

Combination of Chinese and Western medicine in the treatment of a patient with syphilitic myelitis secondary to a brain lesion

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Abstract: Syphilitic myelitis is a rare manifestation of neurosyphilis that has received little attention in the literature. This paper discusses the case of a 40-year-old female patient with a history of incompletely treated syphilis who presented with several weeks of progressive numbness and weakness in both legs in January following a high-risk sexual behaviour. The clinical examination revealed that this patient had muscle strength grade 3 in the left lower limb and grade 4 in the right lower limb, normal muscle tone in all four limbs, decreased sensation in the left lower limb compared to the right lower limb, and bilateral Hoffmann(+) bilateral Babinski(+). A cranial MRI scan revealed a few patchy and sheet-like abnormal signal shadows in the semi-ovoid centre. A spinal cord MRI scan revealed an aberrant signal in the spinal cord (cervical 2-thoracic 12 level), suggesting a high possibility of spondylitis. The patient was diagnosed with syphilitic myelitis, ruling out other infectious or immunologic aetiologies. The patient was given intravenous penicillin and intravenous methylprednisolone at 1 g daily for 3 days. The medication was gradually reduced and then withdrawn. During outpatient follow-up, the patient improved and had no relapse of symptoms. This paper demonstrates the exceptional efficacy of TCM methods for the treatment of syphilitic myelitis.

Keywords: Syphilitic myelitis, combined Chinese and Western medicine therapies, nursing

1. Introduction

Syphilis is a chronic, systemic sexually transmitted disease caused by the pallid (syphilitic) spirochete^[1]. Patients with early syphilis need prompt treatment; if left untreated, syphilis could cause irreversible damage to the body and a range of side effects^[2]. Neurosyphilis is a group of clinical syndromes caused by a virus that invades the nervous system and damages the meninges, brain, blood vessels, or spinal cord^[3]. Neurosyphilis is an important manifestation of syphilis' systemic damage^[4]. It is a significant symptom of syphilis's systemic damage. The discovery of penicillin increased the cure rate for syphilis. However, from 1970 to 1979, the rate of syphilis increased, as did the number of patients with neurosyphilis^[5]. In individuals with untreated syphilis, the prevalence of neurosyphilis ranges from 4% to 10%^[6], with 1.5% developing syphilitic myelitis (syphilitic spondylitis)^[7]. Syphilitic myelitis is a common early indication of syphilitic neurologic injury that occurs 3 to 5 years after infection. Spinal cord injury, spinal durability, spinal cord spondylitis, spinal artery endomyelitis, and radiculitis are all examples. It causes paraplegia and significant and mild urinary problems. Adams and Merritt described syphilitic myelitis for the first time in 1944^[8]. In clinical practice, it is relatively uncommon.

2. Case report

A 40-year-old woman with a history of incompletely treated syphilis after high-risk sexual behaviour presented at the hospital with "numbness and weakness of the limbs below the 8th thoracic vertebral plane for 1 month." The onset of the symptoms was dominated by numbness of the soles of the feet bilaterally, which then gradually progressed upward, now reaching the 8th thoracic vertebral plane, with weakness of the left lower limb and decreased sensation of the right lower limb, in January without any obvious triggers. The left lower limb was weak, the right lower limb had decreased sensation, the tongue was dark red, the tongue coating was white, and the tongue coating particles were delicate and dense, fused with each other, thick in the middle and thin at the edge, closely adhering to the tongue surface and

difficult to wipe off and scrape off. She had a history of hyperthyroidism and had been taking medicine on a regular basis, but he has now stopped taking it (details unclear).

She had 3+ muscle strength in the left lower extremity, 4+ muscle strength in the right lower extremity, normal muscle tone in all limbs, reduced sensation in the left lower extremity relative to the right lower extremity, and bilateral Hoffmann(+) bilateral Babinski(+).

A cranial MRI scan revealed a few patchy, flaky, aberrant signal shadows in the semi-ovoid centre. An MRI examination of the spinal cord revealed an aberrant signal (cervical 2-thoracic 12 level), raising the possibility of spondylitis. A cranial + cervical vascular MRI scan revealed: the left basal ganglia, internal capsule brain aberrant signal, and subsequent vasculitis from sarcoidosis or syphilis.

The clinical symptoms, imaging, and laboratory examinations are used to make the diagnosis of syphilitic myelitis, with cerebrospinal fluid testing being the most important^[9]. The neurosyphilis cerebrospinal fluid protein level is positively connected with the condition and prognosis, i.e., the greater the protein, the more severe the condition and the worse the prognosis.^[10] The higher the protein level, the worse the condition and the prognosis. As a consequence, laboratory tests were performed on the patient's cerebrospinal fluid, and the findings were as follows: cerebrospinal fluid leukocytes $100 \times 10^6 - L^{-1}$ protein test (+). Antibodies against syphilis spirochetes (TPPA) were very positive. The serum syphilis antibody test resulted in a positive result.

