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Case Report: Bilateral facial palsy complicated by an influenza vaccine

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Abstract
Bilateral facial palsy is a facial paralysis affects the both sides of the face due to the affection of the 7th facial nerve, it is a rare condition, it has an incidence of 0.3% to 2% of all cases of facial palsy, and with unknown etiology; it may be following traumatic, neoplastic, neurologic, infective or metabolic causes. We present here a case of a female patient developed a bilateral facial palsy after one week following the administration of an influenza vaccine via intramuscular injection. An influenza vaccine is safe and widely used to prevent the seasonal influenza virus infection, the side effects of influenza vaccination are common as soreness at the site of vaccination site, fever, malaise and myalgia. It is rare to appear a neurological complication after influenza vaccination, but some cases as bilateral facial palsy reported after administration an influenza vaccine.

Keywords: influenza, vaccination, bilateral, administration

Introduction
Bilateral facial palsy is idiopathic; it is usually result from a viral infection, it is characterized by weakness of the muscles on both sides of the face, loss the ability to move the mouth, reduce the facial movement and expressions [4]. The case we reported is a female patient presented to emergency room with history of altered tongue sensation started 4 days ago followed by perioral numbness, slurred speech and facial droop associated with right post auricular pain. She denied any limb weakness, numbness, dizziness, vital disturbance, recent infection or trauma. But she administered the seasonal influenza vaccination via intramuscular injection a week ago. She was admitted and underwent to the general examination and referred to the neurology department for further investigation, her case was diagnosed bilateral facial palsy.

The case presentation
Patient information
A 43 years old, female patient was presented to emergency room and complaining of altered tongue sensation started 4 days ago followed by perioral numbness, slurred speech and facial droop associated with right post auricular pain. She denied any limb weakness, numbness, dizziness, vital disturbance, recent infection or trauma.

The diagnosis
Bilateral facial palsy
Differential diagnosis
Bilateral facial palsy may be caused by several others diseases, including Gillian Barr syndrome, sarcoidosis, Lyme's disease, brain stem encephalitis, meningitis, benign intracranial hypertension, leukemia, Melkersson Rosenthal syndrome, HIV infection, diabetes mellitus, syphilis, infectious mononucleosis, leprosy, bilateral neurofibromas, trauma and skull fractures, these diseases must be considered and excluded during diagnosis of bilateral facial palsy [5].

- Past medical history
- The patient was suffering from hypertension (controlled on medications).
- Medication history
- The patient administered the seasonal influenza vaccination via intramuscular injection a week ago.
- The examination
- Examination revealed bilateral facial weakness with slurred speech, other cranial nerves was normal; motor (tone, power and reflexes) in all limbs was normal, sensation intact, no cerebellar signs and normal gait. Other investigation
- Blood test showed that all blood components were in normal ranges.

CT scan on the brain showed no acute brain insult.
Further investigation by neurology team
MRI on the brain was unremarkable.
MRI on the cervical spine revealed multilevel degenerative disc disease and Vasculitis.
The thyroid function test was normal
Vitamin D was 9, indication of Vitamin D deficiency.
Cerebrospinal fluid was normal

Information recorded following (SOAP format)
Subjective data: altered tongue sensation, perioral numbness, slurred speech, facial droop associated with right post auricular pain, bilateral facial weakness.

Objective data: MRI on the cervical spine revealed multilevel degenerative disc disease and Vasculitis, Vitamin D test indicated a deficiency of Vitamin D.

Assessment: based on the symptoms, examination and further investigation, the principle diagnosis was bilateral facial palsy complicated by an influenza vaccine, the others diagnoses were multilevel degenerative disc disease, Vasculitis and vitamin D deficiency.

Plan: relieved the patient's symptoms and treated the case

- The medication
- Intravenous Acyclovir and Prednisolone were prescribed and started for the patient.
- The clinical outcome of the treatment plan
- No progression of the patient's symptoms during admission.
- The symptoms were improved. The patient was discharged to home in a stable condition after she completed the course of acyclovir.

The discussion

The bilateral facial palsy is a simultaneous paralysis that affects the both sides of the face. It is unlike the unilateral palsy and Bell's palsy. It is a rarely case with an unknown etiology. Bilateral facial palsy is idiopathic and commonly a result of viral infection, the cases with bilateral facial palsy is urgent and must undergo investigations to exclude tumors and others diseases that may cause bilateral facial palsy [5].

The symptoms of bilateral facial palsy are weakness of the muscles in both sides of the face, inability to close the eyes, reduced the ability to move the mouth, difficulties with facial expression, and reduced the clarity of speech [1, 4].

The case we present was suffered from altered tongue sensation followed by perioral numbness, slurred speech and facial droop associated with right post auricular pain. She denied any limb weakness, numbness, dizziness, vital disturbance, recent infection or trauma. The examination revealed bilateral facial weakness with slurred speech, other cranial nerves was normal; motor (tone, power and reflexes) in all limbs was normal, sensation intact, no cerebellar signs and normal gait. The initial diagnosis was bilateral facial palsy and needed more investigations to know the causes.

The diagnostic tests recommend to diagnose the bilateral facial palsy are CT and MRI on the brain to exclude tumors, blood test and CSF test to exclude sarcoidosis, Lyme disease, Epstein Barr virus, syphilis antibody, HIV, antinuclear antibody [5].

