

Case Report

Alternating Bell's Palsy Following Staged Dental Procedures

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Abstract

Facial nerve palsy can be caused by specific disease processes such as cerebrovascular events, infections and trauma. The lower motor neuron facial nerve paralysis which has no specific identifiable causation is termed Bell's palsy. Bell's palsy has been reported to occur following dental anaesthesia and dental related procedures. We report a case of a 50 year old patient with 'alternating' facial nerve palsy (occurring on opposite sides, on two or more separate occasions) after two consecutive dental procedures.

Keywords: Bell's palsy; Dental anaesthesia; Alternating

Introduction

Facial nerve palsy can be seen as a result of a specific disease process such as its association with cerebrovascular events, acoustic neuroma, viral infections, and trauma. When the lower motor neuron facial nerve paralysis has no specific causes identifiable, it is termed Bell's palsy [1]. There have also been cases of Bell's palsy with a temporal relation to some dental related procedures and local anaesthesia administered for dental treatment. This is a case report of a 50 year old lady with 'alternating' facial nerve palsy (occurring on opposite sides on two or more separate occasions) after two consecutive dental procedures.

Case Report

A 50 year old lady, A, first presented to the Emergency Department (ED) 2 days after a dental procedure. She had received an alveolar nerve block for the procedure. At presentation, she had facial asymmetry, right sided facial numbness and inability to shut her right eyelid when blinking. She also reported difficulty in chewing her food on the right side. According to her, these symptoms first started some 12 hours after the dental procedure. Madam A did not have any history of Diabetes Mellitus

A diagnosis of Bell's palsy was made and she was treated with prednisolone (40mg Om for a week), acyclovir (400 mg, 5 times a day for 7 days) and given a follow up appointment with the Neurology Specialist Clinic. Three weeks later her symptoms and signs had resolved.

Six weeks later, she presented to the ED once again with left sided Bell's palsy. She reported that she had undergone another dental procedure (the second of a two staged procedure) to the same right sided molar region. A telephone consult with her dental officer revealed that her anaesthesia (lignocaine with epinephrine injection) had been straightforward and there were no complications during or just after the anaesthesia, as observed at the dental clinic.

She was once more prescribed a course of prednisolone and acyclovir (same dosage as mentioned earlier) and given the appropriate advice and follow up. 3 months later her symptoms had resolved completely with no residual deficits.

Discussion

Patient A experienced two recurrent, alternating episodes of Bell's palsy, each one having a temporal correlation to a dental procedure.

Some of the postulations for the occurrence of Bell's palsy following dental related procedures include [2-14]:

1. Virus reactivation, similar to that which happens in Herpes Zoster.
2. Reflex sympathetic vasospasm in the blood vessels that supply the facial nerve that happens after the dental related procedure. The mediation of this is thought to be via the sympathetic nerve plexus. The stimulus for the vasospasm, on the other hand, has been said to be possibly from the vasoconstrictor used in the anesthetic injection or a direct injury to the nerve itself from the injection process or injection needle.
3. There has also been some reports whereby a branch of the facial nerve appear to be aberrant in the retromandibular space and thus become traumatized during the injection process.
4. Having a history of Diabetes Mellitus seems to be a risk for developing Bell's palsy.

The second and third mechanisms are more likely to cause anipsilateral Bell's palsy i.e. occurring on the same side as the procedure. Currently, there is very little reported on alternating Bell's palsy following a dental procedure. [2,7,14] Alternating Bell's Palsy itself is also infrequently seen in comparison to the unilateral form [15]. There have also been reports of recurrent Bell's palsy seen on the same side of the face, associated with repeated dental procedures [2,5].

There is also a phenomenon of Familial Bell's palsy which has been documented in a few with very strong family history [16-18].

Besides this, Bell's palsy has been reported to occur recurrently with each pregnancy, amongst some women [19,20]. In some of these cases, an immune mediated mechanism or pathogenesis has been

postulated. It appears to be that there are alterations in the immune system due to an autosomal inheritance in the familial type that predisposes to inflammation of the facial nerve [21]. In addition, there is also a report of facial nerve palsy as a symptom of hypertension (first presentation) and the authors reiterated that systemic diseases have to be sought in patients presenting thus [22].