Chinese medicine diagnoses "numbness and weakness below the chest 8 planes for 1 month, aggravated for 3 days" as the main symptom, and by observing the patient's face, asking the patient if she has ever had any disease before, understanding the patient's pulse, and other auxiliary diagnostic means, it is confirmed that this disease belongs to the scope of Chinese medicine, "slow movement of the limbs, limpness and weakness" category, with the lower limbs not being able to move freely and walk more often. The syndrome is classified as "slow movement of the limbs, limpness, and weakness of the hands and feet, with the lower limbs not being able to move and walk freely," and it is classified as "diseases caused by the blockage of the meridians, qi, and blood in the body by pathological products such as stagnant blood and impurities, and poor blood operation." Because blood stasis and impurities flow in the meridians and blood vessels, the blood vessels and meridians become blocked, and the qi and blood cannot be transported smoothly to all parts of the body; the limbs do not receive the corresponding blood and nutrient supply, resulting in limb weakness and numbness^[11]. As a result, the limbs do not receive adequate blood and nutrients, resulting in limb weakness and numbness. To summarise, the Chinese medicine of this disease is caused by an outside virus entering the human body, causing nutrition to be unable to be transported from the blood and meridians to every part of the body, resulting in numbness in the limbs. The disease is located in the tendons and muscles and has a close relationship with the liver, kidneys, spleen, and other organs.

3. Material and methods

Considering the patient's clinical symptoms, signs, and auxiliary examination findings, the doctor advised her to begin intravenous penicillin for a total of 14 days. At the same time, she was given 1g of methylprednisolone intravenously every day for 7 days, with the dosage progressively decreasing and then stopping when her health improved. At the same time, the patient must take delayed-release oral potassium chloride tablets, intravenous esomeprazole acid suppression, and stomach protection. In addition to intravenous cytarabine, intravenous methylcobalamin, oral methylcobalamin tablets, and compound vitamin B pills, patients should follow a low-salt and low-fat diet and have their blood pressure measured in the morning, noon, and night.

Treatment in Chinese medicine should follow the principle of treating the symptom for urgency and treating the root cause for non-urgency; that is, if the symptomatic disease is critical, the treatment should start with coping the "most obvious disease." For example, treating haemorrhage and severe pain should start with stop bleeding and pain first. Otherwise, the patient's life will be jeopardised; in the case where the most obvious di If there is no urgency, it is required to treat the "root cause of the disease," that is, to find out the cause of the disease. In, the case of the most evident ailments^[12]. The doctor employs micro-needling in conjunction with electro-acupuncture. Doctors use micro-needling in conjunction with electro-acupuncture in conjunction with scalp acupuncture to remove impurities in the blood and dredge the meridians.

4. Result

The patient was conscious without obvious limb numbness. However, there was mild paresthesia in the left lower limb. There was no paresthesia in the right lower extremity. The patient had dizziness and other conditions, which were slightly relieved after rest. There was no fever, chills, or cough. The patient did not experience dyspnea, dysphasia, drinking asphyxia, chest tightness and pain. The patient slept normally and was in good health. There was no obvious discomfort, and the patient was successfully discharged on the 23rd day of his hospitalization.

5. Discussion

Syphilis can appear in several stages (primary, secondary, latent, tertiary, or congenital). Neurosyphilis manifestations are rarely seen today, especially due to the availability of antibiotics such as penicillin^[8-10]. Hannuksela et al. and Nielsen et al. have reported that bone lesions are expected in about 1 - 5% of patients with untreated syphilis^[11,12]. Thus, long-term untreated syphilis can cause damage to the brain, heart, liver, nerves, eyes, joints and bones.

Neurosyphilis can manifest itself at any stage of the disease and infiltrate any part of the central nervous system. Syphilitic myelitis is a unique manifestation of neurosyphilis in which the involvement is limited to the spinal cord^[13]. A systematic review of 20 published cases of syphilitic myelitis found that the most commonly reported symptom was sensory disturbance (80%), followed by paraesthesia (75%), urinary retention (45%), and gait disturbance (10%)^[14]. The diagnosis of syphilitic myelitis depends on the clinical presentation, laboratory tests, and imaging features. Laboratory findings consistent with syphilitic myelitis include elevated protein in cerebrospinal fluid studies, polycythaemia, positive VDRL, or the treponema pallidum haemagglutination (TPHA) test^[15]. Due to the significant overlap of clinical and imaging features, NMOSD and anti-MOG syndromes must be excluded, preferably using serum cell-based testing. Other possible causes of myelitis should be excluded, including spinal tumours, abscesses, demyelinating lesions, and tuberculosis.

