

## NEUROSYPHILIS IN ITALIAN PSYCHIATRY OF THE LATE 19<sup>TH</sup> CENTURY

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### ABSTRACT

*Based on Italian and international literature, the authors have studied nineteenth-century research into neurosyphilis in its main syndromic manifestations: tabes dorsalis and progressive paralysis. By examining some psychiatry handbooks of the time, it was possible to recover ample information about the symptomatology and the description of the clinical course of the illness. Moreover, the relationship between syphilis and mental illness became a conceptual paradigm which psychiatrists applied to other mental disorders as well. Our paper has brought to light the medical debates of the late 19<sup>th</sup> century.*

**Key words:** Neurosyphilis, progressive paralysis, tabes dorsalis, psychiatry.

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Toward the end of the nineteenth century, the psychiatrist Oscar Giacchi (1835-1907), director of the mental hospital in Racconigi, near Cuneo, discussed the health and prophylactic measures adopted by the Italian Government to fight syphilis as follows: “Anyone can easily be convinced by the statistics that syphilis develops and proliferates through prostitution [...].

Having inevitably taken note of this sordid trafficking of desecrating love, the provident Government has philosophically accepted a lesser evil to prevent a greater one, and organized a strict special regulation for all prostitutes in order to protect the physical health of citizens against the terrible effects of a disease due to vice: it has opened syphilis sanatoriums to treat these wretched women who are affected by the mentioned disease, and has ordered physicians to visit them for special exami-

nations in order to protect the many and frequent devotees who offer their prurient sacrifices against syphilis [...].

Suffice it to us that, despite this admittedly sad necessity, our Government commits itself to defend citizens against its consequences, and since we can no longer deal with this issue in moral terms, but solely from a physical perspective, we have one more reason to confirm our opinion in favor of public-and I would like to add-legalized prostitution, because it alone, and not in its private form, can be monitored and organized in such a way as to offer sufficient guarantees to the health of the patrons of brothels where the most serious and terrible effect of libertinism, namely the syphilitic affections that cause so much damage to society<sup>(1)</sup>, could be eradicated with greater rigor and greater precautions.”

The second half of the nineteenth century saw the publication in medical literature of the first works, which, in addition to already known symptoms, attributed syndromes affecting the central nervous system, such as tabes dorsalis and progressive paralysis, to syphilis. Neurosyphilis essentially presented with two forms: a syndrome caused by syphilitic lesions of the spinal cord associated with pain and ataxia (defined tabes dorsalis or locomotor ataxia) and a syndrome caused by syphilitic lesions in the brain with paralysis and psychic disorders (called progressive paralysis or paralytic dementia) which involved very difficult issues in the management of patients<sup>(2)</sup>.

The chapter on the “tertiary lesions of the nervous system” of the *Manuale pratico di malattie veneree e sifilitiche* (Manual of practical venereal and syphilitic diseases), published in 1889 by Achille Breda, described the main symptoms related to neurosyphilis: headache, disorders of movement (ataxia, hemiplegia, paraplegia, monoplegia, ocular and facial paralysis), aphasia, agraphia and anarthria, mental disorders (mania and hypochondria), epilepsy, disorders of the senses (deficits of sight, hearing, taste and smell), amnesia and intellectual deterioration, and apoplexy. Due to its slow progression with resurgence and relapses-in addition to the lack of specific therapies-, neurosyphilis was considered a disease with a fatal prognosis<sup>(3)</sup>.

Among the various symptoms of neurosyphilis, nineteenth-century psychiatrists focused their attention especially on those considered to be pathognomonic of progressive paralysis, a syndrome which was commonly observed in mental hospital populations due to its psychogenic manifestations. Already in 1826, Antoine-Laurent Bayle (1799-1858) in his *Traité des maladies du Cerveau et de ses membranes* had argued that the paralysis symptoms and megalomaniac delusions encountered with a certain frequency in the same patient population were part of a single pathological process consisting of a chronic inflammation of the meninges of unknown etiology. Bayle had distinguished three phases in the disease, namely a first phase characterized by excitation and euphoria, a second phase characterized by maniacal excitement, and finally a third phase characterized by paralysis and dementia.

The paralysis of lunatics was studied in the following decades by other psychiatrists of the French School. Achille-Louis Faville (1799-1878), in the *Dictionnaire de médecine et de chirurgie pra-*

*tique* (1829), had noticed that paralysis at times followed disorders of a psycho-intellectual nature, while on other occasions it was concurrent or subsequent to these disorders. Maximilien Parchappe (1800-1866), in his *Recherches sur l'encephale* (1838) had identified “chronic cortical cerebritis” as the cause for “paralytic insanity”. Louis Calmeil (1798-1895), in the *Nouveau Dictionnaire de médecine* (1841), had noted the concurrent onset of paralysis symptoms and of mental disorders, though with a greater prevalence of the former over the latter in general. In 1847, Jules Baillarger (1809-1890) had instead suggested a clear differentiation between paralytic symptoms and mental disorders in the pages of the *Annales Médico-Psychologiques*, stressing that in progressive paralysis the former were not accompanied by the latter in many cases. In turn, Jean-Pierre Falret (1794-1870), in his *Recherches sur la folie paralytique et les diverses paralysies générales* (1853), followed Parchappe’s theory and considered paralytic insanity a particular form of mental illness.

