand became white soon after the fifth, and within a few days, without causing any pain, assumed the same bluish color, and, like the fifth, began to feel cold and to look shrivelled, particularly in the morning. A few days later the third and fifth of the left hand underwent similar changes, and about a week ago the fourth finger of the same hand in its turn became affected. In the morning the blue color is particularly distinct, the affected fingers are shrivelled, feel cold and somewhat numb, as if they had been exposed to severe cold; after rubbing them for a while, the sensation of numbness ceases almost entirely.

On examination I found the fourth and fifth fingers of the right hand of a decidedly bluish, somewhat mottled appearance, and distinctly colder than the other three fingers, which presented a perfectly natural appearance. On the affected fingers the free border of the nails appears remarkably white; next to the free border a zone of fine reddish streaks surrounds the nail, which looks dark blue like the entire distal phalanx.

This color extends over the whole finger, diminishing in intensity toward the knuckles. The fingers are not tender to the touch or to pressure. In the centre of the tip, close to the nail, on the fifth finger the epidermis over a well-defined spot, about the size of a silver five-cent piece, is thickened, the surface being brittle and slightly scaling. The fourth finger exhibits nearly the same condition, the thickening of the epidermis only being less pronounced. The other fingers and the hand itself do not show any change of color or temperature.

A similar condition is observed on the third, fourth, and fifth fingers of the left hand, the fourth being somewhat less affected than the two others. There is the same livid mottled color, the whiteness of the free border of the nails, the zone of bluish-reddish streaks around the fixed part of the nails, the blue color being most pronounced at the distal phalanx, but extending as far as the knuckles, and there is the same coldness. There is no clubbing of the end of either finger. Touching or pressing the fingers does not cause any pain.

On both wrists the pulse can be distinctly felt, the radial as well as the ulnar, the latter, naturally, somewhat less distinctly. Neither at the fingers, the hands nor arms can a thickened bloodvessel be felt.

At the next visit of the patient, March 5th, all pain in the fingers had disappeared, but otherwise there was no change in their condition, only that the thickened epidermis at the tip of the right fifth finger had dropped off in the shape of a dry, thick scale, leaving a healthy surface, and that a slight thickening of the epidermis of the tip of the left middle finger had manifested itself The ulcers on the back and elsewhere showed a healthy condition and were beginning to heal. The treatment inaugurated on the first visit, the biniodide of mercury with iodide of potassium internally, and mercurial plaster locally, was continued.

The patient again put in appearance on March 19th, having neglected to take his medicine regularly, and having indulged in drinking beer freely. The former ulcers were almost healed, but some new pustules had appeared on the scalp, face, and chest. The affected fingers still presented the same conditions; bluish color, some shrivelling of the tips and coldness. The thickening of the epidermis of the right fourth and third left fingers has fallen off, leaving a slightly depressed but healthy surface.

On April 16th, after several weeks of continued treatment, not only were all the ulcers healed except one over the right eyebrow, which presented a healthy granulating surface, but the affected fingers had resumed their normal appearance and temperature. The patient says that in the morning they still feel slightly cold for a while, and that in lower temperature they become more easily blue and cold than the unaffected ones.

Several attempts to measure the difference in temperature between the affected fingers and healthy portions of the hand with the thermometer unfortunately proved futile, owing to the want of precise instruments. The usual medical thermometers do not indicate a temperature as low as that of the affected fingers, which was certainly a good deal less than 91° F. After procuring another thermometer with a lower scale, the temperature of the normal portions changed so rapidly, as soon as the patient entered from the waiting-room, and as soon as the fingers had been handled somewhat, that the results of measuring could not be relied upon. Later on, the rapid improvement in the condition of the patient

did not allow of further experiments. So the difference in temperature could only be determined by the hand, but it was sufficient to become evident to every observer.

The subject of Mr. Hutchinson's case was a patient, thirty years of age, in the fourth year of undoubted syphilitic infection. He presented coldness, lividity, and pain of the fingers of the left hand except the thumb, which at least was but slightly affected. On the ring-finger at its bulb there was a troublesome sore. It consisted of a "subcuticular suppuration with livid edges. It is very tender," says Hutchinson, "but in all other respects resembles those which I have seen on fingers after section of nerve-trunks." There was 10° difference between corresponding parts of the little, middle, and ring-fingers (near their ends) of the two hands; the ends of the left fingers averaging 76°, while those of the right hand were 86°. The pulse at the left wrist was nearly as strong as that at the right, and there was no evidence of occlusion of veins. The ulnar nerve could be easily felt, and was not enlarged on the affected side. The patient complained that it caused more easily pains and tingling when it was pressed on the affected side, than on the other. Under specific treatment after six months the pain had ceased, the temperature of the ring-fingers of the two hands was the same; the affected fingers were much thinner than those of the other hand.

"This case," Mr. Hutchinson says, "was under my observation nearly twenty years ago. I have abstained from publishing it—although in my experience almost unique—because I was quite unable to offer any satisfactory conjecture as regards diagnosis. It was only the other day on reading over the notes again that it occurred to me that the cause of the symptoms must have been inflammatory occlusion of the arteries of the hand. At the time the case was under care, this diagnosis never crossed my mind, and consequently I failed to investigate certain points, which might have confirmed or refuted it, chief amongst these being, of course, the state of the digital vessels and of the ulnar artery. But, at the time, my mind was preoccupied by the hypothesis of nerve cause, to which the severe pain seemed to point. My notes state that the radial pulse was not materially weaker than that of the other wrist, but it will be seen that the symptoms were more marked on the ulnar side. It is, besides, very possible that the arteritis, if such there were, began peripherally, and travelled upward. Possibly it never reached the larger trunks." "It is in part the impossibility," Mr. Hutchinson continues, "of explaining the symptoms on any nerve hypothesis, which induces me now to resort to that of local arterial occlusion. The fingers affected were not those supplied exclusively by any one of the nerve-trunks of the forearm, and there never was any loss of sensation or of motor power, nor were the local changes such as those which we recognize as common in any form of paralysis. They were lividity, coldness, and pain; for the most part indicative rather of disturbance of nutrition and occlusion, than of nervous influence. A certain school of observers will probably claim the case as an instance of disease of the vaso-motor system, but, in reply to that, I must allege that we know nothing of the occurrence of such symptoms as were here present, in cases in which the ganglia or trunks of the sympathetic have been proved to be involved in disease, or destroyed by injury."

