

# Bilateral Dislocation of Temporomandibular Joint Induced by Haloperidol Following Suicide Attempt: A Case Report

Zakaria Zakariaei<sup>1</sup>, Shervin Taslimi<sup>2</sup>, Mohammad Amin Tabatabaiefar<sup>3</sup>, and Mosa Arghand Dargahi<sup>1</sup>

<sup>1</sup> Department of Medical Sciences and Toxicology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Department of Psychiatry, Roozbeh Psychiatric Hospital, Tehran University of Medical Sciences, Tehran, Iran

<sup>3</sup> Department of Medical Genetics, School of Medicine, Ahvaz Jundishapour University of Medical Sciences, Ahvaz, Iran

Received: 28 Feb. 2011; Received in revised form: 5 Sep. 2011; Accepted: 25 Oct. 2011

**Abstract-** Drug induced dystonic reactions are among common presentations of patients in emergency departments, and typically occur with antidopaminergic agents as their extra-pyramidal side effects. Dystonic reactions usually occur within the first few hours or days after commencing a drug or dose increase. Unlike other extra-pyramidal side effects, a patient may experience acute dystonic reactions (ADRs) with the administration of just a single dose. Oromandibular dystonia is a subtype of dystonia which can present with perioral manifestations. In extreme cases, it can lead to temporomandibular dislocation. Haloperidol, as a high potent typical antipsychotic drug, can induce dystonia with blocking D<sub>2</sub> dopamine receptors. The present paper reports a case of bilateral dislocation of temporomandibular joint following ingestion of haloperidol in a suicidal attempt in a 17 years old girl.

© 2012 Tehran University of Medical Sciences. All rights reserved.

*Acta Medica Iranica*, 2012; 50(3): 213-215.

**Keywords:** Dystonia; Temporomandibular joint; Haloperidol; Suicide

## Introduction

Antipsychotic drugs are used for psychotic disorders, and nonpsychotic conditions such as borderline personality, hiccup, nausea and vomiting (1). Although overdose and poisoning of antipsychotics are common, most cases with pure overdose are without any symptoms or manifest with only mild toxicity. These drugs have a high therapeutic index and their fatality rates are rare (2). Haloperidol as a high potency, typical antipsychotic agent with highest D<sub>2</sub> receptors affinity has the most likelihood of extra-pyramidal syndromes such as ADRs. However, It is one of the safest typical antipsychotics in over dose (3,4).

Dystonia manifests with continuous or intermittent contractions of orbicularis oculi and face or mandibular muscles, tongue, neck and extremities that result in obviously abnormal movements or postures. Dystonic reactions, except laryngeal or pharyngeal spasm, are rarely life threatening. They may be focal, segmental (multifocal), or generalized and may also be primary or secondary based on their etiology (5).

Drug induced dystonic reactions are among common presentations of patients in emergency departments and typically occur with drugs with antidopaminergic effects such as metoclopramide, chlorpromazine and haloperidol (6). It may arise from an imbalance between dopaminergic and muscarinic receptors activity in nigrostriatum in the brain. Dystonia usually occurs within the first few hours or days after the therapeutic administration or dosage increase. Unlike other extra-pyramidal side effects, a patient may experience acute dystonic reactions (ADRs) with the administration of just a single dose. Although ADRs are often idiosyncratic, they may also be dose dependent and occur in overdose (7).

Incidence rate of drug induced dystonia is different based on patient characteristics, drug, dose and route of administration and duration of treatment. Overall, incidence of dystonia in antipsychotic drug overdose is about 10% (4). Individual potential risk factors include being male and young, having a history of personal or familial dystonic reactions and a recent cocaine or alcohol abuse (8,9). Acute dystonic reactions can affect 5 to 45 year old individuals (7), which is more common

**Corresponding Author:** Mosa Arghand Dargahi

Department of Medical Sciences and Toxicology, Baharloo Hospital, Tehran University of Medical Sciences, Tehran, Iran

Tel: +98 21 55461088, 911 3434553. Fax: +98 21 55677337, E-mail: mosadargahi@yahoo.com

## Dislocation of TMJ following suicide

between 10 to 19 years of age, but declines in older ages (10). A positive history of ADRs is the most important predictive factor of recurrence (11). Acute dystonia can cause bizarre appearance and can temporarily be subsided by voluntary control. Indeed, it may be misdiagnosed with conversion or simulation disorders (12).

