

Occlusal Analysis and Management of a Patient with Various Symptoms of Unknown Etiology: A Case Report

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ABSTRACT

A patient who visited the clinic complaining of tooth hypersensitivity reported various other symptoms during the interview, and an occlusal examination revealed that the patient's habitual occlusal position was slightly off from the muscular position. After adjusting the occlusal position to match the muscular position, the patient's headache, tinnitus, stiff shoulder and vertigo disappeared.

Keywords: habitual occlusal position, muscular position,

INTRODUCTION

Although it has been reported that when habitual occlusal position (HOP) and muscle position (MP) are not coincided, various symptoms (headaches, muscle pain, and ear symptoms) occur, the discrepancy between HOP and MP was relatively large in the reported cases [1-4]. However, in present case, it was clear that even a very slight discrepancy between HOP and MP can cause a variety of symptoms, highlighting once again the delicacy of dental occlusion.

CASE PRESENTATION

A 46-year-old woman presented with chief complaint of hypersensitivity of the left upper premolar and molar (Figure 1).



Figure 1: Upper and lower dental arches

Since wedge shaped defects were found on the maxillary second premolar and first molar, they were treated by applying medication. On questionnaire, she complained of a variety of symptoms (Figure 2); those were temporal headache, the left temporomandibular joint (TMJ) sound, bilateral shoulder stiffness, tinnitus and vertigo. Her medical history was unremarkable. Mouth opening was 42 mm and the opening path deviated laterally to the right. There was no

TMJ tenderness; however, tenderness of the left lateral pterygoid muscle and trapezius on both sides were observed.

Questionnaire

Name of patient

1. Do you have TMJ noise when you move your jaw? No Yes R L
2. Do you have TMJ pain when you move your jaw? No Yes R L
3. Do you have headache? No Yes Forehead R temporal L temporal Back head
4. Do you have neck and shoulder stiffness or pain? No Yes R L
5. Do you have tinnitus or earache, or vertigo? No Yes R L
6. Do you have difficulty in hearing? No Yes R L
7. Do you have pain of hip joint? No Yes R L8.
8. Do you have pain anywhere on your face? No Yes

Examination

1. Amount of opening 42 mm, Opening deviation No R L
2. Tenderness of TMJ No R L
3. Muscle tenderness No Yes
 - R. Masseter, Temporalis (anterior, middle, posterior), M. pterygoid
 - L. pterygoid, Sternocleidomastoid, Trapezius
 - L. Masseter, Temporalis (anterior, middle, posterior), M. pterygoid
 - L. pterygoid, Sternocleidomastoid, Trapezius
4. Deviation between HOP and BPOP

R

L
5. Premature contact

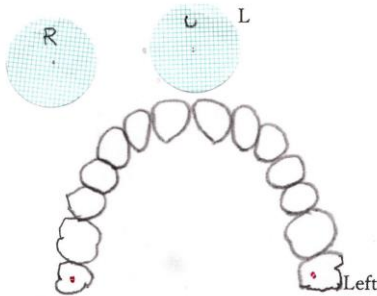

6. Intercondylar distance 12 cm
7. Condylar-incisal points 10 cm

Figure 2: Questionnaire

At the initial visit, a HOP record was obtained using a vinyl polysiloxane bite registration material (Exabite, GC, Tokyo, Japan), while the patient was seated upright with her voluntarily closed. Subsequently, upper and lower impressions were obtained, and the dental models were fabricated. A muscular position wax record was obtained using a registration wax material (Bite wafer, Kerr USA, Romulus, MI, U.S.A.), while the patient was seated upright with her gently closed. The models were mounted on an articulator using the muscular position wax record. After mounted the models, the wax record was removed, and the upper model moved downward until teeth contact. The premature occlusal contact was recorded (Figure 3), and the muscular position record was obtained using the same material as in the HOP. The condylar posts of the articulator were exchanged for the occlusal analyzing posts, and the HOP and MP were recorded at the condylar positions using the HOP and MP records (Figure 4).

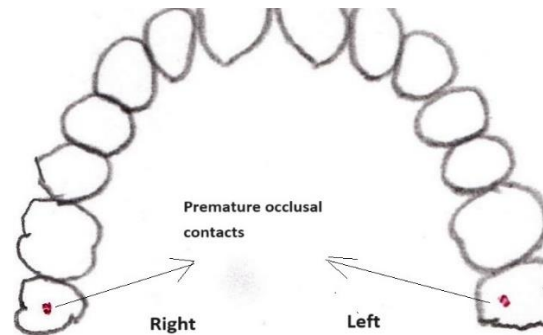


Figure 3: Recorded premature occlusal contacts

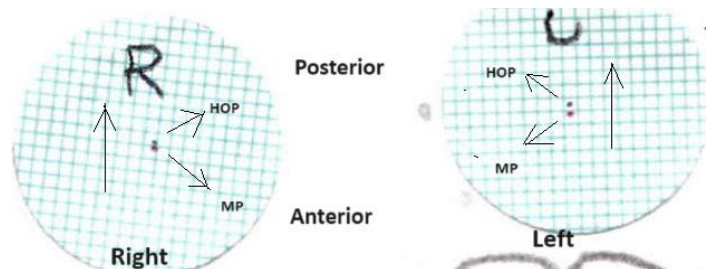


Figure 4: Recorded habitual occlusal position (HOP) and Muscular position (MP)

The premature contacts were removed on the upper model, and the same premature contacts were then removed in the patient's mouth. After removing the premature contacts, the impression of the upper jaw was taken, and the muscular position wax record was obtained in previously mentioned manner.



Figure 5: Split cast



Figure 6: Confirmation of bilateral occlusal contacts

The MP wax record was verified using split cast method (Figure 5). This procedure was repeated until both molars were in occlusion. Occlusal adjustments were completed four times, once a week (Figure 6). The TMJ noise, bilateral headache, bilateral stiff shoulder, tinnitus and vertigo were all disappeared. Tenderness of the left lateral pterygoid muscle and trapezius on both sides also disappeared.

DISCUSSION

Regarding TMJ sound, Torii described that premature occlusal contact interfered with teeth meeting together and the mandible moved back, forcing the disc anteriorly move. As a result, upon jaw opening, the condyle pushed, rode the disc, and then the disc moved back to its original position. During this time, the clicking sound occurred [1]. In the present case, when the mandible is brought into habitual occlusion, it is displaced posteriorly and both lateral pterygoid muscles are stretched. If this phenomenon is repeated every time one chews, the left lateral pterygoid muscle, which has a large difference between its muscle position and the habitual occlusal position, is stretched to a large extent, which is thought to result in myofascial pain. Torii described that the patient cannot feel the myofascial pain of the lateral pterygoid muscles; therefore, the patient's body emits the referred pain on the bilateral location of the head as an alert [2]. In this case, the patient's lower jaw moves backward every time she bites down, so he unconsciously has to hold her head in place. This puts more strain on the trapezius muscles on both sides, which is thought to have caused stiff shoulders. Regarding tinnitus, Torii described that tinnitus is thought to be caused by synchronous contraction of the tensor tympani and masticatory muscles (spasmodic synkinesis) [3]. In the present case, the difference between the habitual occlusal position and the muscle position was 1 mm on the left and 0.5 mm on the right, which is thought to result in a small rotational shift. Torii described that semi-rotatory shift, which is frequent, short, and cyclically repeated in mastication, would be recognized as the rotatory movement and causing nystagmus, which gives the patient an illusion of rotation that results in vertigo [4]

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References

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