

great majority of tabetics have had syphilis at some time or other—according to Erb, sixty per cent; according to Fournier, ninety per cent. Syphilis is more frequently followed by tabes than hereditary and exciting causes put together. Out of three hundred and forty-five cases of tabes which I have seen in the last few years of my practice, in sixty-six a syphilitic history was not obtained, while in the other two hundred and seventy-nine cases it was demonstrated with certainty, so that my figures, although they do not quite correspond to those of Fournier, give eighty per cent. Minor points out in his statistics (*Wyestnik psychiatri i nervipatologii*, 1888, vi) that tabes is much rarer in Russia among the Jews than among the other Russians, which is simply due to the fact that the former are less frequently syphilitic. The communication of Nägel also deserves consideration. He found in 1,403 cases of tabes forty-six per cent of syphilitics, and out of 1,450 other patients only nine and one half per cent. The time which elapses between the infection and the first appearance of tabes varies from a few months to one, two, five, fifteen years or more. The severity of the syphilis does not appear to stand in any relation to the severity of the tabes; for one can observe very pronounced tabetic symptoms after an apparently trivial and quickly healed primary sore, whereas sometimes after the most severe type of syphilis the general affection of the nervous system only appears in its mildest form.

The influence which age and sex exert in the production of the disease can only be considered in the non-specific cases. It is, however, only of slight importance; for, although it is true that males are far more frequently affected than females (the proportion being seven to two), and although most of the patients are middle-aged, these facts can very well be accounted for by the nature of the several exciting causes, which make it comprehensible why men in the prime of life furnish relatively the greatest contingent of cases. For the special conditions under which the disease may occur in childhood, and the peculiarities presented by tabes in children, the reader is referred to the articles mentioned on page 679.

Lastly, it must be confessed that in a few cases, which, however, form an exceedingly small fraction of the whole number, no ætiological factor can be made out—neither hereditary predisposition, nor exciting causes, nor syphilitic infection. At

present we can only acknowledge our ignorance of their pathogenesis.

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Prognosis.—From what has been said, we may infer what the prognosis will be. Though it is not absolutely unfavorable *quoad vitam*, inasmuch as the patient may linger on for years, and sometimes tens of years, one should not forget that in general the course is unfavorable, that the patient will suffer greatly at times, and that the final lot of the tabetic is almost always a total inability to work or gain a living. In discussing the prognosis as to complete recovery, the question arises, Is tabes ever curable, or is there even a possibility of cure? This question is, with the proper restrictions, to be answered in the affirmative; it is possible to cure tabes, but only fresh cases of luetic origin. Advanced cases, in which degeneration in the cord has taken place, are incurable; we possess no means of bringing the lesion to a standstill or causing it to disappear. It is evident that the chances for the successful treatment of recent cases are increased the younger the patient and the better his general constitution. The prognosis is, *ceteris paribus*, less favorable in individuals with a neuropathic tendency, in whom the disease breaks out in consequence of some exciting cause, than in fresh specific cases.

Treatment.—In taking charge of a case of tabes we must first see that we ourselves, as well as the patient, clearly understand how much can be expected from any treatment. If his is one of those exceptional cases in which the prognosis is relatively favorable, we may tell him so; but in most instances it will be our painful duty to make him acquainted with the seriousness of the situation, of which he will often be entirely

ignorant. We must tell him with gentleness that a complete recovery can not be hoped for, and that all that it is possible to accomplish is to relieve some of his symptoms and to keep him in such a condition that he can as long as possible carry on his occupation. There is no disease in which it is more out of place to arouse in the patient vain hopes of recovery than in tabes.

The choice of the therapeutic measures themselves depends upon the stage of the disease in which we find the patient—that is, upon how long he has been sick. In old cases the greatest caution ought to be observed, and one should not forget that rash therapeutic interference may do more harm to the patient than good. The value of a treatment is often quite problematical; its harmfulness is too often quite evident. Hygienic and dietetic measures, conscientious nursing and cleanliness, injections of morphine in severe attacks of pain, occasional cool baths, ever-repeated kindly encouragement, these constitute—if we leave out the suspension method, of which we shall speak later—the only treatment which old cases of tabes need, or, for that matter, can stand. But the recent cases also demand a great deal of care and forethought. In view of the duration of the treatment, protracted as it will probably be, all circumstances have to be taken into account—the constitution, the age, the occupation, and, above all, the pecuniary situation of the patient.

