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A rare neurological sequelae of chicken pox in an adult

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ABSTRACT

Chicken pox is a disease of childhood caused by varicella zoster virus belonging to the α-herpesvirus-3 family. But the clinical presentation in adults is uncommon and is usually associated with complications. The complications are more commonly seen in immunocompromised individuals and in people who get infected at the later age group. Since the varicella zoster virus rarely causes cerebellar disease in adults, hence here we report a non-immunized, immune-competent adult patient presented to the emergency department with unsteadiness in gait, profuse sweating, exanthematous vesicular rash. We made a diagnosis of acute cerebellar ataxia due to varicella zoster virus and treated accordingly.

1. Introduction

Chickenpox is caused by varicella zoster virus(VZV)[1]. It is primarily a disease of childhood and the infection in adults is uncommon. However, if it involves the adult population, the rate of morbidity and mortality will significantly increase[2]. VZV causes two variants of infections. The primary infection presents with an exanthematous vesicular rash. After the primary infection, VZV remains dormant in the dorsal and spinal root ganglion. During the stress or immunocompromised state, VZV in the latent stage got reactivated in the form of herpes zoster and causing shingles and other neurological problems. The secondary bacterial infection is the most common complications of chicken pox. The neurological complications following the primary VZV infection are rare (0.01%-0.03%)[3]. The neurological complications following varicella pox infection are encephalitis, acute disseminated encephalomyelitis, acute cerebellar ataxia(ACA), facial nerve palsy, optic neuritis transverse myelitis[4]. The post infectious cerebellar ataxia is more common among children and it is characterised by the sudden onset of gait and balance disturbances. Autoimmune etiology is being

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proposed and usually develops after viral infections like varicella pox, coxsackie virus, epstein barr, enterovirus, herpes simplex, influenza, measles, mumps, parvovirus B19. Bacterial infections due to legionella, mycoplasma also associated with the development of ACA[5,6]. Since the postinfectious ACA is very rare in adults, we report a case of ACA due to primary varicella zoster infection.

2. Case report

A 24-year-old male presented to the emergency department with complaints of unsteadiness of gait and profuse sweating while walking for the past 2 d. The patient had a history of maculo vesicular rashes all over the body and fever for the past 6 d for which he consulted a physician and started on tab valacyclovir 1 g three times daily. The patient developed severe headache and continuous vomiting for 2 d on fifth day of his current varicella zoster infection, later he gradually developed unsteadiness of gait. However there was no history of loss of consciousness, convulsions, blurring of vision, dysphagia, tinnitus, deafness, bowel and bladder disturbances. There was neither past history of chickenpox during childhood and nor having vaccination for chicken pox in the past. He was a known case of hypertension under control for 5 years and on treatment and not a k/c/o diabetes, seizure disorder.

Physical examination of the patient revealed temperature of 98.6 F, pulse rate of 86/min regular and a blood pressure of 130/80 with no anaemia, icterus, cyanosis, clubbing and pedal oedema. In general examination, extensive pleomorphic pruritic rash with macular, vesicles, pustules and crusty lesions in centripetal distribution were noted. In central nervous system examination, the patient was alert, oriented with mild slurring of speech, and extra-ocular movements were normal with no nystagmus. The power of the all limbs was 5/5 and all deep tendon reflexes presented with flexor response were noted in bi-lateral plantar reflex. The patient had cerebellar signs like gross ataxia on standing with bilateral action tremor, past pointing noted on both sides on finger nose test and dysdiadokokinesia on right side. The other system examinations were found to be unremarkable. During hospitalisation he developed mutism and was attributed to depression.

The laboratory findings revealed that haemoglobin, red blood cell count, total leucocyte count, differential leucocyte count, erythrocyte sedimentation rate, electrolytes, blood glucose, liver function test, urine routine were in normal limits. In lumbar puncture, the cerebral spinal fluid(CSF) was colourless, slightly turbid no xanthochromia, CSF-Glucose was found to be 90 mg/dL [Normal range: (40-70) mg/dL], CSF-Total protein 50.6 mg/dL[Normal range: (15-40) mg/dL], CSF-Chloride 129 mEq/L [Normal range: (118-132) mEq/L]. On CSF microscopy, total WBC- 10 cells/μL were seen [Normal range: (0 to 5) cells/μL]. Total RBC 50 cells/cu.mm. CSF-polymerase chain reaction was not done. In the CT scan of brain was not remarkable. The magnetic resonance imaging(MRI) scan with contrast of the brain to rule out demyelination was also unremarkable with no cerebral & cerebellar changes with non-dilated ventricular system (Figure 1 and Figure 2). ECG and chest X-ray was taken, and they are found to be in normal limits.

