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Graduation Thesis.
Syphilitic Diseases of
the Spinal Cord.

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of the
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Although Syphilitic diseases of the spinal cord have attracted some considerable amount of attention of late years, yet they have been much less studied than the corresponding affection of the brain, and we are accordingly still considerably in the dark concerning them, and especially with regard to their frequency a great diversity of opinion exists.

While for instance some observers look upon all or nearly all cases of locomotor ataxia as being specific in their nature, others while admitting the very frequent & remarkable coexistence of syphilis with locomotor ataxia, hold that there is no further real or essential connection between them.

And so again many observers deny the occurrence of acute myelitis as a result of syphilis, while others

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believe it to be of no very unrequent occurrence.

But still the tendency is no doubt towards ascribing an increasingly important part to syphilis in producing spinal lesions. The difficulties that still surround us in studying this subject are probably in no small part due to its difficulty in obtaining a sufficient number of post mortems, as these affections are rarely mortal, at least in their early stages, and as to the chronic cases, it is by no means easy + in fact generally impossible to distinguish a sclerosis due to syphilis from a sclerosis due to some other cause.

Etiology -

The frequency of syphilitic affections of the nervous system is great & this applies to the spinal cord as well as to the brain. It is probable that in most cases there is a special personal tendency, which determines this particular manifestation of the disease, in preference to any other. As for instance hereditary predisposition to nervous disease, and injuries to the spinal cord, both of a direct nature as blows, concussion etc & those that act in a less direct, or at least in a less clearly understood manner such as sexual excess etc.

These nervous manifestations of syphilis mostly occur in the tertiary stage, as many as thirty or possibly even more years may have elapsed, since the primary sore was contracted, and during all this time the poison infecting the patient may have given no sign, & he may have congratulated himself that he was now cured, when suddenly some slight exciting cause, which may have been so slight as to be passed over unnoted, suffices to bring the latent mischief into action.

But the tertiary stage is not the only one during which nervous affections occur. They certainly do occur in the secondary stage although far more rarely. Fournier who has given some special attention to this subject, points out the very great tendency in the female sex particularly⁽¹⁾ to nervous affections not all of them functional during the secondary period. He mentions particularly cases of syphilitic epilepsy occurring during the secondary stage⁽²⁾. Brown to be syphilitic by the total futility of all ordinary remedies, and the immediate and lasting success of the antisyphilitic treatment, and by the coexistence in the same individual of syphilitic cutaneous eruptions

(1) Fournier "Leçons cliniques sur la syphilis" page 576

(2) Fournier "De l'épilepsie syphilitique ~~et~~ secondaire". in "Annales de dermatologie et syphilographie". Tome I. Série 2.

the patient having been perfectly free from any such nervous trouble prior to his having contracted the primary sore. This passing - ~~and~~ easily curable epilepsy has however it may be remarked probably no closer relation to true epilepsy than that it presents the same aggregate of symptoms as a further proof that early syphilis may occasionally cause grave nervous affections a case of Zeissel's may be quoted. (1) "A worker in metal aged 20 who had three weeks previously contracted a chancre on the prepuce, was soon afterwards affected with a papular eruption, which gradually spread over the whole body. On morning on awakening he found the lower half of the body to be paralyzed, - felt pain in the lower part of the back. He suffered from retention of urine & incontinence of feces. He was persistently treated with Zittmann's decoction, & there was soon complete restoration of power, the cutaneous syphilitic disappearing after some three weeks employment of the iodide of potassium." Virchow (2) believes that so called tertiary accidents not un frequently show themselves in the secondary period & vice versa. But of course it is in the tertiary stage that

(1) Zeissel "Lehrbuch der Syphilis" Th. 2. p. 290
Erlangen 1882

(2) Virchow "Die krankhaften Geschwülste."
Bd. II. p. 394.

