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PERIPHERAL NEURITIS  
OF SYPHILITIC ORIGIN.

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New York.

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# PERIPHERAL NEURITIS OF SYPHILITIC ORIGIN.\*

By J. A. FORDYCE, M.D.,

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**T**HE infrequency with which neuritis is encountered in the early stages of syphilis has prompted me to report the following cases:

CASE I. *Left Facial Paralysis Appearing Suddenly Four Months After Infection.*—Mr. A—, aged 21 years, consulted me at the Bellevue Out-door Department about the first of September, 1889.

An examination revealed the induration of a recent chancre, multiple adenitis, and a general macular syphilide in its declining stage. He stated that the chancre appeared about four months previously, and that he had not been under treatment.

An exquisitely tender swelling about the size of a chestnut was present at the junction of the middle and outer third of the left clavicle; an intense frontal headache together with rheumatic pains in the right shoulder and elbow were complained of; the temperature was 101° F. Hydrarg. bichlor. gr.  $\frac{1}{16}$  was ordered and was well tolerated. On September 17th, he returned with a paralysis of the left facial nerve of four days' duration, involving all its branches; the eye could only be imperfectly closed and the muscles of the cheek and lower part of the face were immovable.

A slight impairment of the sense of taste was discovered on the

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\* Read at the fourth annual meeting of the American Association of Genito-urinary Surgeons.



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paralyzed side. The soft palate was found to be normal. No impairment of hearing was detected.

The treatment was continued and the patient directed to report frequently for observation.

At the end of ten days he returned with only a trace of his former paralysis; the eye could be closed in a normal manner and the cheek muscles were freely movable. Natural taste had returned. The headache had disappeared along with the swelling over the clavicle and the rheumatic pains in the right shoulder and elbow.

The involvement of all the peripheral branches of the nerve would exclude a central lesion, while the disturbance of taste would point to a localization of the lesion within the Fallopian canal near the point where the chorda tympani is given off.

Of course it was impossible to determine the nature of the lesion with certainty, but from the simultaneous occurrence of syphilitic swellings of the periosteum in other localities, one would be justified in concluding that the nerve fibres were compressed by a swelling of its sheath within the narrow Fallopian canal. This supposition was strengthened by the transitory duration of the affection and its disappearance along with the other osteocopic pains of the early secondary eruption.

The relationship of cause and effect between the general disease and the local affection is open to the criticism that facial paralysis is a frequent affection, while its occurrence during syphilis is much less so.

A number of writers have, however, noted the coincidence of the two affections, among them the following:

Rumpf<sup>1</sup> observed a facial paralysis in connection with an affection of the acoustic nerve in a syphilitic patient. The specific nature of the nervous affection was, however, subject to doubt.

Steenberg<sup>2</sup> reported the case of a patient in whom a left facial paralysis occurred with the early secondary eruption, without headache, vertigo, or other manifestation of a central trouble.

The eruption was treated for five weeks with mercury, at the end of which time the paralysis had improved.

The case of Vidal (de Cassis)<sup>3</sup> resembles the one reported by me in that the facial paralysis appeared at the time of the early secondary eruption and was accompanied with disturbance of the sense of taste.

Cruveilheir<sup>4</sup> observed, along with a neuralgia of the trigeminus in a syphilitic subject, abnormal sounds in the ear of the same side and within a few days a paralysis of the facialis. Examination revealed an anæsthesia of the same side.

Van Buren and Keyes<sup>5</sup> have reported a case occurring during the second month after infection.

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Ljunggrén,<sup>6</sup> in an elaborate and well-written article, reports, among a number of cases of cerebral affection in the early period of syphilis, four cases of facial paralysis involving the muscles of the face and tongue with the exception of the frontal portion of the nerve.

All of these cases were ushered in with intense headache and vertigo, and are without doubt to be referred to a central rather than a peripheral affection of the nerve. The meningeal irritation and inflammation which Lang<sup>7</sup> described in early syphilis, accompanied at times with inflammation of the retina and choroid, could, when localized at the origin or along the course of the nerve, easily induce a paralysis of a more or less severe grade and of transitory duration.

The well-known anatomical situation of the cranial nerves to their canals of exit, and the especial liability of the cerebral membranes and cranial bones to late syphilitic lesions, is the general explanation given of the paralyzes of the cranial nerves so often encountered in this disease. An interstitial neuritis caused by the direct action of the virus on the nerve fibres, as in leprosy—a disease with which, in many respects, syphilis presents points of similarity—is seldom encountered.

The following case came under my observation in 1884 at Hot Springs, Ark., having been kindly referred to me by Dr. Garnett, of that place:

*CASE II. Multiple Neuritis of the Lower Extremities Coincident with the Early Erythematous Eruption of Syphilis.*—J. B., aged 40 years, lawyer by profession, came to Hot Springs for the purpose of receiving treatment for a recently-acquired syphilis. He had been addicted to the moderate use of alcohol. He stated that about ten weeks previously he had observed a sore on the penis, which was followed by a general rash two weeks before he came under my observation. At the same time he noticed some weakness of the legs; they appeared to be heavy and difficult to move and were the seat of dull, aching pains. The weakness increased until a few days before he reached the Springs, when he was unable to stand erect or to make any attempt at locomotion.

