

Dementia Due To Neurosyphilis

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Abstract:

Background:

Neurosyphilis, formerly a common cause of dementia, is now a rare condition in developed countries. However, syphilis remains common in many developing countries, where lack of early diagnosis and treatment of early syphilis have the chances of increasing neurosyphilis and prevalence of syphilitic dementia [1].

Case presentation:

We present a case of 41 years, male with deterioration in his cognitive status and poor physical functioning who had a history of unprotected sexual exposure with commercial sex worker. He was diagnosed as a case of Neurosyphilis by extensive laboratory and radiological evaluation. The patient was treated with inj Ceftriaxone along with tab Donepezil-5 mg daily.

Conclusion:

This case highlights the development of Neurosyphilis which is usually not thought of by most of the clinicians due to the rarity of the disease in the present day situation

Keywords: Neurosyphilis, Dementia, Ceftriaxone

I. Introduction

Background:

Neurosyphilis occurs as a result of infection of the brain, meninges or spinal cord by the spirochete *Treponema Pallidum*. It develops in about 25%-40% of persons who are not treated adequately for syphilis. With the advent of the penicillin, the prevalence rate of syphilis in the United States has declined significantly to a low of 31,575 in 2000—a steep fall of 95% from 1943. Since 2000, there was more than two fold increase in the number of the cases of infectious primary and secondary syphilis, with 13,500 cases reported in 2008 where bisexual and homosexual men made up nearly 50% of cases [2, 3]. Neurosyphilis can present with varying nonspecific symptoms such as personality changes, psychosis, delirium and dementia [4]. Neurosyphilis was probably an extremely common cause of dementia in 20th century mainly due to unavailability of treatment for early syphilis and it progressed stealthily over time to neurosyphilis in a number of infected patients presented with dementia.[5]The clinical presentations of neurosyphilis is quite varied. For practical purposes it can be divided into early and late neurosyphilis which takes months to years to develop. Early neurosyphilis commonly affects the CSF, meninges, and vasculature [6]. Neurosyphilis can be asymptomatic where no neurological sign and symptoms may be seen. The presence of CSF abnormalities is the only possible clue towards the diagnosis in such cases. Symptomatic neurosyphilis is classified into meningeal (< 1 year after infection); meningovascular (<10 years); general paresis (<20 years) and tabes dorsalis (< 25-30 years). The predominant Clinical features of early neurosyphilis include meningeal and meningovascular involvement resulting in headache, nausea, giddiness, neck stiffness, cranial nerve involvement, seizures and behavioral changes. Although, late neurosyphilis does affect the brain and spinal cord, it commonly presents with dementia, tabes dorsalis, general paresis, sensory ataxia or bowel/bladder dysfunction [2,3] Cognitive decline is a late feature but mild cognitive impairment has been observed in early stages of neurosyphilis [7]. If untreated or inadequately treated in the latent phase, nearly 40% of patients will eventually develop tertiary syphilis [8]

Case Presentation:

A 41 years old Indian male residing in Sivsagar, Assam was brought into the Psychiatry emergency of Assam Medical College & Hospital by his family members for 2 years history of forgetfulness, 7 months history of increased anger, irritability, dizziness, headache, tingling sensation and slurring of speech for last 2 months which have become progressively worse in the last one week. Over the past 7 months, the family had noticed marked personality changes that included irritability, and poor personal hygiene. They also noted that the patient tends to fall while walking. He was admitted for further evaluation and treatment in psychiatry ward, Assam Medical College & Hospital. On further enquiry family members recalled that the patient frequently complained of headaches, vertigo, and non-specific muscular pain and tingling sensation over the limbs in the past 7 months.

However there was no known history suggestive of fever, trauma, malignancy, or vascular disease. The patient reported to have a history of prolonged and regular use of alcohol for last 20 years in an amount of approx. 180 ml of IMFL per day although he took his last drink approximately 7 months back as stated by the wife. He used to take alcohol after his works with his work mates; but he never took alcohol in the morning. He had never experienced any withdrawal symptoms following abstinence of alcohol. There was no past or family history of psychiatric illness. The patient was reported to be heterosexual and had been involved in unprotected sexual contact with commercial sex worker (3-4 times) in the year 2000 when he used to remain away from home for two to three months for his work. However there is no history of marital disharmony or sexual dissatisfaction. On further enquiry wife recollects that there is history of penile ulcers 2-3 in numbers in the year 2000 which was reported to be following unprotected sexual exposure. She also informed that no proper medical consultation was taken by the patient instead he had applied local antibiotic ointment from a chemist for the same.