Syphilitic myelitis secondary to brain lesions is clinically rare, having an insidious onset with few clinically recognisable aura symptoms^[16]. Resolution of cerebrospinal fluid abnormalities and clinical improvement/stabilization are usually the criteria by which clinicians judge the success of treatment for neurosyphilis. The recommended treatment for patients with neurosyphilis is intravenous penicillin G at 18 - 24 million units/ day for 10-14 days. Steroids, such as prednisolone, are often used with antibiotics for syphilis treatment on the grounds that neuropathy may continue to develop despite adequate treatment of syphilis. When it comes to adjunctive use of systemic steroids, the treatment options are varied. Treatment options range from intravenous antibiotics alone to intravenous antibiotics plus systemic steroids, including prednisolone, dexamethasone, and methylprednisolone.

For this case, the hospital established a multidisciplinary team consisting of departments of encephalopathy, dermatology, cardiology, rehabilitation, and neurology, and implemented an online and offline diagnosis and treatment mode. The online working group tracked the vital signs of patients and participated in disease discussion and diagnosis through WeChat group every day. The doctors and nurses of the Department of Encephalopathy implemented a multidisciplinary combined treatment plan for the patient and took symptomatic treatment. Nurses participated in the whole process, raised nursing problems, actively communicated with doctors, and optimized the nursing plan.

5.1 Traditional Chinese Medicine (TCM) Care

Moxibustion of the Baihui acupoint and Four Shen Cong points is used to help clear the meridians. The Baihui acupoint has the capacity to increase qi in the body and alleviate excessive blood loss^[17]. The Baihui acupoint can increase the body's Yang energy and alleviate excessive blood loss. The Four Divine Cong points have a relaxing and tranquilizing influence on the psyche^[18]. The Four Divine Cong points have a relaxing and tranquilizing influence on the psyche. Moxibustion in these two locations has been shown to prevent strokes successfully.

The nurse educated the patient about syphilitic myelitis and stroke's knowledge, including that the patient's diet should be easy to digest, while avoiding sweets, and other greasy and irritating foods. The most critical point is that patients should avoid smoking and drinking, try to keep optimistic and positive psychological mood, avoid doing heavy physical labor, and prevent stroke from happening.

Wind-phlegm obstruction syndrome was the patient's TCM diagnosis; thus, micro-needling, scalp

acupuncture, and electro-acupuncture were used to dissipate wind, dissolve phlegm, and clear the channels. After acupuncture, the patient should be instructed not to consume spicy or cold foods, not to contact water for 1 hour, and to take a bath only after 2-3 hours; when acupuncture is conducted on the stomach, the patient should lie down and rest for as long as possible after the needles are withdrawn.

The patient's lower extremities' meridians are blocked, and the use of infrared lights during acupuncture can help to unblock them. Nurses should monitor the temperature of the baking lamp as well as the distance between the skin and the baking lamp, as the patient's lower limb muscle strength and sensory loss are weakened, preventing the baking lamp and the skin distance from being too close or the temperature from being too high, resulting in skin burns.

Tuina is a Traditional Chinese Medicine (TCM) treatment that seeks to cleanse the meridians and channels. Increase blood circulation. It also aids in the smoothing of the joints. Tuina can raise the patient's blood qi and so help with blood circulation. After the Tuina, the nurse advised the patient to stay warm and avoid blowing wind since the patient's pores were open after the Tuina, making it critical to stay warm. Because Tuina speeds up the body's metabolism, it's important to refill the body's water afterward. The nurse educates the patient about health, promotes primary care, takes blood pressure, and encourages the patient to take herbal tonics. Patients were given separate rooms that were kept quiet and constantly ventilated to keep them from falling ill from the cold. To guarantee proper nutrition and disease resistance, patients are given a low-salt, low-fat diet. Changes in vital signs are also monitored closely.

5.2 Symptom care

Syphilitic myelitis occurs when syphilis spirochetes from stage III syphilis invade the periosteum and bone^[19]. Its treatment should be based on the idea of preventing illness progression and syphilis exacerbation. As a result, given the appropriate symptoms of care, as follows, its care should be to avoid the deterioration of the illness and the degree of syphilis aggravation of the principle. (1) Fall prevention①: Increase publicity and education efforts to disseminate the patient's understanding of fall prevention. ② Allow the patient to identify the surrounding environment, such as the room or bathroom, and keep the furniture in the room in the proper position to make it easier for the patient to recognise the surroundings. (2) Skin care: Because the patient's limbs below the plane of the seventh thoracic vertebrae are numb and hypersensitive, moxibustion care should be performed to avoid burns. At the same time, the patient had skin lesions, and the nurse needed to monitor the lesions every day to see if they had deteriorated. Because the patient was mostly bedridden during her hospitalization, she should be reminded to roll over on time to avoid pressure sores.