We report a case of bilateral dislocation of TMJ following a suicide attempt in a 17 years old girl.

### Case Report

The patient was a 17 year old girl who ingested 10 tablets of haloperidol (5 mg) of her mother in an attempt to commit suicide. Eight hours later, she was brought to the physician's office by her family with the chief complaint of inability to close her mouth and pain on bilateral pre-auricular region. The doctor administered biperiden (5mg, IM) and reassured the patient and her family about the problem and indicated that it would be recovered in a couple of minutes after the treatment. But about 24 hours later, the patient was presented to Toxicology Department because of no change in her problems. She was alert and anxious. In the physical examination, she had tenderness over bilateral TMJ region and was unable to close her mouth. Neurologic examination and the primary laboratory tests including complete blood count, blood urea nitrogen and creatinine serum levels and urine analysis were normal. Screening tests for toxic metabolites such as opioids, benzodiazepines, tramadol, tricyclic antidepressants and amphetamines were also normal. Creatine phosphokinase and lactate dehydrogenase serum levels were borderline.

Her vital signs were as follows: heart rate 120 beat/min, respiratory rate 14/mins, blood pressure 90/60 mm/Hg and axillary temperature 37.3°C. The lungs were clear to auscultation and a sinus tachycardia detected in heart examination. The patient didn't have any history of trauma or similar disorders. The patient's mother was on antipsychotic drugs including haloperidol from 6 month before because of her psychotic disorder. She developed torticoli during the first days of commencing the drug, which has been controlled by medication.

According to this history and physical examination, the patient was diagnosed to have acute dystonic reactions. Biperiden (5 mg/IV) was administered and was repeated with the same dose 15 min later without any improvement in patients sign and symptoms and even led to a more exacerbated agitation.

Therefore, the patient was admitted to the toxicological ward for observation and psychiatric

consultation. Upon careful re-examination, two minor depressions in the TMJ regions of both TMJ fossa were noted. Emergent ENT specialist consultation was arranged, and bilateral anterior TMJ dislocation was diagnosed. Therefore, the patient was administered diazepam (10mg/IV) and underwent successful reduction maneuver. The patient discharged after six hours with oral biperiden. She was normal upon examination after three days and biperiden was stopped.

### Discussion

Oromandibular dystonia is among focal dystonias, which can present with either jaw clenching, jaw opening or jaw deviation and leads to impaired speech, swallowing and ugly appearance (13). Sometimes, oromandibular dystonia is so severe that can cause TMJ dislocation. So far, few case reports have been published about TMJ dislocation due to antipsychotic medications (14).

To the best of our knowledge, this is the first report of bilateral TMJ dislocation following a suicide attempt by haloperidol. Our patient was 17 years old girl with a positive family history of dystonic reactions (her mother) who had two risk factors for developing dystonic reactions including age and the positive family history. Her tachycardia, hypotension and mildly raised temperature can be interpreted by anti adrenergic, antimuscarinic, antiserotonergic and antihistaminic (H<sub>1</sub>, H<sub>2</sub>) effects of haloperidol. Tachycardia, mild raised temperature, and hypotension are common in antipsychotic overdose. Blockade of peripheral  $\alpha_1$  adrenergic leads to decreased vasomotor tone and accounts for the hypotension. Tachycardia may reflect the anticholinergic effect of the drug and reflex tachycardia can be due to hypotension, patient's pain and anxiety. Mild raised temperature is due to impaired sweating because of haloperidol anticholinergic effects and excessive heat production because of patient's agitation (1,3).