On examination, the patient was afebrile and vital signs were within normal limits. Neurological examination revealed a wide-based gait and ataxia. Pupils in both eyes responded to accommodation and convergence, but they were not reactive to light (Argyll Robertson pupils). Examination of other cranial nerves did not reveal any abnormality. The patient had cognitive impairment and hyperreflexia in knee and ankle joints. He was hostile, uncooperative, and was not oriented to time and place on the day of admission. There was loss of immediate, recent and remote memory and disorientation to time and place. The Mini-mental status examination (MMSE) score was 10/30. MMSE score and psychiatric symptoms were compatible with moderate cognitive impairment and dementia.

On investigation, Hematological tests as well as serology for Hepatitis B; C and Human Immunodeficiency Virus (HIV) tests were all negative. Rapid Plasma Reagin (RPR) yielded positive serum results (RPR serum titre 1:32). Thyroid profile Chest X-ray and electrocardiogram are within normal limit. Brain MRI revealed diffuse sub cortical bleed. Cerebrospinal fluid (CSF) analysis revealed protein of 90mg/dL (normal: 20–45 mg/dL), white blood cell count of 120/cumm (normal: ≤ 5 /cumm), and glucose of 30 mg % (normal: 40–85 mg/dl) and CSF-VDRL test was positive.

Patient was diagnosed as a case of Dementia due to neurosyphilis and was treated with injection Ceftriaxone 2g daily for 14 days, followed by tablet Donepezil-5 mg daily. 6 weeks after this treatment there was a marked improvement of his cognitive functions and there was significant improvement in MMSE score from 10 to 20 20/30. His slurring of speech was also improved 2 weeks after the starting of treatment. The patient was discharged after 4 weeks and is currently being monitored by neurology and psychiatry. His wife was also treated subsequently with injection Ceftriaxone 2g daily for 14 days as her serum RPR result was positive (i.e. 1: 8) and has been followed up regularly and is at present RPR negative.

II. Conclusions

Neurosyphilis is one of the manifestations of tertiary syphilis. Infection can be vertically transmitted from mother to baby or more commonly acquired by sexual contact [8]. Untreated early syphilis can progress to neurosyphilis. Patients with neurosyphilis can also present with many types of physical or neurological symptoms that lead to admission or follow-up at a medicine, neurology or psychiatry unit. In our case also there was a history of improperly treated penile ulcer following unprotected sexual exposure suggestive of syphilis although no laboratory test was conducted at that time as patient did not consult any physician for the same. Diagnosis of neurosyphilis is often clinical with symptoms of marked cognitive and/or behavioural impairment as well as many other neurological and physical signs. VDRL and RPR testing help in the final confirmation of the diagnosis. Typical presentation is usually a history of unprotected sexual exposure followed by a significant past history of untreated penile ulcers. There is usually insidious onset of psychiatric symptoms, non specific symptoms like headaches, dizziness and characteristic neurological findings such as ataxia, dysarthria, hyper-reflexia. Argyll-Robertson pupils can also be seen [2]. Our patient presented with an insidious onset of irritability, increased anger, memory loss, personality change and tingling sensation of limbs. The diagnosis was confirmed with serum non-treponemal tests such as RPR and neurosyphilis-specific tests - CSF-VDRL.

Despite of advent of many newer antibiotics the drug of choice for the treatment of late syphilis remains penicillin. The evidence for the use of nonpenicillin regimens in the treatment of Neurosyphilis is rather weak. [9] Ceftriaxone can be used as an alternative. [10] In our case, due to unavailability of injection crystalline penicillin G or procain Penicilline, injection ceftriaxone 2gm daily for 14 days was given following which there was marked improvement of symptoms like forgetfulness, dysarthria, irritability and ataxic gait. Since then three follow up visits were made by the patient and he was found to be better in terms of the symptomatology Even though Dementia due to neurosyphilis is now not even thought of due to the rarity this case reminds every clinician that it is perhaps still relevant to rule out neurosyphilis in some if not in all cases of dementia.

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