5.3 Medication care

The treatment process is applied to penicillin and hormone drugs. When using penicillin, a skin test should be performed initially, three checks and eight pairings should be properly followed, and attention should be made to studying patients with or without symptoms of persistent penicillin allergy during therapy. Long-term hormone therapy will also increase stomach acid output, raising the risk of gastric ulcers and other disorders.

5.4 Psychological care

Upon admission to the medical facility, the patient deliberately withheld information regarding her previous diagnosis of syphilis from the attending physician and exhibited a reluctance to engage in communication, perhaps stemming from the psychological impact of the disease, indicative of a pessimistic outlook and an underlying sense of inferiority. Consequently, the nurse proactively engaged in communication with the patient, providing guidance in fostering a positive mindset towards the illness, alleviating the patient's apprehension, and facilitating the development of the patient's self-assurance in conquering the ailment.

5.5 Physical rehabilitation training

To mitigate the risk of muscle contracture and joint deformity in the patient's left limb, an early intervention was implemented by placing the affected limb in a functional position. This was accompanied by intensified passive training of the limb and a comprehensive range of functional exercises. Additionally, complementary therapies such as acupuncture, electrotherapy, and Tuina were employed to mitigate limb deformities.

5.6 Complication prevention and care

The patient should be monitored for the presence of sudden onset numbness, weakness, or paralysis of the facial muscles, particularly on one side of the body. It is important to diligently monitor any alterations in one's health status, including the occurrence of abrupt localised headaches, the manifestation of other symptoms associated with stroke, and the escalation of syphilis infection levels. Given the patient's unstable condition characterised by lower extremity numbness, it is imperative to conduct a comprehensive evaluation of the risk associated with falls. Additionally, it is crucial to enhance monitoring procedures and prioritise attention towards any alterations in the patient's condition.

5.7 Sterilization, isolation, and protection

When it comes to patient care, it is imperative to ensure appropriate measures are taken. Firstly, patients diagnosed with syphilis should be placed in isolation within a designated single room. In addition, it is crucial to prominently display signs indicating the presence of isolation protocols. In order to prevent the transmission of infections, it is important to practice hand cleanliness both before and after coming into contact with sick patients and their surrounding environment. In the context of treating individuals infected with the syphilis virus, medical workers play a crucial role in providing comprehensive care, including nursing interventions, throughout the latter stages of the operation.

In terms of medical workers engaged in the diagnosis and treatment of patients, it is imperative that nursing operations adhere to the practice of wearing gloves and masks. All waste produced by patients is classified as medical waste. Within the ward, designated medical waste barrels are installed, and double-layered medical waste bags are utilised. Prior to collection, the medical waste collection label must clearly indicate the name of the infectious disease. Subsequently, the medical waste is transferred to specialised personnel responsible for its collection. After the patients have been released from and transported out of the hospital, the ward will undergo disinfection procedures at its conclusion.

6. Health Education

The patient was discharged from the hospital after 23 days of attentive therapy and care, with a satisfactory mental state, muscular recovery, and therapeutic effect. Medical personnel taught the patient and her family the seven-step hand-washing procedure, instructed the patient to take medication on time, improve nutrition, form a habit of regular daily activities and functional exercises, continuously increase the body's resistance to diseases, and actively develop hobbies.

7. Experience

Clinical nursing is particularly important for treating patients with syphilitic myelitis because it can considerably lessen the harm caused by syphilis. Nurses should watch and focus care on multiple elements such as Chinese medicine characteristic therapy, environment, nutrition, medication, psychology, rehabilitation, symptoms, illness, and so on while caring for this patient, and take preventative actions against potential consequences. No nosocomial infection occurred following stringent sanitation and quarantine procedures. As a result, integrated Chinese and Western medicine treatment plays an active role in increasing neurosyphilis patient rescue and preventing complications.

8. Conclusion

Syphilitic cerebrospinal meningitis is one of many triggers that can lead to paraplegia or other serious systemic illnesses. If syphilis is detected in a patient with brain disease, serum HIV antibodies must be checked, especially in high-risk patients (syphilitic patients such as homosexuals and/or bisexuals). In co-infected patients, it is crucial to determine which of the syphilis and HIV infections is associated with the disease lesions in patients with syphilis. At the same time, a combination of Chinese and Western medicine is essential for the patient's recovery.

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