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we look for an aspect to find by for the greater kind number of instances of syphilitic nervous affections. In these cases the sex and age of the patient do not appear to have much influence as a predisposing cause. The mildness of the secondary symptoms in any given case is no guarantee against the recurrence of even nervous troubles & in fact experience seems to show, that it is just in those cases in which the secondary symptoms have been mild, & transient that they are most likely to recur.

Pathology.

The ways in which syphilis may affect the spinal cord are various.

- (1). Syphilitic growths springing from the connective tissues, the membranes or the bone may invade the cord.
- (2). By chronic meningitis with thickening & pressure on the nerves & sometimes on the cord also. In these cases both the motor & sensory nerves are damaged.
- (3) Syphilitic disease of the vessels may probably lead to acute softening similar to that of the brain. Syphilitic subjects may become suddenly paraplegic & this possible occurs by this mechanism. ⁽¹⁾

(1). *Lowers. Diseases of the Spinal cord.* p. 70.
1882.

But it is now generally admitted that diseases, which originate in the nerve elements and neuroglia may be an effect of syphilis.

This occurs in the form of a myelitis ending in a gummatous or sclerotic change.

This develops itself by preference near the circumference of the cord, the meninges may be said to be almost invariably affected - very generally fused together.

So very generally is the gumma situated here, that almost the only known exception is the case cited by Lancereaux⁽¹⁾ in which it was situated centrally.

These gummata may appear under one of two different forms:

(1) A reddish grey or reddish white substance of a firm gelatinous consistence rather transparent & passing gradually into the surrounding healthy tissue.

This mass is composed of round cells & nuclei, with a few spindle shaped or stellate cells. The original tissue forming the intercellular substance, with a few enlarged capillaries. These embryonic cells are probably migratory from the blood vessels, while the uniform elements:

(1) Gros et Lancereaux. "Des affections nerveuses syphilitiques." Paris 1861.

are derived from the neighbouring connective tissue. At the periphery all stages of transition may be seen from the cellular infiltration to the healthy tissue.

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(2). As a substance of a firmer consistence of a white colour, dryer and more elastic than the first, and presenting on section a homogeneous appearance, rather sharply defined. These are formed by a granular & fatty degeneration of cells, encircled by an active proliferation of connective tissue⁽¹⁾.

(2) Syphilitic sclerosis occurs under the form of patches of ~~connective~~ indurated connective tissue, which may in all probability be looked upon as cicatrices of old gummatous

(2) Virchow describes a case in which a large patch invaded the spinal cord & the meninges in the cervical region.

(3) Charcot ^{myelitis} has a case of diffused partial

1. Lancereaux. "Traité histologique et pratique de la syphilis. 2^e Ed. 1873.

and. B. Paisanques. "Des myélites syphilitiques" Th. Montpellier. 1878.

(2). Virchow. "Die krankhaften Geschwülste" Band II. 408.

(3) Charcot "Archives de Physiologie," 1873.

myelitis with sclerotic patches disseminated over the whole spinal cord

Diffused inflammation of the spinal cord may occur ~~now~~ secondarily as a result of syphilitic caries of the bones. In this case & in similar cases we cannot of course look upon the inflammation of the cord itself as being in any sense syphilitic although undoubtedly a result of syphilis. Simple softening of the spinal cord as a result of syphilis has been observed by (1) Lancereaux.

Syphilis may in fact produce almost any variety of diffuse myelitis ending in some cases in sclerosis in others in softening. (2) Molliere mentions a case of hyperaemia of the cord ending in softening in a middle aged man, which he took upon as undoubtedly ~~was~~ the result of syphilis. And the same with regard to a case of diffused cortical myelitis observed by (3) Monro. (4) Winge describes a case of diffused syphilitic meningo myelitis.

(1). Lancereaux. Opus. iv.

(2). Molliere "Annales de dermatologie"
Vol IV. 298.

(3). Monro. Progress. Med. 1876.

(4). Dublin. Med. Press. TX. 659.

Broadchalke
nr. Salisbury
April. 9th 1804

Dear Sir,

I send up my
thesis and certificates
for the P. D.

