

CASE REPORTS

SIMULTANEOUS ISOLATED BILATERAL FACIAL PALSY: A RARE VINCRISTINE-ASSOCIATED TOXICITY

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ABSTRACT

We describe a case of a 15-year-old boy with vincristine-induced simultaneous isolated bilateral facial palsy. The boy presented with superior vena caval syndrome (SVC syndrome), right-sided pleural effusion and anterior mediastinal lymphadenopathy. Histopathological examination of left axillary lymph node was suggestive of lymphoblastic lymphoma. We started chemotherapy with cyclophosphamide, doxorubicin, vincristine and prednisolone. SVC syndrome disappeared completely after the 1st cycle, and he achieved remission after the 3rd cycle of chemotherapy. He noticed that he could not close his eyes. Neurological examination revealed bilateral lower motor neuron facial palsy. Findings from examination of other cranial nerves and peripheral nerves were normal. Results of MRI of brain and cerebrospinal fluid examination were normal. He received 6 mg vincristine before developing toxicity.

Key words: Facial palsy, lymphoblastic lymphoma, toxicity, vincristine

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INTRODUCTION

Vincristine, a vinca alkaloid, is used as combination chemotherapy in the treatment of lymphoma, leukemia and solid tumors.^[1] Vincristine acts by binding reversibly to spindle proteins in S phase and by inhibiting RNA synthesis. The dose-limiting toxicity of vincristine is its neurotoxicity. Previous neurotoxicity or neurological disorders may result in decreased tolerance and increased

sensitivity to neurotoxicity. Peripheral neuropathy is the most common toxic manifestation and is usually of symmetrical mixed sensory-motor type.^[2] The mechanism of neurotoxicity of vincristine is the result of structural changes in the microtubules of peripheral nerve and interference with axoplasmic transport.^[3] Vincristine may cause cranial neuropathy (vocal cord palsy, ocular motor nerve dysfunction, facial nerve palsy and jaw pain), autonomic neuropathy (constipation, abdominal pain, urinary retention, paralytic ileus) and central neurotoxicity (headache, malaise, seizure, mental depression, psychosis).^[4]

Simultaneous bilateral facial nerve palsy is

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an extremely rare clinical entity.^[5] Bilateral simultaneous facial nerve palsy due to vincristine toxicity has not been reported. We are reporting a rare case of bilateral facial nerve palsy without involvement of other cranial nerves or peripheral nerves after the 3rd cycle of chemotherapy with vincristine for lymphoblastic lymphoma.

CASE REPORT

A 15-year-old boy presented with signs of superior vena caval syndrome with a 2-cm mobile firm left axillary lymph node. Examination of blood showed only mild anemia. CT scan of thorax revealed enlarged anterior mediastinal lymph node, along with right-sided pleural effusion. Findings from bone marrow examination were normal. Histopathological examination of left axillary lymph node was suggestive of lymphoblastic lymphoma, but immunohistochemistry could not be performed due to the patient's economic condition. Examination of pleural fluid revealed exudative fluid with lymphocyte predominance; adenosine deaminase level was 15 U/L, and fluid for malignant cell was negative. Our final diagnosis was stage III lymphoblastic lymphoma complicated with superior vena caval syndrome and right-sided pleural effusion.

The patient's body weight was 30 kg, and height was 142 cm at the time of starting chemotherapy. We started chemotherapy according to the patient's surface area, with intravenous (IV) cyclophosphamide 600 mg on day 1; IV vincristine 2 mg on day 1; IV doxorubicin 70 mg on day 1 and tablet prednisolone 80 mg from day 1 to day 5. Cycles were repeated on every 21st day.

The patient responded well. After completion of the 3rd cycle of chemotherapy, he achieved remission with disappearance of pleural effusion and anterior mediastinal mass but complained of inability to close both his eyes. Muscles of the lower half of the face were sagged. The normal folds and lines around the lips, nose and forehead were ironed out, and the palpebral fissure was wider than normal. Absence of voluntary and associated movements of the facial and platysmal muscles of both sides was complete; there were no gross movements, but only slight, barely noticeable ones. At rest there was asymmetrical facial appearance. There was no forehead movement with incomplete eye closure, except for slight movement of eyes. Both his eyeballs rotated upwards when he tried to close his eyes (Bell's phenomenon). His facial nerve palsy was graded as severe or grade V according to House Brackman facial nerve grading system.^[6]

There was no pain, vesicular lesions in the ear canal or signs of viral infection and borrelia infection. There was no tinnitus or involvement of taste sensation. Detailed neurological examination did not reveal involvement of sensory, autonomic or other nerves. Ophthalmologic and otolaryngologic examinations did not reveal any abnormality. Parotid glands were normal. There was no past history of neuropathy or any neurological disorders. Magnetic resonance imaging of brain was normal. Complete hemogram only showed mild anemia at that time. Cerebrospinal fluid (CSF) examination revealed normal results. Test for nerve conduction velocity was not performed due to the patient's economic condition. We diagnosed the case as cranial

polyneuropathy (bilateral lower motor facial palsy) as a result of vincristine-associated toxicity. Vincristine was omitted from his chemotherapy regimen pursuant to the opinion of the oncologist, and the patient was put on oral methyl prednisolone in tapering doses, over 6 months, with a starting dose of 32 mg. During that period, his facial nerve palsy slightly improved with regard to better facial muscles movements and eye closure; and during the last follow-up, his facial nerve palsy grading improved from grade V to grade IV.^[6] After 6 months, the patient has not come back to us for follow-up.

DISCUSSION

The neurotoxicity of vinca alkaloid is well known. Vincristine-induced neurotoxicity is usually mild. However, severe toxicity like paralysis has rarely been reported.^[3] In Pediatric Oncology Group study, only 3.6% of the patients had significant toxicity.^[7] Symptoms usually appear 2 to 19 weeks after commencement of therapy.^[4] Vincristine neurotoxicity is more serious when vincristine is used in large doses, patient is hypersensitive to the drug, patients has preexisting liver disease or hereditary neuropathy or if vincristine is combined with allopurinol, erythromycin, isoniazid, mitomycin C, phenytoin and itraconazole.^[8] In our case, no risk factor was present.

Facial diplegia may have diverse etiologies and may prove to be a diagnostic dilemma. The most common causes are bilateral Bell's palsy, Lyme disease, Guillain-Barre syndrome, sarcoidosis, Moebius syndrome, leukemia, viral infections, syphilis, basilar skull fractures, and pontine gliomas.^[9] In our case, we diagnosed the cranial polyneuropathy as

being drug induced — by exclusion of other etiologies, the timing of facial palsy in relation to the therapy schedule, normal cerebrospinal fluid levels and normal cranial MRI scan.

Although herpes virus infection can cause bilateral facial nerve palsy without any prodromal symptoms and vesicular eruption rarely may be a causative factor, in our patient we could not perform herpes virus IgM antibody test due to the patient's economic condition, which may be considered to be the only limitation of our case study.

In our case, probability score according to Naranjo algorithm or Naranjo scale for determination of probability of adverse drug reaction (ADR) was 5, which means it was a case of probable ADR, as a score of 5-8 means the reaction must be a probable ADR.^[10]

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