Occlusal Analysis and Management of a Patient with a Dull Heavy Feeling In The Head and Stiff Shoulders: A Case Report

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***Abstract*—The relationship between occlusal discrepancy and headache has been reported, but the relationship between a dull heavy feeling in the head and occlusal discrepancy has not yet been reported. Occlusal analysis was performed on a patient with a dull heavy feeling in the head and identifying a deviation of the habitual occlusal position (HOP) from the muscular occlusal position (MOP). The deviations of both condyles were extremely large, 7 mm on the right and 12 mm on the left, respectively. Occlusal modifications of the upper dentition were performed to make the HOP coincide with the MOP. The period required to obtain bilateral occlusal contact in MOP was 60 days, and the number of occlusal adjustments was 15. The patient's complaint of a dull heavy feeling in the head disappeared at the end of the eighth occlusal adjustment. The stiff shoulder also disappeared at the end of the treatment. A dull heavy feeling in the head was thought to be caused by the production of substances in the brain due to abnormal contraction of the medial and lateral pterygoid muscles, trapezius muscles and sternocleidomastoid muscles.**

Keywords—occlusal discrepancy, habitual occlusal position, muscular occlusal position, tension type headache

Introduction

Although the relationship between headache and temporomandibular disorders (TMDs) have been reported [1-4], to our knowledge, the relationship between a dull heavy feeling and TMDs has not yet been reported. It has been reported that a considerable number of patients who complain of headache actually complain of a dull heavy feeling in the head instead of headache [5]. The present case might be useful to understand the relationship between a dull heavy feeling in the head and dental occlusion.

Case presentation

A 69-year-old man with chief complaint of a dull heavy feeling in the head. The patient reported he was bruxing his teeth and slept with an oral device in his mouth at night, but his head was heavy all year round. The patient's medical history was cerebral infarction a year ago, and fortunately he had no disability and was taking amlodipine and aspirin. He also has higher blood pressure than before and is taking telmisartan. The patient had noticed a dull heavy feeling in the head for about 10 years, but had not taken any medication. The patient complained of a dull heavy feeling in the head, stiff shoulders and tinnitus at night. He reported temporomandibular joint (TMJ) sounds on both sides during mouth opening. Mouth opening was 43 mm, and the opening path was almost straight. There was no TMJ tenderness; however, tenderness

of the lateral and medial pterygoid muscles, trapezius and sternocleidomastoid muscles on both sides were observed. Twenty-eight teeth were present and four third molars were embedded (Fig. 1 and 2).

Fig. 1. Upper and lower dental arches at the initial consultation

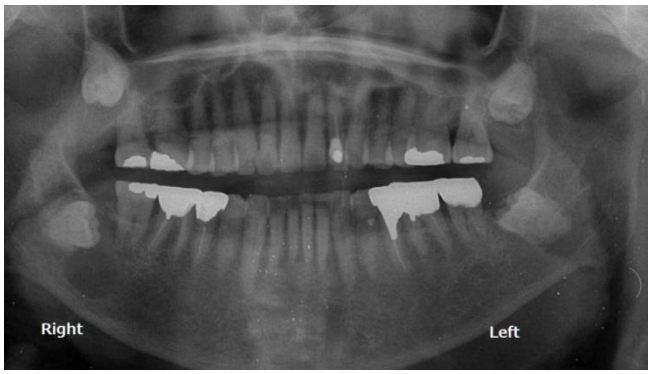

Fig. 2. Roentgenogram of the upper and lower dental arches

At the initial visit, a habitual occlusal position (HOP) record was obtained using a vinyl polysiloxane bite registration material (Exabite, GC, Tokyo, Japan), while the patient was seated upright with his jaw voluntary closed. Subsequently, upper and lower impressions were obtained, and the dental models were fabricated. An anterior flat bite plate was fabricated on the upper model using a self-curing acrylic resin (Ortho-fast, GC, Tokyo, Japan). At the second visit, he wore the bite plate for 5 min, and the muscular occlusal position (MOP) record was obtained, using the same material as that used for obtaining the HOP record (Fig. 3).