Dystonia is almost always resolved with drug therapy and supporting care. Appropriate treatment is the administration of drugs with anticholinergic effects both in adult and children. With treatment, patient would be cured in 5 to 10 minutes, although repeated dosing may be required for its complete resolution. In case, dystonia does not respond to anticholinergic therapy, diazepam or lorazepam may be effective. We think the administration of diazepam was responsible for the improvement of the patient and successful reduction maneuver. For prevention of recurrence, oral

anticholinergic drugs should be administered for the next 48 to 72 hours. Botulinum toxin injection or surgery may be effective in some cases (7,12). Drug induced dystonic reaction following a suicide attempt is almost a rare presentation in the emergency department. In most of the times, its serious complications such as TMJ dislocations are rarely the case.

TMJ dislocation often can cause considerable functional disability and produce fear and anxiety. It may be misdiagnosed with conversional and anxiety disorders with the resultant delay in diagnosis. Therefore, physicians should be aware of these complications and the related predisposing factors.

## References

1. Nasrallah HA, Tandon R. Classic antipsychotic medications. In: Schatzberg AF, Nemeroff CB, editors. *The American Psychiatric Publishing Textbook of Psychopharmacology*. 4<sup>th</sup> ed. Arlington, VA: American Psychiatric Publishing, Inc.; 2009. p. 533-54.
2. Bronstein AC, Spyker DA, Cantilena LR, Green JL, Rumack BH, Giffin SL. 2008 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 26<sup>th</sup> Annual Report, 2009. *Clin Toxicol* 2009;47:911-1084.
3. Juurlink D. Antipsychotics. In: Flomenbaum NE, Goldfrank LR, Hoffman RS, Howland MA, Lewin NA, Nelson LS, editors. *Goldfrank's Toxicologic Emergencies*. 8<sup>th</sup> ed. Vol. 2. New York: McGraw-Hill; 2006. p. 1039-51.
4. Schonwald S, Ellenhorn MJ. Psychotropic drugs. In: *Ellenhorn's Medical Toxicology: A Synopsis and Study Guide*. Philadelphia, PA: Lippincott Williams and Wilkins; 2001. p. 333-43.
5. Ropper AH, Samuels MA. Abnormalities of movement and posture caused by disease of the basal ganglia. In: Ropper AH, Samuels MA. *Adams and Victor's Principles of Neurology*. 9<sup>th</sup> ed. New York: Mc Grow-Hill; 2009. p. 61-77.
6. Fadare JO, Owolabi LF. Carbamazepine-induced dystonia, a case report. *Neurology Asia* 2009;14(2):165-6.
7. Levine M, Burns MJ. Antipsychotic agent. In: Shannon MW, Borron SW, Burns MJ, editors. *Haddad and Winchester's Clinical Management of Poisoning and Drug Overdose*. 4<sup>th</sup> ed. Philadelphia, PA: Saunders Elsevier; 2007. p. 703-20.
8. Wirshing WC. Movement disorders associated with neuroleptic treatment. *J Clin Psychiatry* 2001;62 Suppl 21:15-8.
9. Freed E. Alcohol-triggered-neuroleptic-induced tremor, rigidity and dystonia. *Med J Aust* 1981;2(1):44-5.
10. van Harten PN, Hoek HW, Kahn RS. Acute dystonia induced by drug treatment. *BMJ* 1999;319(7210):623-6.
11. Keepers GA, Casey DE. Use of neuroleptic-induced extrapyramidal symptoms to predict future vulnerability to side effects. *Am J Psychiatry* 1991;148(1):85-9.
12. Sankhla C, Lai EC, Jankovic J. Peripherally induced oromandibular dystonia. *J Neurol Neurosurg Psychiatry* 1998;65(5):722-8.
13. Eken C, Güler V, Koparan C, Çicek M. Temporomandibular joint dislocation due to haloperidol induced acute dystonia: a case report and review of the literature. *Erciyes Med J* 2009;1:10-3.
14. Ibrahim ZY, Brooks EF. Neuroleptic-induced bilateral temporomandibular joint dislocation. *Am J Psychiatry* 1996;153(2):293-4.