

larger number of cells. At this period, the skin surrounding the vesicle had begun to redden; and the vesicle was no longer transparent, but opaline. On the tenth day, the redness of the skin around the vesicle had increased. The vesicle itself was full of a milky fluid: this, upon examination, appeared to contain numerous pus-cells.

Dr. Marston found, however, that if a vaccine vesicle be irritated, the surrounding skin will become red on the eighth day. The contents of the vesicle will at the same time become opaline or yellowish; and, if examined microscopically at this period, will contain cells having the appearance of pus.

These observations have now been sufficiently multiplied to warrant the following conclusions:—

1. The ordinary vaccine vesicle yields a fluid, from the fifth to the eighth day, free from any cells allied to pus-cells. The only evidence of any organised products at all in the fluid, at these dates, is the occasional appearance of a few granules, nuclei, or cell-like particles; although, as a rule, even these are entirely absent.

2. Upon the ninth and tenth days, cells may generally be detected; few in number upon the former, but very numerous upon the last named day. These cells possess the characters of pus-cells.

3. When the vaccinated spot, however, has been or is attended with the phenomena of inflammation—heat, redness, and pain—such as it frequently is if the part have been irritated, then pus-cells can be discovered in the vaccine fluid at earlier dates than the ninth day.

Now there is much evidence for believing that the purulent character of a fluid may impart to it other and more active properties than it otherwise possesses. Pus obtained from various sources, and not only what is called specific pus, has been found to be capable of initiating inflammation in mucous membranes to which it has been applied.*

The practice of our ophthalmic hospitals has proved this in the case of the human conjunctiva. A film of pure mucus might be retained in contact with that membrane without risk; but not so a purulent secretion.

In the case of specific pus, these properties are still more marked. A gonorrhœal pus (if that may be termed specific) will induce a violent purulent conjunctivitis on its application to the eye; and it is now well known that, although the secretions afforded by an ordinary indurated chancre will not be inoculable upon the same individual, if such chancre be first made to yield pus, by artificial irritation, it is capable of inducing some result upon inoculation of the patient's skin.

It is difficult to lay down rules so positive as to be invariable in their application, as to the best period for taking lymph from a vaccine vesicle, because the disease is subject to some irregularities and modifications in its course in different individuals. The lymph yielded by a vesicle from the sixth and prior to the end of the eighth day, when the vesicle is umbilicated and shows a faint trace of peripheral redness, is generally quite pure and void of cell-growths. But by the aid of the microscope

we may very readily determine the quality of the vaccine fluid in this respect; and I would venture to suggest that the detection of pus-cells should decide us against using it for the purposes of vaccination.

Original Communications.

PATHOLOGICAL AND PRACTICAL RESEARCHES ON THE VARIOUS FORMS OF PARALYSIS.

By EDWARD MERYON, M.D., F.R.C.P.

[Continued from page 86.]

PARALYSIS FROM TABES DORSALIS.

A MORE tractable form of paralysis is not unfrequently seen in youth and early manhood, which may be traced to the vicious and enervating habit of masturbation. The exhausting practice is far more common than is generally supposed; but it is only when carried to an extreme degree that it entails a wasting of the spinal cord and all the accompanying misery which have long been known under the designation of *tabes dorsalis*. The terrible delineations made by Tissot, in his treatise on onanism, are doubtless exaggerated for the purpose of deterring the unwary; and it is a pity they are so; for some imaginative minds are apt to be lured away by the romance of an erotic martyrdom, whilst a more faithful picture might inspire a protecting intimidation.

M. Lallemand, in the course of fourteen years, collected upwards of a hundred and fifty cases, in which all forms of specific diseases—of the brain, the heart, the lungs, the stomach, and of every other organ—presented themselves, every one of which was occasioned by diurnal pollutions. (*Des Pertes Sémiales Involontaires.*)

This propensity has been known to exist in early childhood, long before the testes and vesiculæ seminales had acquired their functional activity, or the moral attributes their restraining influence. But in such cases the habit has been engendered by some local irritation of the sexual organs, such as ascarides in the rectum, incontinence of urine, accumulation of sebaceous matter between the glans penis and the prepuce, etc.

