gives rise to extension of the leg in the knee joint; it is sometimes known to occur in neuralgias of the joint. The very painful cramp in the calf muscles, which sometimes occurs after great exertion, sometimes also in the course of certain grave general diseases—for example, cholera—is well known.

Fig. 119. Fig. 120.

Figs. 119, 120.—CONTRACTURE IN THE QUADRATUS LUMBORUM (personal observation).

Clonic spasms of the muscles of the lower extremities may be observed in hysterical patients. The so-called "saltatory spasm" (Bamberger, Wiener medicinische Wochenschrift, May 4, 1859), which forces the patients whenever their feet touch the ground to jump, is not an independent affection, but only a symptom of central disease. The increase of the reflexes, which is generally present, is in favor of this view. Of the treatment we shall speak in the chapter on Hysteria.

LITERATURE.

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V. Neuritis involving Several Spinal Nerves at the Same Time—Multiple Neuritis—Polyneuritis.

Just as we have seen that several of the cranial nerves can be affected at the same time, so none the less is this true of the spinal nerves. It is, however, not many years since it has been shown that such multiple nerve affections may occur primarily, that they are often of an inflammatory nature, that they give rise to numerous symptoms which may, under certain circumstances, be misinterpreted, inasmuch as they may simulate those of central lesions. The affection is known as multiple neuritis, and, as we said, our knowledge of it is of quite recent date (Duménil, Eisenlohr, Leyden, Strümpell, Vierordt, and others). We may confidently expect that in the near future we shall obtain further information upon certain points in connection with this disease which have not as yet been cleared up.

As we have above, on page 331, devoted some time to the description of the anatomical features of the disease, it remains for us here to speak first of the symptoms of multiple neuritis. It is remarkable to note that the onset frequently resembles that of an acute infectious disease: there are fever, general malaise, dull headache, apathy, etc.; soon pains make their appearance, first in the lumbar region and the back, then in the course of the large nerve trunks. These are followed by an impairment of mobility, especially in the lower extremities, which makes the patient very anxious; the legs are heavy, they are moved only by a strong effort, and not without pain, and the patient is easily fatigued. The reflexes are diminished or lost, electrical excitability is decreased, but the pains—and this should be emphasized—usually soon abate and other sensory disturbances, paræsthesias and anæsthesias, are only exceptionally met with (Barrs, Amer. Journ. Med. Sc., February, 1889), the disorder chiefly affecting the motor apparatus. Repeatedly cases have been observed in which the motor disturbances made their appearance quite suddenly, an onset

which we could almost call apoplectiform. Without any premonitory symptoms there come on violent radiating pains, with motor paralysis. Sometimes we find atrophy in certain groups of muscles; reaction of degeneration can soon after be demonstrated; sometimes thickening and a considerable increase in the subcutaneous tissue develop. If this takes place in the palm of the hand we have the "flat-hand," in which the normal hollow is absent, a condition analogous to that of "flat-foot" (Löwenfeld, 2 Fälle neuritischer "Platt-hand," Münchener med. Wochenschr., 1889, 24). Besides muscular atrophy we may find ataxia, and this symptom may indeed be very marked, so that it dominates the whole picture and makes it resemble that of tabes. In such cases the term pseudo-tabes peripherica, instead of simply multiple neuritis or polyneuritis, is very appropriate.

If the pains are very intense, and if we find more or less well marked swellings, while other sensory disorders are only slight, the case may be one of acute primary polymyositis, a condition which has been well described by Strümpell. This is especially likely to be the case if the pains are localized in certain muscles (Deutsche Zeitschr. f. Nervenhk., i, 5, 6). Lewy has also furnished some important practical contributions to our knowledge of this disease (Berlin. klin. Wochenschr., 1893, 18).

No description of the course of the disease which would fit all cases is possible, because this varies and presents peculiarities according to the pathogenesis. Dejerine has described a case of hæmorrhage in the region of the brachial plexus which was followed immediately by paralysis of the arm (Compt. rend. hebdom. des séances de la Soc. de Biol., 1890, No. 27); but such a sudden onset is exceptional. If a multiple neuritis occurs in the course of another disease, its manifestations are not the same as when it is a primary affection, which has developed under the influence of some special cause. Among the conditions in which polyneuritis may develop we would mention phthisis pulmonalis, diabetes (Charcot, Arch. de Neurologie, Mai, 1890, xix, 57), tabes, articular and muscular rheumatism, polyarthritis, and finally the puerperal state (Desnos, Pinard, et Joffroy, l'Union méd., 1889, 14). It has repeatedly been described as a sequela of typhoid fever, of small-pox, of scarlet fever, of diphtheria, of carcinoma (Auché, Revue de méd., 1890, x, 10), and of leprosy (Arning und Nonne, Virch. Arch., 1893, cxxxiv, Heft 2)—"infectious form" of Leyden.

As an independent disease it may be caused by overexertion. Two cases which we have described were due to prolonged work with the sewing machine (cf. lit.). It may also appear, and this is unquestionably much more common, as a consequence of the action of certain poisons, more especially alcohol, nitrobenzine, aniline (Ross and Bury), carbon monoxide, bisulphide of carbon, lead, arsenic, and mercury—the "toxic form" of Leyden. Besides these two there is, according to Leyden, a third variety, the so-called atrophic (anæmic, cachectic) form, which develops after a long and severe sickness, somewhat in the manner recently described by Oppenheim and Siemerling.

