NON-SURGICAL MANAGEMENT OF TEMPOROMANDIBULAR JOINT PAIN DYSFUNCTION: RETROSPECTIVE TREATMENT ANALYSIS

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ان هناك اختلاف بين الأطباء الأكلينيكين والباحثين ـ على أسباب آلام المفصل الفكي الصدغي، وعليه فإن طرق العلاج تختلف باختلاف الأسباب علما بأن كل طريقة علاج لها مايدعمها من البرهان العلمي.

من المعروف في هذا المرض أن هناك تغييرات تحصل داخل المفصل، وفي الأجزاء المكونة له، وهي بدورها تعطي علامات وأعراضاً معينة عند المريض.

وليس بالبعيد، فان هذا المرض كان يصيب الطبقة الغنية في المجتمع الغربي، والتي بمقدورها أن تدفع لعلاج إصلاح الأسنان والجراحة المتقدمة. أما اليوم فإن هنالك أعداداً أكبر تبحث عن العلاج لهذا المرض وهذا يقود إلى الاقتراح بأن سبب هذا المرض يشمل أسباباً نفسية وفسيولوجية مع ما يحدث من تغييرات في المفصل، وذلك كله يؤدي إلى أعراض تظهر على الوجه والفك.

وبغض النظر عن الأسباب وطرق العلاج المتعددة فإنه يمكننا تقسيم علاج هذا المرض إلى نوعين:

١ ـ علاج تحفظي (غير جراحي).

٢ ـ علاج جراحي.

ولقد قام الزملاء (الرحيمي ـ نوكو) بدراسة نتائج العلاج الجراحي، وهذه الدراسة تضمنت تقويم العلاج التحفظي الذي استخدم في كلية طب الأسنان.

تناولت هذه الدراسة حالات مرضية من المرضى الذين عولجوا في الكلية من حيث: التاريخ المرضي، العمر، الجنس، نوع الألم ومدته، ونوع العلاج ونتيجته، واختير لهذه الدراسة الحالات التي شخصت بآلام المفصل الفكي الصدغي، وعددها (١٨ حالة)، وكان العمر يتراوح ما بين ٢٣ ـ ٤٠ سنة، ١٦ من الإناث و٢ من الذكور.

شملت الأعراض في هذه الحالات: تصلب الفك، الضرز، الألم في منطقة الفك وهذه الأعراض كانت أشد عند الاستيقاظ صباحا. ولقد لاحظنا أن عدداً لا بأس به يشكون من الصداع النسبي، وكانت هذه الأعراض أكثر واوضح في المرضى بين ٣٠ ـ ٣٤ سنة، علما بأنه لاحظنا أن هنالك تغيراً بسيطاً أو لا يوجد تغير إطلاقاً في التركيب المفصلي خلال دراسة صور الأشعة التي أخذت للمفصل (مفتوح ومغلق) بالتصوير المقطعي. وفي بعض الحالات بالتصوير الطليل عندما أردنا التأكد من وجود انزلاق في غضروف المفصل أو تمزق فيه. ولقد شخصت بعض الحالات بانزلاق الغضروف أو تمزقه وهذه طبعاً استبعدت من هذه الدراسة.

العـلاج:

لقد وضعت خطة العلاج بعد أخذ تاريخ المرض والكشف الإكلينيكي مع ملاحظة بداية المرض، ومكانه، والفرقعة، وانحراف الفك السفلي عند الفتح، وتطابق الأسنان. سبعة من المرضى الذين هم أكثر من ١٢ شهرا وعندهم عضة مغلقة وأبدوا أعراضاً شديدة عولجوا بواسطة جهاز رفع عضة لمدة شهرين بعد حقن الكورتيزون في المفصل. وعندما خفت الأعراض أحيلوا إلى أخصائي تقويم الأسنان للعلاج اللازم، استعملنا (مادة الدرول ٤٠ مجم/١ مل) للحقن بعد إعطاء التخدير الموضعي، ويجب ملاحظة أن الحقن الصحيح في المفصل يعطي نتائج أفضل. للمرضى الذين ذهبوا إلى بيوتهم دون أي أدوية أو تعليمات وراجعوا العيادة بعد أسبوع. في بعض الحالات يشتكي المريض من زيادة الألم بعد الحقن في اليومين التاليين، وبعد ذلك يختفي الألم من المفصل تدريجياً. وفي بعض الحالات التي أبدت تحسناً معتدلاً (بعد أسبوع) أو أن هنالك شكًا بأن الحقن لم يكن في المكان الصحيح، أعطينا المريض حقنة أخرى بعد أسبوع.