The links between progressive paralysis and tabes dorsalis were particularly studied in Germany by Karl Friedrich Westphal (1833-1890) who in 1863 described the two syndromes in a same patient and in 1871 he differentiated these observing that patellar reflex was absent in tabes present and present, instead, in progressive paralysis. As regards the etiology of progressive paralysis, already in 1826, Bayle had pointed out that a substantial number of patients suffering from this syndrome had an intense sexual activity and often reported venereal infections. Scipion Pinel (1795-1859), in 1858<sup>(4)</sup>, had included venereal excesses and, to a lesser extent, alcohol abuse among the most common causes of progressive paralysis. The identification of syphilis as a specific cause of progressive paralysis was suggested in Germany by Esmarch and Jessen (1857) first and later by Kjellberg (1863).

In France, in 1875, Jean-Alfred Fournier (1832-1914) hypothesized the syphilitic origin of tabes dorsalis and in 1894 he defined progressive paralysis as a parasymphilitic disease. In 1897, Richard Krafft-Ebing (1840-1912) argued that after inoculation of the syphilis virus in patients with progressive paralysis it was not possible to observe the signs of primary or secondary syphilis, thus demonstrating that these subjects had already been infected in the past.

Also in Italy, during the nineteenth century, several psychiatrists had taken interest in progressive paralysis which, as stated above, was common in mental hospital populations. Andrea Verga (1811-1895), for example, published an article entitled "Paralytic Phrenosis" in 1861, in *Appendice psichiatrica della Gazzetta Medica Italiana* (Psychiatric Appendix to the Italian Medical Gazette).

In this article, he analyzed the characteristics of delirium found in progressive paralysis referring also to the international literature on the subject. That same year, he also published, in the same journal, an article titled "General paralysis without delirium" in which he described in detail a clinical case that had come to his attention. In 1872, he finally published a long article titled "Of general paralysis. Memories and considerations" in Italian archive of nervous diseases and specifically of mental alienation. In this essay, Verga first dealt with the main symptoms and their frequency (both isolated and combined) in the syndrome. He then discussed the probable cause of the disease (according to the author, it was the result of an "abuse of intellectual and moral life, or of the brain").

In conclusion, he presented a detailed clinical history of twelve patients that he had followed, focusing also on the anatomopathological findings and on the therapies that proved to be most effective<sup>(5)</sup>.

Neurosyphilis was also dealt with by Gaetano La Loggia (1808-1889), Director of the Mental Hospital of Palermo. In his essay "On general progressive paralysis in lunatics" (1880), he had illustrated in detail the clinical and anatomopathological picture of the disease starting from personal observations carried out on subjects interned in his mental asylum and on his private patients. As regards the psychopathological aspects of paralytic lunatics, the Sicilian psychiatrist wrote as follows: "The mental disorders, while they may arise before or after or more rarely during those of the motor sphere, relate in part to a weakening and in part to a qualitative change of functions. The former group comprises the weakening of the emotional sphere, memory loss, the inability to think, etc.; the latter a state of depression and pronounced outbursts. For the most part, those affected by general paralysis are ambitious, irritable, and violent and they do not tolerate being contradicted; and dementia is the most common outcome. Delirium is one of the most serious manifestations with which progressive

paralysis presents itself and it is what most psychiatrists consider to be a particular type of mental alienation, whether this delirium presents with expansive or depressive characteristics<sup>(6)</sup>.

In Italian psychiatry treatises from the end of the nineteenth century, neurosyphilis is generally considered to be responsible for some psychopathological conditions, although it is not always associated with progressive paralysis. The etiopathogenic connection between syphilis and mental illness soon became a conceptual paradigm that lent itself to being applied by the psychiatrists of the time to other psychopathological syndromes.

In the *Manuale di semeiotica delle malattie mentali. Guida alla diagnosi della pazzia per i medici, i medici-legisti e gli studenti* (Semeiotics manual of mental illnesses. A Guide to the diagnosis of madness for doctors, forensic scientists and students) (1885), Enrico Morselli (1852-1929) put "physical and moral causes" at the base of mental diseases, including also syphilis and other infectious diseases among the former (in addition to various forms of toxicosis and general diseases or pathologies affecting individual apparatuses)<sup>(7)</sup>.