The restoration of the intellect requires far more time than is necessary for the apparent renewal of bodily vigour; and it is when the mental faculties should be most rapidly expanding, that they are most apt to be blighted by the pernicious influence in question. From the age of twelve or fourteen to eighteen or twenty, youths are not unfrequently exposed to a focus of contagion in schools and colleges which masters and tutors, under the illusion of the innocence of their pupils, may repudiate, but which nevertheless exists; and the evidence to the fact is the painful avowal which is readily made by the victims to the temptation. We have, moreover, the testimony of M. Lallemand that "nothing is more common than timid yet educated individuals who complain of debility and seek advice for the acquisition of strength, who, when questioned, admit that they have been guilty of masturbation at an early age."

The habit to which the occurrence of *tabes dorsalis* has been imputed is not peculiar to the male sex; it is sometimes, though much less frequently, practised by the female also, in whom the brain yields more rapidly to its influence. I have seen but one unequivocal case, and in that I was led to think that that peculiar morbid state of the spinal cord which engenders a host of affections, united under the common name of spinal irritation, was the exciting cause; for, on pressure being

* See Dr. Piringer's Observations upon the Artificial Production of Ophthalmia by Pus-inoculation, quoted in Simon's Essay on Inflammation, in Vol. I of Holmes's *System of Surgery*.

made over the lumbar vertebræ, a sensation of intense throbbing and itching was aroused, which provoked the necessity of friction.

The observation of M. Deslandes (*Dictionnaire de Médecine*; Art. "Masturbation"), that out of every twenty cases of leucorrhœa in young females, from fifteen to eighteen result from masturbation, will not, I am sure, be endorsed by medical practitioners in this country.*

Two cases are recorded by Lallemand (vol. iii, p. 65), in which there was a change of anæsthesia from one hand to the other almost daily; and this kind of transference of symptoms from one part to another is not unusual in tabes.

Tabes dorsalis has been known to produce affections of every organ of the body; consequently the disease is remarkable for the diversity of its symptoms, which vary according to the constitution of the patient; and, although its early influence may engender functional disturbance only, the permanent irritation reflected from the spinal cord to the sympathetic system of nerves is adequate to the establishment of structural lesion in any part of the viscera.

On the other hand, it should be borne in mind that there is not an organ in the body which may not be the source of a reflex palsy; so that it becomes a matter of great importance to determine correctly the order of antecedence, lest we render ourselves obnoxious to the rebuke which is implied in Lallemand's avowment that he has seen many cases of tabes treated for spinal irritation, by leeches, cauteries, and blisters, with more harm than good. The pallid face, the eye encircled by a livid areola, the furtive glance, the muscular debility and emaciated frame, form collectively a reason for suspecting the existence of onanism; and when paralysis supervenes, in nineteen cases out of twenty, the patient will readily admit the truth of the conjecture.

The prognosis in these cases must obviously vary according to the indications of the extent of atrophy of the spinal cord. If the paralysis be not occasioned by absolute degeneration of the cord, muscular motion may be restored, debility may sooner or later disappear, and the wasted muscles may regain their healthy volume. Such was the happy result of three cases I have referred to; but I suspect the generative power is never thoroughly developed in those individuals who have practised masturbation to a great extent in their youth, or restored to a vigorous condition after it has been lost, from that cause, in manhood, even when the wasting of the spinal marrow has not proceeded to any considerable extent. But when the lumbar portion of the cord is reduced, as it sometimes is, to less than half its natural size, and its structure is considerably indurated, the paralysis is incurable; for the amount of diminution is not an expression of the precise quantity of nervous matter absorbed, seeing that there is in tabes dorsalis, as in induration from chronic myelitis, a deposit of adventitious fibroid connective tissue, which compresses and still further atrophies the contracted nerve-cells and nerve-fibres.