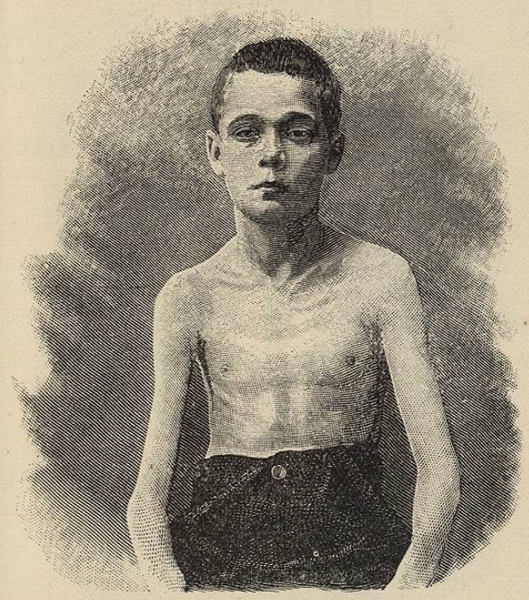

Fig. 121.—Atrophy of the Muscles of the Right Upper Arm in Consequence of a Fracture of the Humerus Seven Years previously (personal observation).

Sometimes sensory, sometimes motor disturbances are the predominating symptoms. In the neuritis of phthisical patients both are marked to about the same extent. Occasionally certain nerves seem to be more liable to suffer—for instance, according to Möbius, during the puerperal state, the median and ulnar, the terminal branches of which are affected either in both hands or only in the one which is used more extensively,

as a rule the right. In tabes, on the other hand, no region seems to be exempt, and, as Oppenheim, Siemerling, Pitres, Vaillard, and others have observed, not only the peripheral spinal, but also the cranial nerves may be attacked by the neuritis—for example, the vagus and its laryngeal branches, and the ocular nerves. Korsakow and Serbski have described

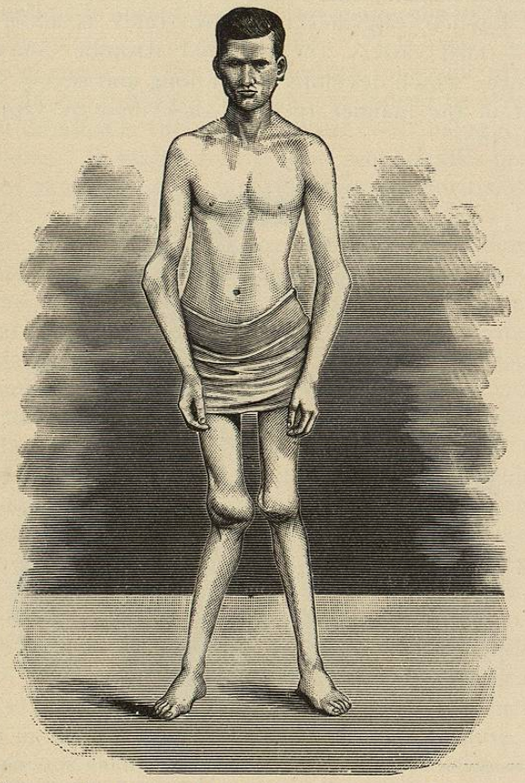

Fig. 122.—Panarthritis with Secondary Multiple Neuritis.

the mental symptoms which may be associated with multiple neuritis (Arch. f. Psych. und Nervenk., 1891, xxiii, 1, p. 112).

The neuritis which occurs in the course of joint affections often leads to considerable atrophy in those muscles which are supplied by the affected nerve twigs. Chronic inflammation of the synovial membranes caused by sprains, chronic inflammations of joints, articular rheumatism, frequent attacks of gout,

traumatism, fractures which give rise to some impediment in the circulation—all these causes may bring about extensive muscular atrophies. A case to the point is illustrated in Fig. 121; the patient was a boy, fifteen years old, who had sustained a fracture of the upper arm when he was eight years old. The fracture healed slowly, and was followed by atrophy of the

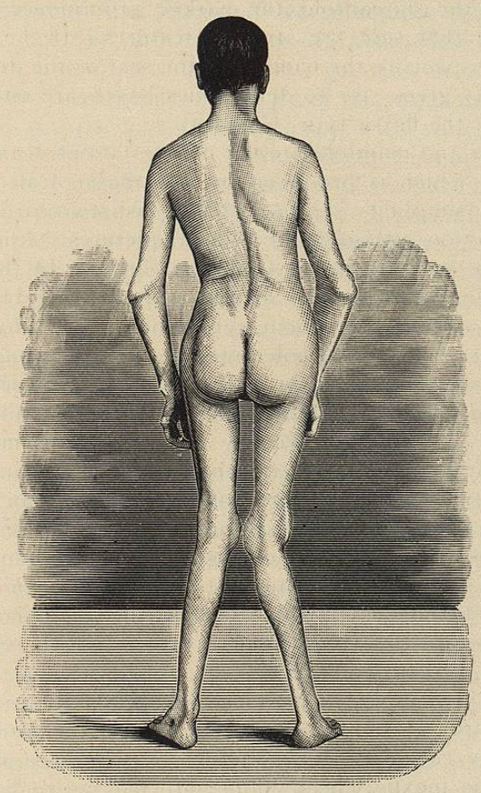

Fig. 123.—Panarthritis with Secondary Multiple Neuritis.

right upper arm and the muscles of the chest. References bearing on these affections and upon "reflex atrophies," which we shall soon mention, will be found on page 396. The case which we have illustrated in Figs. 122 and 123 was that of a young man who suffered from a panarthritis, and who in consequence of his joint affection developed muscular atrophy in all four extremities, more especially in the upper arms and