As syphilis is at the bottom of so many instances of tabes, the question whether we are justified in expecting anything from an antisyphilitic treatment should be mooted, but only in exceptional cases can we have such a hope—that is, only when either signs of syphilis are still present, or when the time that has elapsed since their disappearance is relatively short (not longer than a few months or at most a year). Such cases are very rare; generally years, perhaps twenty years, will have gone by during which the patient has been apparently perfectly well, and then the antisyphilitic treatment is of no avail. If, however, we wish to institute it for any reason, possibly because the patient himself insists upon it, bold doses ought to be given, four, six, even eight grammes (ʒj–ʒij) of potassium iodide a day, and from three to six grammes (grs. xlv–ʒjss.) of mercurial ointment rubbed in daily. In all, two or three hundred grammes (ʒvj–ʒix) of potassium iodide and the same amount of mercurial ointment ought to be used. Recently

Dinkler, in Erb's clinic, has made careful observations with regard to the influence and the justification of the treatment by mercurial inunctions (Berliner klin. Wochenschr., 1893, 15, 16); he comes to the conclusion that in fifty-eight out of seventy-one cases—i. e., in about eighty per cent—one or several symptoms were improved by the treatment.

If we have resolved to try internal medicines, knowing, of course, that there is none which acts favorably upon the diseased nerve elements, we may begin with silver nitrate in doses of one centigramme (gr. $\frac{1}{2}$) in pill form three times a day for four or six weeks, after which time it may be combined with ergotin (arg. nitr., 0.3 (grs. ivss.); extr. secal. corn., 3. (grs. xlv); pulv. et extr. quass., q. s. ut f. pil. no. 30), of which also one pill is to be taken three times a day. Finally, a trial may be made with the salicylate of physostigmine, of which one milligramme (gr. $\frac{1}{66}$) in pill form may be given three times a day for a month, as recommended by Meyer in his paper on the Influence of Physostigmine upon the Patellar Reflex (Berlin. klin. Wochenschr., 1888, 2). With these drugs we may be fairly confident that we are doing no harm, and often we may perceive a distinct improvement in the condition of the patient, although we are, of course, not able to definitely decide whether this is actually to be attributed to the medicine or not. We would recommend these remedies more warmly than any other, even than strychnine, which has been administered subcutaneously in doses of from three to five milligrammes (gr. $\frac{1}{22}$ – $\frac{1}{13}$), gradually increased to one centigramme (gr. $\frac{1}{2}$) in twenty-four hours, for repeatedly after these injections we have observed the occurrence of pains which had not been present for months. In the treatment of the individual symptoms we must resort to the same measures that we should adopt when these appear in the course of other diseases or by themselves; for instance, for the lancinating pains, as in other neuralgias, we shall be obliged to give antipyrine and antifebrine, which have recently been recommended by Lépine, Suckling, Germain Sée, G. Fischer, and others, but we shall be driven to the conclusion finally, that for the relief of these pains there exists only one drug by the help of which the patient's painful existence may be rendered at all bearable—viz., morphine, which here more than in any other disease we are justified in using in large amounts. The application of a tight bandage to the limb in which the lancinating pains are present, as advocated by Leidy (Med.

News, August, 1891, 29), I have repeatedly found efficacious; the combination of pressure and warmth seems so beneficial to many cases. Gastric and laryngeal crises, headache, etc., are to be treated symptomatically.

In addition to the internal medication, it is the electrical treatment which deserves special consideration. This, if used at a period early enough, may be followed by excellent results, and may alone sometimes be capable of effecting a cure or an arrest of the morbid process. On the other hand, if we do not select our cases properly—for example, if we treat old cases like recent ones—we may do more harm than good with it. It may give rise to severe pains, and make the patients, who until they were treated by electricity were in a fair condition, begin to suffer terribly and soon lose confidence in the physician. Electricity may also prove successful against the motor disturbances, not so much against the ataxia as against the weakness in the legs; also in combating anæsthesias and paræsthesias in the hands and feet it may have some effect, whereas it is usually of little avail against the lancinating and rheumatoid pains. How to use the electricity, whether in the form of the faradic or the galvanic current, it is impossible to say in a few words. Every one forms for himself, in the course of years of practice, his own technique, and gives preference to this or that method; the one prefers the galvanic, another the faradic; again one will recommend the ascending, another the descending current through the spinal cord; the one believes in moist, the other in dry electrodes, especially the brush. Among all the different methods, besides the excellent general faradization advised by Beard and Rockwell, the faradic brush applied to the back, as recommended by Rumpf, has perhaps met with a more favorable reception than any other practice, and justly so. We prefer it, so far as electrical treatment goes, to all other modes. Details on the subject may be found in my text-book on Electro-diagnosis and Electro-therapeutics, in which all the points necessary for the practitioner to know are discussed.