I shall be much obliged
if you will let me know
if you have received them.
I copy. if the certificates
are right & whether

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There are any forms
to be filled up.

I am

Yrs truly

J. H. Senior Jones.

T. Gilbert Esq

(1) and Mason one of disseminated centres of myelitis. (2) Westphal also mentions a case in which many patches of myelitis were to be found throughout the cord.

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A case was observed by Gowers (4) of a syphilitic woman in whom disseminated patches of chronic myelitis were found affecting chiefly the periphery of the cord throughout the dorsal region.

He is of opinion that this form of myelitis is usually syphilitic.

Symptomatology.

The symptoms produced by growths (syphilitic growths) in the membranes or other structures outside the cord itself will vary with the position and extent of the growth. They are similar to those produced by other limited lesions. For instance Sower (3) mentions a case of gummatous growth proceeding from the 11th + 12th dorsal vertebrae and involving the anterior columns of the spinal cord with the membranes and nerves and producing severe reflex and automatic movements and motor paralysis.

(1) Mason. Guys Hospital Reports. 1871. 217

(2) Westphal. Charcot's Annals. 1876. 462

(3) Sower " Syphilis of Brain & Spinal cord. p. 20.

(4) Gowers. ~~Diagnosis~~ of Diagnosis of Dis. of Sp. Cord. p. 70.

In cases of chronic syphilitic myelitis meningitis the symptoms will chiefly be those depending on damage to the nerves and the cutting off of the muscles & peripheral nerves from the cells in the anterior cornua thus causing atrophy.

There will also of course be abolition of reflex action in the part + is in some cases increased reflex action below it.

In the case of myelitis there are first all the ordinary symptoms of diffuse myelitis varying with the seat of the lesion.

Then is usually first a period of excitement with pain varying in nature + in severity with various abnormal sensations such as formication, tingling, numbness etc. Also stiffness, spasms or contractions in various groups of muscles. These symptoms of course point to the implication of the meninges which as has already been mentioned rarely fail to be affected. They may last for weeks or months, + soon become overlapped by + intermingled with the symptoms of the second stage, in which paralytic phenomena predominate. This paralysis is usually progressive + may be a complete paraplegia or may be more limited.

It is probable that we may find a syphilitic variety of all the different type of myelitis both acute + chronic.

Some have tried to throw doubt upon the possibility of syphilis causing acute myelitis, but the number of well authenticated cases which have now been described, seem no longer to leave this in doubt. Erb says "syphilis can unquestionably cause acute myelitis, both as a specific syphilitic process & as a predisposing cause" and again "Myelitis running a rapid course is observed with unusual frequency among syphilitic patients." (1)

Rolle and Phillipson⁽²⁾ have seen a case of acute diffuse myelitis of an undoubtedly syphilitic nature occurring in the lumbar region. Caserius³ a case of dorso lumbar myelitis

⁽⁴⁾ Honolle one of the acute dorsal myelitis

⁽⁵⁾ Valdemar & Leubuscher⁽⁶⁾ cases of acute cervical myelitis, all syphilitic.

With regard to their limitation in a transverse sense Valdemar, Caserius⁽⁷⁾ & Charcot⁽⁸⁾ have seen cases of monoplegia

(2) The Lancet 1878. p. 20.

(1) Erb in Ziemssen's Cyclopaedia. p. 390.

(3) Caserius des myelites syphilitiques. 25.

(4) Honolle. Progres Medical. 1876. 135.

(5) Valdemar in Medico-Chirurgical Review. 1861

(6) Leubuscher. Gazette. Hebdomadaire 1864.

(7) Caserius. Observations. XI. p. 103.

(8) Charcot in Archives de Physiologie. 1873.

Folet⁽¹⁾ a case of hemiparaplegia with hemianesthesia of the other side.