The blood test of the presented case showed that all blood components were in normal ranges, CT scan on the brain showed no acute brain insult and MRI on the brain was unremarkable. The thyroid function test was normal and cerebrospinal fluid was normal. The patient had a medication history of administration the seasonal influenza vaccination via intramuscular injection a week ago; also the inactivated influenza vaccine is safe, but it may be a cause for this case that had a viral infection which lead to bilateral facial palsy and complicated by influenza vaccine, so the principle diagnosis was bilateral facial palsy complicated via influenza vaccine. There are two types of seasonal influenza vaccine, inactivated influenza vaccine and live attenuated influenza vaccine. They called trivalent vaccine where are used to protect against three different types of seasonal influenza viruses.

The inactivated influenza vaccine contains inactivated virus and don't causes influenza, can be given to anyone six months of age, and is injected at deltoid muscle.

Where live attenuated influenza vaccine contains a live virus and is given as a nasal spray, it is used only to persons of the age 2 – 49 years, and don't causes influenza.

The WHO updates the compositions of influenza vaccines annually, also collect samples from around the world to analyze and assure the safety of influenza vaccination [6].

In spite of the safety of influenza vaccination, there are some cases were reported with Bell's palsy (one side of the face is paralyzed) after influenza vaccination; this was published in 2012 according to the study that was done by the Vaccine Adverse Event Reporting System (VAERS).

This study evaluated the Bell's palsy in detail after 2009 H1N1 and seasonal influenza vaccinations including the two types (inactivated influenza vaccination and live attenuated influenza vaccination). The results of this study illustrated that there was a higher proportion of Bell's palsy among females than males (54.8 % females: 45.2% males after seasonal influenza vaccine, and 69.2% females: 30.8% males after H1N1 vaccine), the elderly are more likely to develop Bell's palsy than children (where the highest rate was reported in the 18-64 years age group), most of cases occurred 1-30 days after the vaccination, the unilateral facial paralysis was the common case after influenza vaccination, but it could be developed and affected the both sides of the face, where there was one case had a bilateral facial palsy after the seasonal influenza vaccination and two cases had a bilateral facial palsy after H1N1vaccination (96.4% Bell's palsy: 3.6% Bilateral facial palsy after the seasonal influenza vaccination, and 96.9% Bell's palsy: 3.1% Bilateral facial palsy after H1N1 vaccination), it is a self-limiting disorder and the complete recovery from Bell's palsy has been reported in 90% of the cases [3].

Another study was done at 2004 in Switzerland to evaluate the relationship between an inactivated intranasal influenza vaccine and the development of Bell's palsy.

This study was done after the introduction of an inactivated intranasal influenza vaccine that was used only in Switzerland and 46 cases of Bell's palsy were reported, this influenza vaccination was removed from the market in Switzerland after increasing the cases of Bell's palsy due to an inactivated intranasal influenza vaccine.

The result of this study approved that there was a strong relationship between the inactivated intranasal influenza vaccine and Bell's palsy [7].

Although some cases were reported Bell's palsy after an influenza vaccine as illustrated at the previous studies, but an influenza vaccine doesn't consider being a precipitating event for Bell's palsy, it depends on other factors as age, gender, general state of the person, and if the person has a viral infection during the administration of influenza vaccine or not [3].

The case we present was a female, 43 years old, and may be had a viral infection during the administration of influenza vaccine that cause a unilateral facial palsy and develop to the both sides of the face (bilateral facial palsy).

The management of bilateral facial palsy depends on the cause of this palsy, so treating the cause will relieve the symptoms of bilateral facial palsy. If the case is diagnosed as bilateral facial palsy and the others infectious diseases were excluded, so the management of this case will be as for unilateral facial palsy, it will be a self-limiting condition controlled by antiviral and corticosteroids medications [3, 4].

The case we present was treated by intravenous Acyclovir and Prednisolone, no progression of the patient's symptoms during admission, the symptoms were improved, and the Patient was discharged to home in a stable condition after she completed the course of acyclovir.

The conclusion

Bilateral facial palsy is a rare condition with an incidence of 1:5000000 cases/year [8].

It is unknown etiology and must excluded others infectious diseases and autoimmune conditions which may be a cause to the bilateral facial palsy, so it can be diagnosed as a case of bilateral facial palsy [5]. Immunization by influenza vaccine may cause a bilateral facial palsy but it is very rare, where Bell's palsy is most common following influenza vaccination [3]. Bell's palsy and bilateral facial palsy are self-limiting disorders which can be managed by intravenous antivirus and corticosteroids medications [3, 9].

The people must be awareness about Bell's palsy and bilateral facial palsy during influenza vaccination. The influenza vaccination must be administered at a preventive care clinic by a professional preventive team. Everyone should get a vaccine that is appropriate for their age, and the children younger than 6 months of age shouldn't get an influenza vaccine they taken it during their routine immunization under specific conditions. An influenza vaccine shouldn't be given to the people have a severe allergies to any component of the vaccine, the patients with a history of viral infection or any infectious condition, and the patients suffer from a chronic diseases.

The preventive team should educate the people after an influenza vaccination that if not feeling well or have any symptoms as weakness of the muscles in both sides of the face, inability to close the eyes, reducing the ability to move the mouth, difficulties with facial expression, and reducing the clarity of speech, must visit the emergency department urgently [2, 10].

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