A clinical diagnosis of ACA in the background of VZV was considered. The patient was started on intravenous methyl prednisolone 500 mg/d for 3 d followed by oral prednisolone with tab, valacyclovir 1 g and injection pantoprazole 40 mg/d. Gait physiotherapy was initiated and continued during the hospital stay. Psychological counselling was started to overcome the mutism and depression.

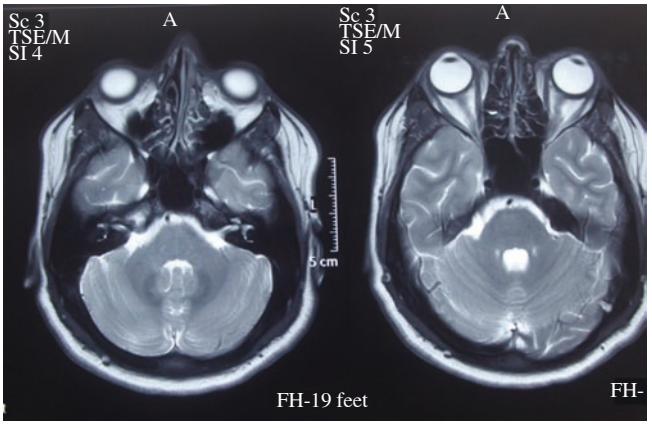

Figure 1. Contract MRI showing no cerebellar lesions.

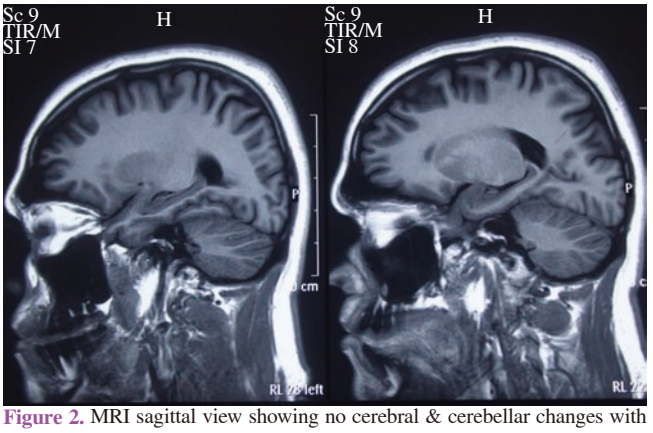

Figure 2. MRI sagittal view showing no cerebral & cerebellar changes with non-dilated ventricular system.

3. Discussion

Chicken pox is a disease of childhood caused by VZV belonging to the α-herpesvirus-3 family. Chickenpox is a contagious disease and it is transmitted from one person to another person through droplet infection, face-to-face personal contact with the affected individual. The respiratory tract is the portal of entry for the infection[1]. The primary infection is characterised by acute onset of fever and the exanthematous vesicular rash with the centripetal distribution. The VZV causes severe complications in immunocompromised patients. The complication caused by the VZV include varicella pneumonia, haemorrhage, encephalitis, cerebellar ataxia, stroke like symptoms and vasculopathy[4]. The most common neurological complication in children caused by VZV is ACA. A ratio of 1 in 4 000 children are affected with ACA by varicella zoster Infection. The onset of ataxia

is acute within a week of development of the rash[7]. However, the ACA is uncommon among adults in India because of the prior exposure of the virus in the earlier age. Whereas, encephalitis and meningitis are the two common and major diseases caused by the reactivation of the VZV. And these two complications are more commonly seen among the immunocompromised and elderly patients[8,9]. The pathogenesis for the cerebellar involvement in the varicella is not clearly known. Two postulates for the development of the neurological complications in chicken pox are as follows: First one is due to the direct VZV invasion of the cerebellum and causes the symptoms; The second one, the symptoms are due to the activation of the immune mediated process[10]. The most common symptom in the ACA observed by Bozzola *et al*. was broad based gait. Our case also had the broad-based gait as the predominant symptom. Other symptoms include slurring of speech (37.50%), vomiting (31.25%), headache (29.16)%, and tremor (22.91%). In this case also, the patient had slurred speech, vomiting, headache, tremor in addition to that he suffered from mutism. The mutism for this patient is due to depression. In most of the cases, ACA is reported only in the post eruptive phases. But there are cases of cerebellitis due to VZV without any skin manifestation are also reported in adults[11]. The role of corticosteroids and the intravenous immunoglobulin in the management of the ACA due to VZV is controversial. There are case reports which shown the improvement of the patients symptoms with the administration of the corticosteroids or intravenous immunoglobulin[7,12]. Early clinical recognition of the complication like acute cerebellitis and prompt institution of appropriate therapy will give rise to better clinical response. The case is being reported for its rarity in adults.

Conflict of interest statement

The authors report no conflict of interest.

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