Phillips & Mott⁽²⁾ mention cases of superficial cortical myelitis + Cassirer⁽³⁾ + W. Moore⁽⁴⁾ cases of deep central myelitis + Bazar⁽⁵⁾ + Chevalier⁽⁶⁾ cases of continuous ascending myelitis.

There is a variety of acute ascending paralysis mentioned by Cassirer⁽⁷⁾ with rapid march without appreciable prior systemic change. This disease usually develops itself during an early stage of the syphilitic affection. + Usually before the syphilis is two years old, + synchronously with the secondary cutaneous eruptions. It often comes on rather suddenly + without the meningeal symptoms so common in the other varieties. In some few cases the paralysis is preceded by vague pains in various parts of the trunk and of the extremities. The most of the disease is with paralysis, frequently with paraplegia in some few cases a monoparaplegia, accom-

(1) Folet. Bull. de Therap. 1867.
(2) Mott. Loc. cit.
(3) Cassirer. loc. cit.
(4) Dublin Med. Journal. May. 1866.
(5) Bazar. Union Medicale 1869. 37.
(6) Chevalier. Bull. de Therap. 1869.
(7) Cassirer. Des Myelites Syphilitiques.

paralyzed by formication felt in the affected members without other alteration of sensibility. In some cases there may be vesical troubles, usually slight. The paralysis usually spreads rapidly upwards, and soon becomes complete. As a rule it is not long before it affects the muscles of respiration. In many cases however death is hastened by the spreading vertigo. Still in some few cases under energetic anti-syphilitic treatment recovery has followed.

Chronic myelitis.— The occurrence of chronic myelitis as a result of syphilis, has been still more certainly demonstrated than the occurrence of the acute variety. Erb⁽¹⁾ says that he himself has met with at least a dozen unequivocal cases.⁽²⁾ Charcot has seen a case of hemiparesis, with crossed hemianosthesia.

(3) Dropsdale a case of monoparaplexia, and Owen Rees⁽⁴⁾ a similar case. Homolle⁽⁵⁾ & Buzzard⁽⁶⁾ have seen cases of superficial chronic myelitis. Casorpus⁽⁷⁾ & Charcot desc. central myelitis later anterior

(1) Erb in Ziemssen's Cyclopaedia p. 428.

(2) Charcot. Archives de Physiologie 1873

(3) Dropsdale. Guy's Hospital reports. XVII.

(4) The Lancet. 1873.

(5) Homolle. Opus. cit.

(6) Buzzard. Clinical aspects of syphilitic nervous affection

(7) Casorpus. Thesis. Paris. p. 153.

La Charrière⁽¹⁾ has described a case of deep central myelitis seated posteriorly.

As to the part played by syphilis in the various circumscribed lesions (systemic diseases) of the cord such as locomotor atonia etc. much diversity of opinion exists.

With regard to locomotor atonia most observers believe that syphilis has an important connection with it. The very great frequency with which an antecedent syphilis has been admitted or proved to exist is too great to be the result of chance. In the only case with which the writer of this has come in contact, since he has started in practice, the patient a medical man, admitted having had syphilis. Gowers⁽²⁾ says "the majority of atonics have suffered from syphilis at some previous time." Fournier⁽³⁾ was able to prove the existence of syphilis in 24 out of 30 cases of locomotor atonia. He attributes the ~~un~~unsuccess of antisyphilitic treatment in these cases to its having as a rule been begun too late, & points to the successful results which have followed, in some few cases in which the diagnosis was made & the treatment begun early. Already in 1868

(1). La Charrière. Thèse. Paris.

(2) Gowers. Brit. Med. Journal. 1879

(3) Fournier. Annales de Dermatologie et Syphiligraphie. Vol. 7. Serie. 3.