At the conclusion of his paper, Mr. Hutchinson further says:

"Although the finger-tips never actually went into gangrene, they were very near it. The disease differs from the cases described by Reynaud, under the name of peripheral asphyxia, inasmuch as it did not involve all the digits, and was marked by extreme pain. Since its occurrence I have seen several cases favoring the belief that arteritis may begin in the small peripheral vessels, and may travel to larger trunks. If in this instance it began in the vessels of the middle finger, and spread upward and involved the superficial palmar arch, the phenomena might be fairly well accounted for. Whether in my case syphilis was the cause may be open to some doubt, since the patient had been for some months under efficient specific treatment, and was just well of all other symptoms."

I have largely quoted from Mr. Hutchinson's paper because most of the deductions made by him from his case may be applied equally well to my own. The symptoms are the same: lividity, coldness, and pain, although the latter in a minor degree. Arteritis beginning in the small peripheral vessels and extending centrally, may well account for them; a narrowing of the vessel without complete occlusion furnishing a sufficient explanation. Whether or not an artery of so small a calibre as he digital artery, affected with arteritis obliterans, must necessarily be accessible to the touch, so that it can be felt as a hard, thickened cord, seems open to doubt. I, therefore, do not believe that the absence of such evidence in Hutchinson's case as well as in mine renders the diagnosis of arteritis inadmissible, while, of course, its presence would scarcely leave room for doubt. There need be less hesitation about assuming the syphilitic origin of the arteritis, if, indeed, there were any, in my case, as other symptoms of the activity of the disease were plainly manifest on the patient.

In a former paper, read before the Section in Dermatology and Syphilography, of the Ninth International Congress at Washington in 1887 (*Transact.*, iv. p. 173, and *New York Medical Journal*, Oct. 8. 1887), I maintained the occurrence of gangrene of the skin in consequence of arteritis obliterans, due to syphilis, as a cause of ulcers. In citing the same paper of Mr. Hutchinson, I stated then that it would require the anatomical proof that changes in an artery, leading to a gangrenous portion of the skin, must actually be shown to exist, in order to establish as an irrefutable fact what I had maintained. Since then an observation has been published which furnishes sufficient proof that a subacute, specific, and syphilitic arteritis of the small arteries of the fingers does exist, travelling from the periphery toward the centre—that is, an ascending arteritis—a paper entitled: "Gangrène spontanée des Doigts par Artérite syphilitique, par le Dr. Baron d'Ornellas" (*Annal. de Dermatol.*, Jan. 1888, p. 35).

The patient who forms the subject of the paper was forty-five years of age, and had had a chancre twenty years ago, which healed without treatment, and was not followed by secondary symptoms. At the time he was examined, however,

he presented tertiary syphilitic lesions of the tongue. For six weeks the four fingers of the left hand had constantly felt cold, when the soft parts of the ulnar aspect of the tip of the left middle finger became gangrenous. Along the course of the collateral arteries of the diseased finger hard strings could be distinctly felt, and the radial pulse was found to be considerably weaker than that of the other wrist, although perfectly perceptible. Later on, the radial aspect of the fourth finger became gangrenous, accompanied by considerable pain, particularly at night. Seven weeks after the first attack, which had passed off under treatment with iodide of potassium, with loss of the pulp of the third and fourth fingers, the same fingers in their entire length again became painful and cold, but in a more aggravated manner. The sensation extended to the lower third of the forearm, and within six days the middle finger became mummified as far as the proximal third of the second phalanx, and the fourth finger as far as the proximal third of the third phalanx. D'Ornellas could establish the entire absence of the arterial pulse in the left radial artery, in the palmar arch, the ulnar, and in the inferior third of the brachial artery, as well as the fact that these vessels were obliterated and indurated, giving the sensation of a hard string. In the middle third of the brachial artery pulsations were rather weak, but in the axillary they were perfectly normal. Under specific treatment the affected fingers healed, but with the loss of the gangrenous portions.

Here we have a clear case of arteritis obliterans in a syphilitic person, affecting first the smaller arteries and later on larger branches, and causing a similar chain of symptoms as found in Hutchinson's and in my case: coldness, pain, and mummifications; lividity is not prominently mentioned, but there can hardly be any doubt that it existed at some time. It may have seemed less significant owing to the early appearance of gangrene, the result of the complete obliteration of the bloodvessels, which in the other cases probably never really took place.

D'Ornellas evidently was not cognizant of Hutchinson's publication, for he says that he never heard anybody speak of such localized arteritis in the extremities, and that Verneuil, Fournier, Duplay, and other eminent physicians assured him that they had never seen a similar case, concurring at the same time with his diagnosis. G. Thibierge, however, in a recently published paper ("Les Lésions artérielles de la Syphilis," *Gaz. d. Hôpit.*, 1889, No. 11), placing Hutchinson's and d'Ornellas's cases together, says: "In other cases lesions, which it seems legitimate to attribute to syphilitic arteritis, produce asphyxia and gangrene of the extremities, closely resembling the type of Reynaud's disease."

I trust that this paper will be accepted as a further contribution to this chapter of the pathology of syphilis.

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