In a large number of cases the cold-water treatment has been found to be extremely beneficial. The action of the water on the peripheral nerve endings, the influence which cold douches, wet packs, moist ("Priessnitz's") abdominal bandages, cool baths, etc., exert upon the circulation in the vessels of the skin, and thus upon the terminal nerve twigs, is often so favorable that marked improvement during and after a stay in a

hydrotherapeutic establishment is not rarely seen. Even in cases in which sensory and motor disturbances have attained to such a degree that but little can be hoped for, a carefully conducted cold-water treatment may be quite beneficial in improving the general condition of the patient and raising his spirits.

On the other hand, we would emphatically warn against the use of warm or hot as well as steam and sweat baths. As a rule they are of no avail, but often evoke the lancinating pains. Unfortunately, the physician is not always in a position to prevent this, since the patients, who believe implicitly in the rheumatic nature of their pains, use them at random without his orders often for months and years. There are a great many tabetics who during the course of their disease have taken many hundreds of steam baths without perceiving the slightest benefit therefrom.

From the springs we can, on the whole, expect but little, and especially old cases with paraplegia and severe bladder troubles should be spared the trial. The disadvantages, the overexertion attendant upon the journey, and the lack of home comforts, in the case of these patients especially, will far outweigh any good results obtained from the baths; nor should we, as we said above, leave out of sight the necessary cost which, even with the most modest pretensions, is not inconsiderable. One should never forget that the disease is likely to last a very long time, that the patient will soon be unable to earn any money, and that for him there can be no greater misfortune than to find that, heedlessly or yielding to over-persuasion, he has spent all his worldly goods of which now he stands in the greatest need. There exist not a few of such helpless patients in whose cases just this point was overlooked, and it is especially our younger colleagues who seem rather too prone to disregard it. If such and other objections do not exist, it is most advisable to recommend places where warm brine baths can be taken, as in Rehme-Oeynhausen, this place having become famous for the treatment of tabes especially, though it is my experience that patients get along there no better and no worse than at other springs of the same kind—e. g., Nauheim—and it only deserves to be warmly recommended owing to the excellent arrangements which we there find, particularly the facilities for moving helpless invalids from place to place. Chloride-of-sodium springs containing iodine and bromine—

for instance, Königsdorf-Jastrzemb, Kreuznach, Goczalkowitz, Krankenheil—may be tried without fear of doing any harm; while the nonmedicated hot springs of Gastein, Teplitz, Johannisbad, Warmbrunn, Pfäfers, and the hot sulphur springs of Landeck, Aachen, Trentschin, Pistyán, Baden near Vienna, and Baden in Switzerland should be prescribed only with great caution, and the baths should never be taken too warm, never above a temperature of 80° to 90° F. Among the chalybeate springs, first Cudowa, then Pyrmont, Flinsberg, Schwalbach, and St. Moritz (Engadine) deserve to be tried.

The results of massage in the treatment of tabes are not satisfactory. There is no objection to giving massage in a careful manner so as to improve the nutrition of the muscles and to stimulate metabolism, especially in cases of young, comparatively robust patients; but we are hardly justified in building much upon such a procedure and in expecting to bring about a lasting improvement in the sensory or motor disturbances. I have known instances in which the general condition of the patient was influenced for the worse by massage, and in which certain symptoms, especially the lancinating pains, appeared to be aggravated after its use.

Of only historical interest is the operation of nerve stretching, which, in the first half of the eighties, was by some claimed to be an excellent means in the treatment of tabes, the sciatic nerves being usually chosen for this operation. They were laid bare by cutting through the gluteal muscles and "stretched" according to different methods. The result was in many cases at first very striking. Pains, bladder disorders, and anæsthesias vanished, and the operation was undertaken comparatively frequently. Soon, however, it was found that what had been regarded as a success was of no long duration, and that the old troubles returned, and, finally, after it had been repeatedly demonstrated at the autopsy (Strümpell, Rosenstein) that the elongation of the nerves not only had not exerted the slightest beneficial effect upon the morbid process in the spinal cord, but that several times at the place where the nerve had been stretched a neuritis had developed and extended to the substance of the spinal cord, giving rise to a myelitis, the practice was given up, and can be looked upon to-day as having been definitely discarded.

Finally, various other modes of treatment should be mentioned which we may collectively call the mechanical methods.