An examination revealed the following condition of the patient: The induration of a recently-acquired sclerosis was present on the prepuce; in both inguinal regions and in the post-cervical region the characteristic adenopathies were found. A universal macular syphilide was present in its florid stage. The nervous phenomena presented by the patient formed the interesting feature of the case, and at that time excited my interest in a high degree. The patient when seen was confined to bed, and unsupported attempts to walk were followed by reeling and, if not prevented, by falling to the floor. He was able, however, to move the legs about in bed quite freely. Below the knees

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the muscles were exceedingly tender to touch or deep pressure; the tenderness was not localized along the course of the nerves, but was irregularly distributed over the muscles, being especially observed in those of the calf. Numbness of the feet and lower half of the legs was complained of and tactile sensation was impaired in these localities. Muscular power was markedly affected, he being unable to overcome even moderate resistance applied to the muscles of the anterior part of the thigh. The patellar-tendon-reflexes of both sides were absent. Electrical examination made four weeks after the onset of the paralysis showed loss of excitability of the nerves and partial reaction of degeneration in the muscles. At the same time the muscles of the lower extremities, especially those below the knees, showed a distinct atrophy which advanced with the progress of the disease. The functions of the bladder and rectum were unimpaired and continued so during the patient's illness.

The special senses were normal. No pain or numbness were complained of in the upper extremities and no soreness was present on muscular pressure. The treatment was that usually employed at Hot Springs—the mercurial inunctions—the patient was directed to use ʒi. daily of the ungt. hydrarg., which was continued for a period of six weeks, with occasional interruptions owing to the occurrence of mercurial stomatitis. At the termination of this period the syphilitic eruption had almost disappeared. The paresis of the lower extremities, however, showed no improvement; on the contrary, the muscles had undergone farther atrophy. Iodide of potassium was added to the mercurial treatment in increasing doses until the patient consumed 300 grains daily. After several weeks' use of the iodide in connection with mercurial inunctions and daily bathing, a gradual improvement took place, the muscular pains and soreness abated, and after the daily use of massage and galvanism for a period of several weeks longer, the patient was enabled to walk by the aid of crutches. From this time the improvement was rapid, and he departed for home at the end of four months from the onset of his illness with the muscular power in the legs almost entirely restored.

The diagnosis of a multiple neuritis affecting the nerves of the lower extremities was probable, as the non-implication of the bladder and rectum together with the electrical reactions of the muscles and nerves would exclude a pathological condition in the spinal cord.\*

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\*After this paper was written I found that Dr. Mills had presented a communication before the American Neurological Association in 1887, in which he described a number of cases of paralysis which occurred in patients who gave a clear history of syphilis or alcoholism, or both, the clinical features of which correspond to those presented by my own case. It was not always possible to separate the purely alcoholic from the purely syphilitic

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In the voluminous literature concerning multiple neuritis which has appeared during the past ten years very little is written as to syphilis among its causes.

Leyden<sup>8</sup> had never seen a typical case of syphilitic neuritis of the lower extremities, but had observed a young man who presented himself during the florid stage of syphilis with pain in and paresis of the muscles of both arms, together with muscular atrophy and the reaction of degeneration. He attributed the nervous disturbance to the specific disease, as nothing in the patient's occupation or habits could be invoked to account for the trouble.

In the following case reported by Buzzard<sup>9</sup> neuritis of a large number of the peripheral nerves was present, resulting in almost complete paralysis. The patient, a man aged 44, came under his observation in the following condition: "He had double facial paralysis, total absence of the power of voluntary contraction in the muscles of either leg, the grasp of both hands almost entirely lost, and partial paralysis of respiration and deglutition. There was incomplete paralysis of the right external rectus muscle and of the soft palate, especially on the left side. There was little movement of the diaphragm, and the intercostal muscles were acting so imperfectly that the patient could not lie down in bed. Cutaneous anæsthesia was more or less general throughout the trunk, extremities, and face, the tips of the fingers being especially numbed.

"The power of the sphincter ani was normal, that of the bladder impaired to a slight degree. The muscles about the mouth showed the reaction of degeneration. In those of the arms the reaction to faradism was greatly diminished, while in those of the legs below the knees it was quite absent. In no part of the upper or lower extremities was there increased action to slow intermissions of the galvanic current. In the face, however, this was marked. His attack had commenced one month previously with numbness in the finger-ends, followed on the same day by weakness in the legs, which increased next day and was then accompanied by numbness about the calves, thighs, and buttocks. As there was a syphilitic history, he was treated with iodide of potassium and later with mercury. He soon began to improve, and after six months was able to resume his occupation; a few months later he was entirely well."