Conclusion

Alternating Bell's palsy is not common. It usually has good prognosis, with complete recovery as seen in our patient A, who recovered fully from both episodes. The definite etiology is still not clearly elucidated, does it have the same pathophysiology and causation as the more commonly seen unilateral Bell's palsy or whether it is secondary to other causes such as the dental related procedure in our patient. In general, the incidence of Bell's palsy associated with dental procedures is reported to be about 0.3% [12].

References

- Mornell K, Zachariah SB. Bell's Palsy.
- Cousin GC. Facial nerve palsy following intra-oral surgery performed with local anaesthesia. *J R Coll Surg Edinb.* 2000; 45: 330-333.
- Gray RL. Peripheral facial nerve paralysis of dental origin. *Br J Oral Surg.* 1978; 16: 143-150.
- Pothiwala S, Lateef F. Bilateral facial nerve palsy: a diagnostic dilemma. *Case Rep Emerg Med.* 2012; 2012: 458371.
- Shuaib A, Lee MA. Recurrent peripheral facial nerve palsy after dental procedures. *Oral Surg Oral Med Oral Pathol.* 1990; 70: 738-740.
- Tiwari IB, Keane T. Hemifacial palsy after inferior dental block for dental treatment. *Br Med J.* 1970; 1: 798.
- Chuong R. Contralateral facial palsy following coronoidectomy. Report of a case. *Oral Surg Oral Med Oral Pathol.* 1984; 57: 23-25.
- Adour KK, Hilsinger RL, Callan EJ. Facial paralysis and Bell's palsy: a protocol for differential diagnosis. *Am J Otol.* 1985; 68-73.
- Sweta VR, Thenmozhim S. Facial nerve paralysis after anesthetic usage-A Review. *J Pharm Sci and Res* 2014; 6: 308-309
- Sawyer RJ, Richmond MN, Hickey JD, Jarratt JA. Peripheral nerve injuries associated with anaesthesia. *Anaesthesia.* 2000; 55: 980-991.
- Pogrel MA, Bryan J, Regezi J. Nerve damage associated with inferior alveolar nerve blocks. *J Am Dent Assoc.* 1995; 126: 1150-1155.
- Keetley A, Moles DR. A clinical audit into the success rate of inferior alveolar nerve block analgesia in general dental practice. *Prim Dent Care.* 2001; 8: 139-142.
- Tzermpas FH, Cocos A, Klefogiannis M, Zarakas M, Iatrou I. Transient delayed facial nerve palsy after inferior alveolar nerve block anesthesia. *Anesth Prog.* 2012; 59: 22-27.
- VanAmstel AD, Devriese PP. Clinical experiences with recurrences of Bell's palsy. *Arch Otorhinolaryngol.* 1988; 245: 302-306.
- Jacques S, Trippi AC, Sheldon CH. Alternating Bell's palsy associated with diabetes mellitus. A report of four cases. *Bull Los Angeles Neurol Soc.* 1976; 41: 78-81.
- Qin D, Ouyang Z, Luo W. Familial recurrent Bell's palsy. *Neurol India.* 2009; 57: 783-784.
- Broddie HG. Recurrent Bell's palsy. *J Laryngol Otol.* 1973; 86: 1117-1120.
- English JB, Stommel EW, Bernat JL. Recurrent Bell's palsy. *Neurology.* 1996; 47: 604-605.
- Walling AD. Bell's palsy in pregnancy and the puerperium. *J Fam Pract.* 1993; 36: 559-563.
- Kumar SV, Lakshmaiah MN. Recurrent bilateral Bell's palsy: a rare case report and review of the literature. *Int J Biomedical Research.* 2012; 3: 378-380.
- Yetiser S, Satar B, Kazkayasi M. Immunologic abnormalities and surgical experiences in recurrent facial nerve paralysis. *Otol Neurotol.* 2002; 23: 772-778.
- Bağ Ö, Karaarslan U, Acar S, Işgüder R, Unalp A, Öztürk A. Alternating facial paralysis in a girl with hypertension: Case report. *Arch Argent Pediatr.* 2013; 111: 133-135.