Leonardo Bianchi (1848-1927) in *Psychiatry treatise for use by doctors and students* (published around 1895) dedicated two chapters to syphilis titled "Syphilitic Phrenosis" (XXII) and "Syphilitic Dementia" (XXXI) respectively.

In Chapter XXII, the author used these words to describe the etiopathological mechanism behind syphilitic psychoses (generally characterized by symptoms of a neurasthenic or melancholic nature): "Syphilis acts in two ways on the central nervous system:

a) with syphilitic toxins, or their indirect derivatives;

b) with lesions of the blood vessels and lymph ducts that nourish the neural components. The psychoses, which will begin shortly after the penetration of the syphilis virus in the body, are to be ascribed most of the times to intoxication and to those subtle cellular alterations that we can only posit, since we are not able to demonstrate them."

In Chapter XXXI, the author described instead the picture of cerebral syphilis by referring to the international literature on the topic (he cited in particular the work of Hübner in Germany and Fournier in France).

In particular, he stressed the polymorphism of the symptomatology (from headache to epilepsy, from paresis to apoplexy, from aphasia to dementia)

that depended on specific areas of the brain affected by the pathological process. Bianchi discussed progressive paralysis separately from neurosyphilis in a long chapter titled "Paralytic Dementia".

In Chapter XXX, the author described in detail the symptomatology, course of the disease, etiology, anatomopathology, diagnosis, prognosis and treatment of this disease. As regards the symptoms and course of the disease, he identified four different manifestations at onset: exaltation of mental faculties with hyperactivity, progressive reduction of psycho-intellectual faculties, presence of various somatic disorders (headache, neuralgia, alterations of language and writing, tremors and other), and the sudden onset of epileptic or apoplectic episodes.

As the disease progresses, symptoms of delirium (delusions of grandeur, hypochondriac or melancholic issues) and dementia (mental decay and superficial judgment) appear in a patient who becomes increasingly weaker from a somatic point of view. Then the motor and language disorders worsen as mental decay progresses so that the patient has difficulty to stand up and to utter comprehensible words.

At the end, the patient is bedridden, frequently affected by epileptic or apoplectic seizures with symptoms of paralysis or aphasia, until the conditions, at times worsened by the bed sores and pulmonary or bladder complications, lead him to death due to cachexia and marasmus. As regards the anatomopathology of progressive paralysis, the author described it as follows: "It is a degenerative process (inflammatory according to others) which is initially localized and then gradually spreads to the entire nervous system. The organs of the superior structure are deeply altered by a progressive replacement of specific elements with connective tissue".

He also described the pathological alterations of the meninges, brain and spinal cord; he argued that alterations of a degenerative (or inflammatory) nature could be found in several organs and apparatuses of these patients. As regards the etiology of progressive paralysis, the author recalled that the hypothesis of the syphilitic origin of the disease put forward by some scholars had been questioned by the observation of the scarce efficacy of mercurial treatment and was replaced by the assumption of a parasymphilitic pathological process that could be attributed to the toxins produced by syphilis. In general, whilst underlining the high frequency of a syphilitic infection in the history of the patients, the

author tended to favor a multifactorial etiopathogenesis (other predisposing factors besides syphilis were inheritance, alcohol abuse, venereal excesses, anxieties and other).

As regards differential diagnosis, the author clearly distinguished progressive paralysis from cerebral syphilis, alcoholic encephalopathy, lead encephalopathy and paranoia. As regards the prognosis, the author inexorably defined the ominous course of progressive paralysis; while allowing for some remissions at times, these were usually temporary and partial. As regards the treatments, the author declared that he had not yet experimented a truly effective remedy (he was generally skeptical about the use of mercurial preparations and the use of hydrotherapy). He recommended instead careful monitoring of patients and especially their early institutionalization (particularly appropriate for maniacs) to provide them with a peaceful and relaxing environment.

Eugenio Tanzi (1856-1934), in his *Trattato delle malattie mentali* (Treaty of mental illnesses) (published in 1905 and excellent example of psychiatric knowledge in the late nineteenth century), devoted a long chapter to progressive paralysis of which he provided a detailed definition at the beginning: "Progressive paralysis (general paralysis of lunatics, paralytic dementia, chronic periencephalitis) is a mortal chronic disease, with well known encephalic lesions and extremely typical symptoms which mainly affect the mental and motor functions. It gradually leads to the annihilation of intelligence and personality, and affects valid individuals, without any prior psychopathic episodes, but who almost always suffered from syphilis in youth. The majority of patients are males aged between 30 and 50 years".

As regards the symptoms, the author described at first a picture characterized essentially by dementia starting at times almost imperceptibly, but with a gradual weakening of psycho-intellectual faculties (lack of interest for everyday tasks, inconstancy in family or professional commitments, disorientation, credulity, lavishness or lewdness, etc.). Alongside the aforementioned "apathetic form" of progressive paralysis, the author also described a picture mainly characterized by psychopathological symptoms.

