DENTAL OCCLUSION AS A CAUSE OF FACIAL PAIN

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SUMMARY: The point is made that facial pain can sometimes be related to occlusal disharmony. Three condensed case histories have been presented. The relationship between facial pain and occlusal disharmony has been explained. A simple method for determining occlusal disharmony has been offered as an additional aid in the diagnosis of facial pain.

Just prior to World War II, an E.N.T. surgeon detailed a syndrome which he associated with the mandibular articulation (Costan 1937). The symptoms described were temporo mandibular joint pain, tenderness on pressure, clicking and grating in the joint, limitation of movement, aching in the vertex, occiput and behind the ears, burning sensation of the tongue, throat and side of the nose, and finally mild deafness and vertigo relieved by inflation of the eustachian tubes or by placing an object between the jaws. Even though many of its ideas were erroneous the paper stimulated an interest in occlusion and by the 1940s it had been demonstrated that the accurate diagnosis and treatment of occlusal disharmonies could relieve some forms of facial pain. Since then, through scientific research and the collection of clinical evidence, a logical sequence for diagnosis and successful treatment of occlusal disharmonies has been repeatedly demonstrated.

Occlusion is defined as “the relationship between the occlusal surfaces of the maxillary and mandibular teeth when they are in contact” (Glossary of Prostodontic Terms 1968). More accurately it might be described as the end product of the movements of the mandible and the resultant meeting of the teeth. When incompatibilities arise between these two components, the resultant condition is referred to as an occlusal disharmony. Other less accurate terms used for the conditions are mal-occlusion and traumatic occlusion. Traumatic tooth contacts are termed occlusal discrepancies.

Case histories

Case 1.

Female dental surgery assistant, aged 33 years, married. The patient presented describing severe headaches of six years duration, occurring at about three monthly intervals and lasting for 24 to 36 hours. The severity of the headaches was such as to produce a feeling of nausea. Attacks were immediately preceded by an aura. The patient declared that analgesics reduced the pain for up to two hours, but did not remove it completely. No medical opinion was sought though the patient consulted an optician, and was advised that she did not require glasses. During questioning the patient related her headaches to stress and declared that after a particularly trying day an attack could be expected. A full case history was compiled, dental examination carried out and a firm diagnosis of occlusal
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disharmony established. Since treatment, 18 months ago, the patient has had one minor attack.

Case 2.

Housewife, aged 29 years, married. The patient was referred for possible extraction of unerupted 3rd molar teeth, which were regarded as a possible cause of bilateral facial pain. Radiographs showed absence of third molars and indicated no pathology. There had been a four year history of frequent but irregular pain occurring predominantly on one side but only occasionally on the other. Sometimes however, the pain was bilateral. In the morning the patient awakened with pain in the facial, temporal, and aural regions. A full case history was compiled and a dental examination carried out. Occlusal disharmony was diagnosed and treated. No recurrence of symptoms has taken place since treatment 14 months ago.

Case 3.

Male Warrant Officer, aged 41 years, married. The patient described unilateral headaches associated with stress and extending over a period of many years. He was aware of nocturnal tooth grinding and clenching at time of stress. His jaws felt “stiff and tired” in the mornings and he had severe unilateral pain in the occipital area. Recently he had undergone a course of dental treatment, which exacerbated his symptoms and made him feel some teeth were loose. The patient was very sceptical about accepting that his long term symptoms could be dental in origin, and so was not a very willing patient. After taking a full case history and carrying out a dental examination, occlusal disharmony was diagnosed. No symptoms have recurred since treatment was completed eight months ago.

When a patient with suspected occlusal disharmony presents himself to the writers he is given a questionnaire, a copy of which is shown as Table I. This can form a valuable diagnostic aid.

Discussion

These three cases illustrate the vague symptoms associated with occlusal disharmony, and the condition should therefore be borne in mind whilst making a differential diagnosis of facial pain. It should also be remembered that an edentulous patient can suffer similar symptoms if the occlusion of the dentures is faulty.