Graduated exercises consisting in the execution first of simple muscular movements, later of simple co-ordinated, and finally of complex co-ordinated movements (Frenkel, *Münchener med. Wochenschr.*, 1890, 52), it is claimed, bring about a decided improvement in the ataxia. Again we have the treatment according to the method of Hessing, by which a permanent support of the spinal column is attempted; the patient is provided with a corset made of cloth which he has to wear for years day and night, and which transfers the weight of the body to the pelvis and relieves the spinal column. Certain clinicians, among them Jürgensen (cf. lit.) have spoken favorably of this procedure, while Müller, of Stuttgart, would prefer another form of apparatus, since he considers Hessing's corset inefficient (*Med. Correspondenzbl., d. Würtemb. ärztl. Landesvereins*, 1890, 15).

Frequent extension of the spinal column is attempted in the method by suspension first advocated by Motschukowsky (*Wratsch*, 1883, 17-21) and later by Charcot. The results obtained with this mode of treatment in the Salpêtrière were favorable enough to induce many clinicians in Germany, England, and America to make further trial of it, and at present we possess quite an imposing array of articles treating of the "suspension method" and the results obtained by it. According to some authors the cerebral, according to others the spinal symptoms are improved by it. The procedure is said to be without danger, but in one instance the immediate consequences were fatal; it should be said, however, that in this case the suspension was undertaken without the physician's supervision (*Gorecki, Lyon méd.*, 1889, 20). Althaus (cf. lit.) has attempted to give an explanation of

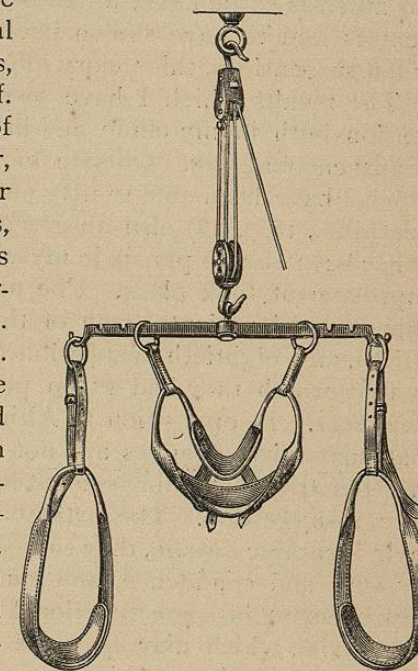


Fig. 181.—SUSPENSION APPARATUS USED IN THE TREATMENT OF TABES.

the mode of action of this treatment. According to his opinion, the meningitic adhesions over the posterior columns are loosened, so that the nerve fibres, especially the superficial ones, gain in power of conduction, the sclerosed, thickened neuroglia becomes looser, and the pressure upon the nerve tubes is thus diminished. He also thinks that suspension should only be used in older cases, because in recent ones it might lead to inflammatory conditions. The possibility that this loosening does take place, as Althaus claims, can not be disproved, but this much is certain, that for those instances in which improvement is said to have shown itself after only one, two, three, or ten suspensions, this theory affords no explanation.

The results which I have seen from the method by suspension both in my clinic and in private practice are by no means encouraging. Outside of an improvement in vision, which I have been able to note and which Bechterew (*Neurol. Centralbl.*, 1893, 18) also observed, I have not in a single instance been able to persuade myself that any marked or lasting improvement took place. The account which intelligent and unprejudiced patients gave of themselves after the thirtieth, fiftieth, and eightieth suspension corresponded almost exactly to that which they had given prior to the institution of the treatment. In opposition to Althaus, then, it is my conviction that anatomical changes are not produced by suspension, but that the transient improvement has to be referred to the influence of suggestion. The patients hear of a new treatment for their incurable disease, they subject themselves to it with much pleasure and confidence, and by autosuggestion produce an improvement in some functional impediment (for example, in the ataxia), which may be quite marked, but which is never lasting. Four times during the act of suspension I myself met with rather unpleasant accidents; in two cases the patients lost consciousness and had to be rapidly taken down, and were only then with some difficulty recalled to life; in two other instances severe laryngeal crises appeared, so that the procedure had at once to be stopped. Such accidents, of course, make a very bad impression upon the patient, and bring the results, which are in any case doubtful, still more into question. Careful examination is necessary before the suspension is used, and if there exists a disease of the heart or of the vessels it should under no consideration be undertaken. We need, of course, hardly add that while the patient is suspended he

should be carefully watched. Benuzzi has recently attempted to replace the suspension by simple stretching, and claims that with his method the spinal cord is extended much more decidedly. The legs are held at the ankle joints with a towel and are pulled over the head until the knees touch the forehead. Benedikt has seen good results from this method in a number of cases (*Wiener med. Presse*, 1892, 1). I myself soon abandoned the procedure, owing to the fact that it is very disagreeable to most patients. I must admit, however, that it is deserving of further trial in suitable cases.

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