The treatment of tabescent palsy should be influenced by the cause from which it originates. If any local irritant exist, it should be removed; and, in the administration of tonics, it is advisable to refrain from such as have the property of stimulating the generative organs. Accordingly, when the rectum is fretted by the presence of ascarides, an excellent tonic anthelmintic, proposed by Dr. A. T. Thomson, is a solution of chloride of sodium in a strong sulphureous water. A drachm of common salt in half a pint of Harrogate water, taken early every morning, and an enema of the same admi-

nistered every night, will effectually expel the worms in conjunction with the superabundant mucus.

If irritating sebaceous mucus be the cause of irritation, and the prepuce be long, Lallemand has found circumcision to be the best remedy; and Mr. Athol Johnson endorses the recommendation, by the record of a case in which onanism was practised to a very injurious extent by a boy of six years old. The sense of hearing was considerably impaired; and Mr. Johnson, after trying many remedies in vain, removed a portion of the prepuce with benefit. (*Lancet*, April 7th, 1860.) So also in the female, should the pernicious habit be carried to the extent of endangering the intellect, the most promising remedy is excision of the clitoris.

In no bodily disturbance is the value of pain more manifest than in these cases of sclerosis of the spinal cord; but it is rendered conspicuous by its absence. In all other inflammatory conditions of the organ, local pain and muscular contractions are inestimable indications of treatment; and in tabes they would be a warning for the administration of the ergot of rye, iodide of potassium, and belladonna, at the precise period of time when irritation, congestion, and infiltration might possibly be arrested. It would appear that, in many baneful and morbid practices, a sense of shame is the only homage which vice pays to self-control; and that it precludes its victim from the seasonable benefit of that counsel which is the best protection against the retribution of a licentious assuetude.

The patient is fortunate who seeks and follows the physician's advice in time to be rescued from the consequences of absolute disorganisation of the spinal marrow; and in such a case the main indication of treatment is to restore muscular tone, and to subdue nervous susceptibility. This object is best attained by a mild unstimulating nourishment, by gentle tonics, and by protecting the patient as far as it is possible from salacious thoughts and feelings.

In many instances, the mere relinquishment of the enervating habit allows the natural elasticity of the constitution to regain bodily tone; but, when the sapped nervous centres and flagging muscles require the assistance of medicine, the unstimulating preparations of iron, combined, if necessary, with camphor or conium, are the best that can be given. The daily or occasional use of the bath, either tepid or cold, and in such a form as is found to promote the greatest amount of comfort and reaction, is a valuable remedy. The French give considerable faith to the sulphureous waters of Caunterets, Bagnères de Luchon, and Aix in Savoy.

Galvanism, by means of a weak continuous current, may be employed with advantage in restoring activity to the paralysed muscles. If the attempt be made through the influence of the sensitive branches of the spinal nerves, the current should be directed from the part moved by the palsied muscles to the spinal cord; but if the muscles are to be stimulated by the direct action of the galvanic current, it should be made centrifugally from the spinal cord to the muscles themselves. Both plans may be adopted; and Pulvermacher's galvanic band is, perhaps, the most convenient instrument to use.

After restoring to the several organs which may be implicated in the disorder their harmonious action, if debility of the genital organs be found to remain, such aphrodisiacs as the chlorate of potash, dilute phosphoric acid, and brucia, may be given; but it should be carefully borne in mind that temporary stimulants are worse than useless; and, in the category of this class of medicines, cantharides stand prominently forth as the active principle in the so-called Italian lozenges and Venetian pastilles, as well as in those nostrums which are daily advertised in our public journals.

[To be continued.]

* On the continent, and especially in the southern portions of it, sexual abuses are undoubtedly carried on to a frightful extent; and there M. Deslandes' statement may be founded on facts.