As the cases of multiple neuritis which have followed the acute

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cases, but he presented the notes of three cases in which the past history and the results of treatment indicated a syphilitic origin of the affection. The writer was uncertain whether to locate the trouble in the peripheral nerves, in the cord, or in both regions, as the present rules of diagnosis were clearly inefficient.

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infectious diseases, diphtheria, scarlet fever, measles, typhoid fever, etc., pursue an entirely different course from the original complaint, they are, according to Leyden and Rosenheim,<sup>10</sup> to be referred to the action of the chemical poison—the ptomaines—generated by the disease germs rather than to the direct action of the bacteria on the nerve fibres. Whether this explanation would apply to syphilis or whether it, like leprosy, owes its neuritis to the direct invasion of the bacilli into the nerve tissue, must remain a matter of speculation. The tardiness with which my patient responded to the action of the specific remedies might be used as an argument against the direct working of the microbes. Still when we recollect that time is required to restore a degenerated nerve fibre the objection loses much of its weight.

It is doubtful whether to refer the localized analgesia to which Fournier<sup>11</sup> has called attention as often present in early syphilis to a central or peripheral affection of the nerves. Lang speaks of pain, anaesthesia, and weakness in the legs occurring with the first general syphilitic outbreak, and as such symptoms generally disappear under mercurial treatment, he feels justified in referring them to an irritation of the spinal meninges analogous to the irritative processes in the cerebral meninges which he had observed.

A few cases of primary interstitial neuritis of single spinal nerves have been reported both in the early and late periods of syphilis. Delafield<sup>12</sup> records the case of a man aged 46 years who was infected with syphilis five years before he presented himself with pains in the lower extremities, and no other symptoms until two months before his death, when he developed weakness in his legs, involuntary discharges from the bowels, and difficult urination; nodes were present on the skull and right tibia; death took place from an intercurrent erysipelas. An autopsy showed that the spinal cord was unchanged, while the large nerve trunks which comprise the *cauda equina* were the seat, two inches from their end, of a pea-sized yellow cheesy tumor which inclosed several spinal nerves, and to which the dura mater was adherent; two inches lower down several other nerves were adherent and degenerated.

Ehrmann<sup>13</sup> cites the history of a patient in the ninth month of the disease, who, when he was received into Professor Neumann's clinic, presented evidence of recent cutaneous syphilis together with a periosteal swelling of the left external malleolus and of the dorsal surface of both feet. A painful swelling of the phalangeal joint of the left ring finger was further observed. Anaesthesia along the ulnar side of the left forearm and sensibility to pressure along its entire course were noted. Pressure along the branches of the nerve and also along the median elicited pain. The nerves of the affected side were more easily

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felt than on the healthy side. The muscles of the thenar and antithenar eminences supplied by the ulnar nerve were atrophied, as was the opponens pollicis supplied by the median. Hyperalgesia was present in the skin supplied by the ulnar and median cutaneous nerve, and the electrical excitability of the nerve was diminished. Under the use of the iodide of potassium the atrophy, anæsthesia, and pain on pressure disappeared.

Hutchinson<sup>14</sup> quotes the case of Dr. ORMEROD, published in the *Pathological Transactions*, of a woman aged 23, the subject of inherited syphilis, who presented a fusiform enlargement of the left median nerve in the middle of the arm. The tumor was tender on pressure. It had been present for nearly three years and was attended by motor paralysis, wasting, and anæsthesia. The patient presented several unequivocal signs of congenital syphilis.

Bowlby<sup>15</sup> observed a patient, aged 54, who had suffered from syphilis for many years, in whom a gradual paralysis of the parts supplied by the ulnar nerve commenced ten years before he came under the author's notice.

The hand was clawed, the interossei muscles and those forming the ball of the little finger extremely wasted, together with well-marked atrophy of the ulnar side of the forearm. The skin supplied by the ulnar nerve was quite anæsthetic. The nerve could be felt behind the elbow as a thick, hard cord, not less than four or five times its natural size, the thickening extending along the trunk for about two inches.

Unna<sup>16</sup> has observed in late secondary syphilis certain erythematous and papular skin eruptions of a circinate outline which are not influenced by antisymphilitic treatment, and which, by reason of their analogy to the macular lesions of anæsthetic leprosy, he is disposed to regard as trophic in character, the result of an interstitial neuritis of like character to the interstitial neuritis of leprosy caused by the entrance of the bacilli lepræ into the nerve trunks.

It would appear from the foregoing that interstitial neuritis resulting from syphilis is one of the rarer manifestations of the disease, but that it may occur both in its early and late stages and affect one or more nerve trunks.

A typical multiple neuritis resembling that which follows the acute infectious diseases must be of more unusual occurrence. It should be encountered early in the course of the disease, while the poison is in its most active state and disseminated throughout the general circulation. At present, however, the cases reported are too few in number to permit any general statements regarding them.

Considering the predilection which the disease shows for the nerve

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centres later in its course, it is surprising that the nerve trunks are not more frequently affected; in this respect presenting a striking contrast to leprosy, which spares the more highly-organized centres, finding in the peripheral nerves a more suitable soil for development.

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