Duchenne had drawn attention to the frequency
 of syphilis in cases of locomotor atonia. Greppe⁽¹⁾
 cites a case cured by antisyphilitic treatment.
 More⁽²⁾ a case which yielded to the iodide of
 potassium. Cairngue⁽³⁾ has recently published
 three cases of syphilitic locomotor atonia.
 In one case the motor is another the sensory
 functions were more prominently affected.
 - The posterior column may also be affected
 secondarily. Cairngue & Monod have also
 seen cases in which the G band of Goll was
 more prominently affected. Lancereaux⁽⁴⁾ among
 others has seen cases in which the motor cells
 of the anterior columns were affected in
 some primarily in others secondarily after
 an attack of diffuse myelitis. Ramskill⁽⁵⁾
 & Jexell have seen cases of atrophy of the
 lower limbs complicating cerebral lesion.
 17) Bieder has published a case of a man who
~~he~~ had contracted a chancre fourteen years ago
 - who complained of sensory trouble & slight
 motor incoordination, probably an abortive case
 of locomotor atonia. He was cured by the anti-
 syphilitic treatment. Well defined cases

(1) Greppe. Gazette. Med. de Lyon. 1879. 136.

(2) Dublin. Med. Journal 1876.

(3) Observations. II.

(4) Cours de Lancereaux. Des affections nerveuses
 syphilitiques.

Treatment.

in which the antero lateral columns are primarily affected have not yet been discovered, but enough has been said to show that all varieties of myelitis diffused or circumscribed, acute or chronic may probably be caused by syphilis. Only most of these ~~lesions~~^{types}; it must be remembered rarely occur alone, but are usually associated in various ways. So that the divisions & distinctions above described are of a greater pathological than clinical importance. For though the lesions may be well defined the symptoms very rarely clearly correspond to them⁽¹⁾ clearly but are more or less mixed up with others. In short the syphilitic varieties of most of these maladies will be found to be more or less atypical.

With regard to the treatment the ordinary anti-syphilitic mode of cure be employed. Lowre (2) recommends large doses of the Iodide of Potassium in the more chronic cases giving as much as 90 grs 3 or 4 times a day, from this method of treatment he states that he obtained results which did not appear upon the exhibition of more moderate doses. He further thinks and probably justly that large doses are less likely to

5. Ramskill. Ann. de. Syphilis. Vol. I.

6. Sindy. Gazette. hebdomadaire. 1853. March.

(7). Rheder. Vierteljahrsschrift. 1874. 29.

(1) Compare. Gravel. Gaz. Hebdom. 1878. 116.

(2) Lowre. Syphilitic nervous affections. p. 134

produce iodism than small ones continued for a longer period. The late Dr. Elliott¹ used to give 120 grs, three times a day with remarkably good results. As to the treatment with mercurials the subcutaneous injection of mercury under one form or other seems a very favorite method of treating these forms of syphilis. It is at all events a method that deserves further trial in this country, as its action is probably more rapid & smaller doses can be used with effect.

The chloro-albuminate was first used by Dr. Staud² of Paris. But in some cases the use of this preparation was followed by great pain at the seat of puncture, and a hard swelling which however did not as a rule lead to suppuration.

Professor Scarengio³ of Pavia used in 1864. one part of calomel to three of glycerine, with sufficiently satisfactory results. Various other preparations have been tried. For instance arsenic sublimate, in very dilute solution, the biniodide in combination with morphia.

Lately this method has been largely employed by Martineau⁴ at the Lourcine, he uses a preparation which he calls "peptone mercurique ammoniacal". This is composed of Bichloride of mercury 10 grms, dried peptone & chloride of Ammonium of each 15 grms. 40 c. grms of the with 36 grms of glycerine form the hypodermic solution. He claims for this preparation that it causes no injury & that

Its effects are more quickly produced than by any other method. In other respects the treatment by baths, electricity etc, will of course be the same as in similar affections due to causes other than syphilis & the same precautions with regard to them will have to be observed.

1. The Lancet. Feb. 12th 1878.
2. St. Hans. quoted by. Lyon. Medical. June 9th 1872
- (3.) Professor Scaenzig in. Annales Universelles de Médecine 1864.
- (4.) Martineau. Des Injections par sous-cutanées dans le traitement de la syphilis. 1881.

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