Fig. 3. Wearing an anterior flat bite plate

A MOP wax record was obtained using the registration wax material (Bite wafer, Kerr USA, Romulus, MI, U.S.A.) using the method described previously. The upper and lower models were mounted on a articulator with the MOP wax record. A premature occlusal contact was recognized on the right first premolar (Fig. 4).

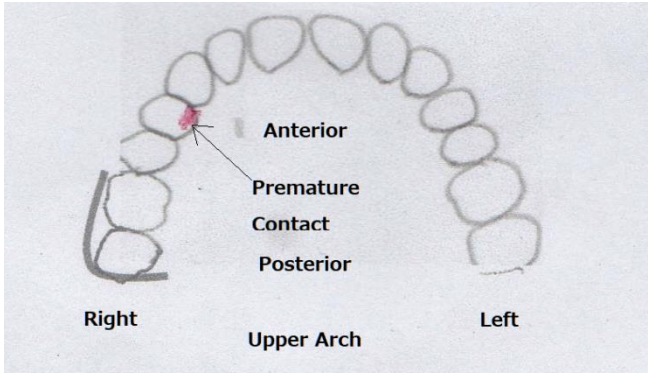

Fig. 4. Recorded premature occlusal contact on the right upper first premolar

To examine the difference between HOP and MOP, two-dimensional measurements were performed on a modified articulator using previous records. The position of the recording disc was approximately the same as that of the condyle of TMJ. Therefore, the shift was caused by as one of the condyles. The condyle deviated 7 mm posteromedially from MOP on the right side and 12 mm anterolaterally on the left side (Fig. 5).

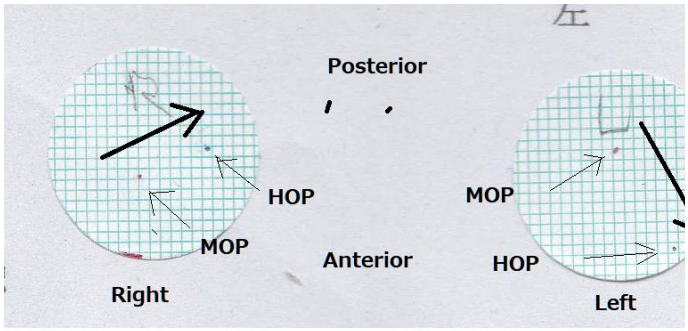

Fig. 5. The habitual occlusal position (HOP) and muscular occlusal position (MOP) records. The arrows indicate the shifts from MOP to the HOP

To examine the difference between HOP and MOP, three dimensional measurements near the first molars were performed with the modified articulator using previous records. His HOP was deviated anterolaterally to the left from MOP (Fig. 6).

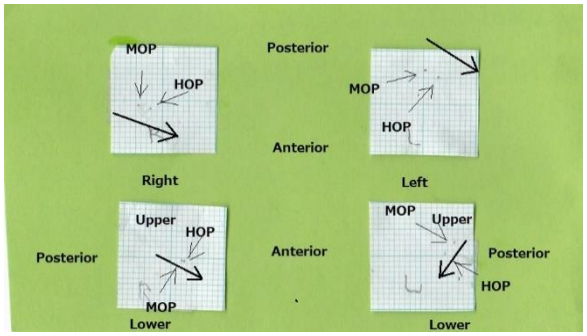

Fig. 6. Three-dimensional records. The arrows indicate the shift from the MOP to the HOP.

The shifts ranged from 1 mm to 3mm. Occlusal adjustment was first performed on a model according to the occlusal correction therapy [7]. Then, the adjustment site on the model was transferred to a template, and the template was adapted to the teeth in the mouth for adjustment (Fig. 7).