In this pathological form, there seems to be a mood ranging from euphoria to megalomania or neurasthenic and hypochondriac disorders or even derangement or states of delirium (persecutory delirium, erotic delirium). He then went on to

describe the frequent manifestations of an epileptic and apoplectic nature followed by temporary paralysis or permanent motor deficit, with episodes of aphasia, dizziness or hyperthermia. Alterations of the pupils (reaction to accommodation, but not to light; anisocoria) and of patellar reflexes (hyper-reflexia or areflexia), the modification of facial muscles (hypotonia and amimia) with possible grinding of teeth and tremor of the tongue, language disorders (dysarthria, bradyarthria) and writing disorders (macrography with omission or transposition of letters).

The author also described some symptoms affecting sensitivity (algias, paresthesia, hallucinations), internal organs (dyspepsia, sexual impotence, pneumonia) and trophism (bed sores). Finally, it mentioned the juvenile form of progressive paralysis which was considered to be rather rare (a hundred cases in the international literature until 1898).

As regards the clinical course, the author emphasized that the beginning of the disease was often inconspicuous with modest changes in character or slight neurological signs (alteration of pupillary and patellar reflexes). Subsequently, the symptoms become more evident with the onset (at times only spasmodic and transient) of dysarthria, delusions and mental deterioration. Finally, the disease progresses to the end stage (characterized by dementia, apathy and motor deficit) and death due to wasting or intervening pathologies. As regards the etiology, the author seemed to share the opinion of those scholars who, like Fournier and Möbius, had indicated syphilis as the only cause for progressive paralysis.

As he wrote: "Indeed, one cannot ignore:

1. the huge number of paralytics in whom history and some findings undoubtedly show that there was syphilis;
2. the geographical distribution of progressive paralysis that seems to coincide exactly with that of syphilis;
3. the frequency with which males (who are more exposed to syphilis) are affected compared to women;
4. the fact that the women who develop paralysis are mainly prostitutes;
5. the existence of a juvenile form of progressive paralysis due to hereditary syphilis.

Hence it can be concluded that in many a history of paralytics, a missed diagnosis of syphilis is nothing else than syphilis ignored. With regard to

the pathogenesis, the author tended to distinguish progressive paralysis from cerebral syphilis. He thought that the development of the symptoms of paralysis in a syphilitic patient required a particular "paralytic diathesis". He added that probably the disease is the expression of a "self-intoxication" alongside the syphilitic infection with "a slow production of autotoxins capable of disrupting the function and the integrity of the anatomy of the neural elements". As regards the anatomopathology, the author recalled that progressive paralysis had been interpreted first as an "inflammation", later as "a systematic degeneration of certain cerebral fibers" and finally as "a toxic and degenerative process affecting primarily the neural components in general".

He then went on to describe in detail the macroscopic lesions of the brain (signs of atrophy of the brain with the tendentially thickened and richly vascularized meninges), the microscopic lesions of the nervous system (degeneration of nerve cells and nerve fibers with increased neuroglia), the alterations of the spinal cord (similar to those of the brain) and of the peripheral nerves, and the involvement of organs and apparatuses other than the nervous system.

As regards the differential diagnosis, the author enumerated some pathological conditions that could be mistaken with progressive paralysis (illustrating the main differences in the symptoms): cerebral syphilis, alcohol abuse, mental deficiency, neurasthenia, paranoia, early dementia and mania.

As regards the treatment of progressive paralysis, the author stressed the substantial futility of specific therapies against syphilis; he recommended instead thorough assistance and monitoring of patients especially from the point of view of hygiene with the possible addition of symptomatic therapies aimed at reducing the toxic state and slowing down the mental and physical decay. Tanzi, like Bianchi, recommended finally institutionalization, especially in the early stage of the disease, when euphoria and hyperactivity may induce abnormal behaviors and opposition to treatment in patients.

The disease that had also drawn the interest of health authorities in all countries toward the end of the nineteenth century<sup>(8)</sup> because of its two main syndromic expressions (tabes dorsalis and progressive paralysis) was responsible for a significant percentage of the cases affecting patients institutionalized in public asylums, private clinics and even

hydrotherapy facilities, trusting in the curative powers of water also in the treatment of nervous diseases<sup>(9)</sup>.

The involvement of the nervous system shown in mature age by people who in their youth had contracted syphilis was generally accepted by the psychiatrists of the time, even before the etiopathogenesis of the disease had been ultimately cleared and a truly effective therapy prepared to treat the syphilis infection, as testified by specialist treatises which, inter alia, dedicated ample space to these psychopathological manifestations.

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