Occlusion is the functional relationship between the opposing teeth. This relationship is dynamic and it therefore must involve ligaments and the muscles of mastication. During health these function harmoniously.

Dentists traditionally have regarded mastication as the primary oral function, but physiologists have shown that mastication plays only a secondary role to deglutition. Swallowing, may normally take place as often as 2000 times a day, and during the process the mandible moves in a distal and upward direction until the teeth contact. The precise direction of this movement is determined by the
origin and insertion of the masticatory muscles and becomes a learned response with an established neuro muscular pattern. Ideally maximum tooth contact (intercuspation) should be established when the condyle heads are lying in their most retruded positions within the glenoid fossae (Dawson 1973).

The neuro muscular pattern governing mandibular movement into occlusion is influenced by the position and shape of the teeth within the dental arches. Extractions, fillings, pathology, cusp fractures and orthodontic movement, can change the surface contours and positions of the teeth, and these changes may then alter the position of maximum intercuspation. If the new position is out of harmony with the established neuro muscular pattern, muscle spasm may result.

It is known that the upper and lower teeth are normally apart. Even during mastication they do not normally contact, but do so only during swallowing. A higher rate of muscle activity can accelerate swallowing from 2000 to 4000 times every 24 hours and the usual cause of this increase is stress. Consequently if a patient suffering from occlusal imbalance is under stress, acute spasm may result in any muscle of mastication or chronic spasm may be induced.

The lateral pterygoid muscle is most commonly affected as it assumes a protective role for the teeth. This role is forced upon it by the highly sensitive proprioceptive system within the periodontal ligament surrounding each tooth. These proprioceptors act, at the expense of the muscles, to protect the teeth from undue stress during intercuspation. Those parts of the tooth or teeth, causing the imbalance are referred to as occlusal interferences. The mandible is repositioned as a result of occlusal interferences thereby setting up a new muscular pattern which may result in muscle spasm, if the new pattern is beyond the individual’s adaptive capacity. When however the muscular stress produced is within the individual’s adaptive capacity no trouble may arise, but for many patients the problem of occlusal disharmony is persistent and painful.

Treatment of occlusal disharmony consists in accurately locating and removing the occlusal interferences by selective grinding. This permits the condyles to assume their natural retruded position without interference and allows the re-establishment of the correct neuro muscular pattern. Performed correctly, occlusal grinding often provides dramatic and almost instant relief, though a complete cure may require several visits over a period of weeks.

Diagnosis of occlusal disharmony is primarily based upon digital examination of the lateral pterygoid muscles. Tenderness indicates spasm and confirms the presence of occlusal disharmony. The muscle may be palpated by exerting pressure in the muco buccal fold, opposite the maxillary 3rd molar, in an upward and outward direction.

Patients suffering from occlusal disharmony can unfold a most bizarre list of symptoms, which may seem to bear little relationship to the type of pain one might expect from lateral pterygoid spasm. Common amongst these complaints are trismus, stiffness of the facial muscles (especially in the morning),
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pain in and around the ear, clicking, grating or popping in the temporo mandibular joint, and headaches in the supra orbital, temporal and occipital regions.

Table I
Questionnaire for patients with occlusal problems

It is possible for severe headaches, ear aches, radiating pains to the temples and neck, to be caused by the way our teeth meet. It is considered that your teeth may not be meeting correctly and that this could be the cause for your present symptoms.

You can help the dentist, to help you, if you will answer the questionnaire as accurately as possible.

Patients are asked to circle the appropriate answer

<table>
<thead>
<tr>
<th>Patients Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes No</td>
<td>Do both sides of your head hurt? If not which side?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do you have trouble opening your mouth?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do your jaw joints crack or pop—Sometimes?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do your jaw joints crack or pop—Often?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do you chew on one side of your mouth?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do you grind your teeth at night?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Are you particularly aware of your teeth?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Do your teeth feel loose?</td>
</tr>
<tr>
<td>Yes No</td>
<td>Have you had dental treatment recently? When?</td>
</tr>
</tbody>
</table>

REFERENCES