Fig. 7. Upper dental models used in the occlusal adjustments

The period of occlusal adjustment was 60 days, and the number of adjustments was 15, (Fig. 8 and 9). The tenderness of the lateral and medial pterygoid muscles, the trapezius, and the sternocleidomastoid on both sides and the dull heavy feeling in the head disappeared at the end of the eighth occlusal adjustment. The stiff shoulders and TMJ sounds also disappeared after completion of adjustment. However, the patient's tinnitus at night persisted.

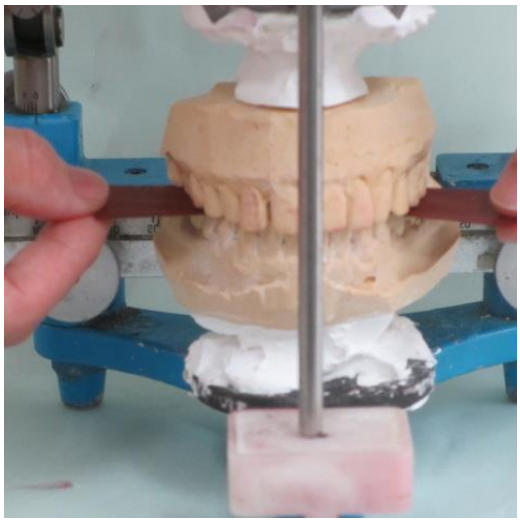

Fig. 8. Confirmation of bilateral occlusal contacts

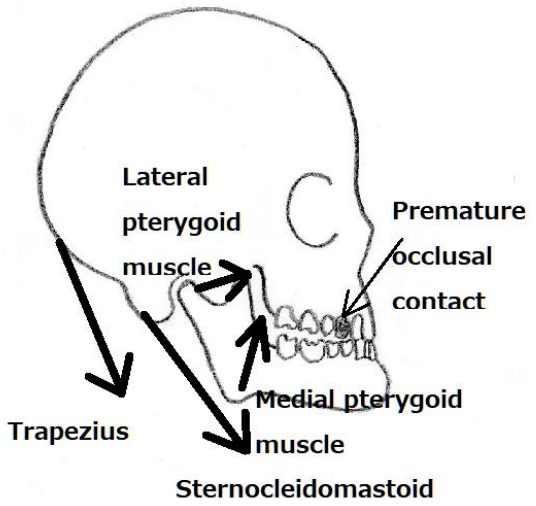

Fig. 9. The muscles that the patient complained of tenderness to palpation at the first visit are illustrated.

Discussion

There are many reports on the causes and treatment of headaches attributed to TMDs [1-4]. However, there are many types of headaches and they are easily confused. Torii reported that the case diagnosed with migraine was tension-type headache [6]. Deleu and Hanssens reported that of the 171 patients, 45% were diagnosed with primary chronic daily headache, of which 62% had transformed migraine and 34% had tension headache. In addition, a dull heavy feeling in the head was reported by 58% of the patients. They described that in Oman, chronic use/overuse of analgesics and nonsteroidal anti-inflammatory drugs is a problem that coexists with primary chronic daily headache [5]. In the present case, the mandible had to move anterolaterally to the left to avoid premature contact with the right first premolar and to obtain a stable occlusion (Fig. 6and 9). If this mandibular movement had been performed only by the lateral and medial pterygoid muscles, as Torii reported, headache would have developed as referred pain [6], but the difference between HOP and MOP was too much. He had a stable occlusion with the help of the trapezius and sternocleidomastoid muscles, so he did not develop headaches. This is because the trapezius muscle and the sternocleidomastoid muscle are larger than the pterygoid muscles, have kinetic potential, and are in a position where they can be easily touched. It seems that the patient's body emitted a dull heavy feeling in the head as an alert. In the present case, a dull heavy feeling disappeared with the occlusal position correcting therapy [7]. A dull heavy feeling in the head was thought to be caused by the production of substances in the brain due to abnormal contraction of the medial and lateral pterygoid muscles, trapezius muscles and sternocleidomastoid muscles. When diagnosing a patient with chronic headache, it is necessary to distinguish between headache and a dull heavy feeling in the head, and to check for occlusal factors.

Acknowledgement

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