وفي (١٠) حالات من الـ (١٨) حالة، أعطينا جرعة واحدة فقط، وفي ٦ حالات أعطينا جرعتين. فترة المتابعة امتدت من ٦ ـ ٢٦ شهراً، (١٣) مريضاً أشاروا إلى أن الأعراض اختفت كليا، (٣) شعروا بتحسن معتدل، وفي حالتين لم يظهر أي تحسن.

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Eighteen cases of temporomandibular joint pain dysfunction were treated non-surgically in the College of Dentistry, Riyadh, with intra-articular injection of methyl prednisolone in a 3-year period. Sixteen of them were completely free of symptoms or had their symptoms improved. Proper selection of cases and excellent mastery of the technique of intra-articular injection are necessary to ensure success of this treatment modality.

Introduction

There is a wide disparity of opinion among clinicians and researchers concerning the probable etiology of the common dysfunctions of the temporomandibular joint. Therefore, there is no agreement on the treatment of this disorder. The discussion of the treatment of a disease presupposes that diagnosis and etiology have been properly determined. This does not appear to be the case in temporomandibular joint pain dysfunction syndrome. Treatment modalities are numerous and theories for the syndrome are varied. Many of these treatment modalities are supported by convincing scientific evidence. However, treatment is merely empirical and, in some cases, without sound scientific basis.[1]

In compliance with the diversity in theories of the causes of this disorder, many names have been suggested, such as mandibular pain dysfunction syndrome (MDS), temporomandibular joint pain dysfunction (TMJPD) syndrome, and myofacial pain dysfunction (MPD) syndrome. All of these names suggest essentially one syndrome, that is a *functional* disorder of the masticatory system. The internal derangement of the temporomandibular joint has been recognized as a distinct entity since its signs and symptoms are classical. It includes meniscal tears, perforations and secondary degenerative changes of the condylar articular surface.[2]

Not too long ago, the *syndrome was a* disease found mainly among few high social classes who could afford the luxury of complex occlusal restorations or advanced surgery on the jaws.[3] But today there is an increasing number of patients seeking relief from this ailment. Generally speaking, various scientific evidence today suggest that temporomandibular joint pain dysfunction is caused by various physiological and psychological factors and reactions which are focused in the face and jaws.[3-12]

Consequently, treatment modalities were patterned according to the suspected etiofogic factor.[13] Irrespective of the type of treatment, management of TMJ dysfunction syndrome falls into two broad categories. One is the non-surgical or conservative treatment, and the other is the surgical intervention which includes condylectomy or condylotomy, osteoarthroplasty, meniscectomy, with or without disc replacement, and discplication. On the other hand, the non-surgical treatments include use of occlusal bite planes, muscle relaxants, analgesics, physiotherapy, short-wave diathermy and intra-articular injections of local anesthetics and corticosteriods.[11,14,15]

Our experience in the surgical management of painful TMj dysfunction has been reported by Al-Ruhaimi and Nwoku. [16]The purpose of this paper is to evaluate the outcome of the cases of TMJ pain dysfunction treated non-surgically in the Oral and Maxillofacial Division of the College of Dentistry, King Saud University, Riyadh from **1**989 to 1991.

Materials and Methods

Eighteen cases of diagnosed temporomandibular joint pain dysfunction patients treated conservatively in the Oral and Maxillofacial Surgery Clinic of the College of Dentistry, King Saud University in Riyadh were retrospectively evaluated for history, age, sex, type of treatment, duration, and outcome of the treatment. Only those cases which were diagnosed as TMJPD were included. The youngest patient was 23 years old and the oldest was 40 with a mean age of 32.5 years. The sample included 16 females and 2 males.

Evaluation of the most common complaints showed that joint stiffness, locking and pain in the temporomandibular joint area were commonly reported. Patients also claimed that these symptoms were *more* serious in the morning. Tension headache was also reported by 8 of the patients. Table 1 shows the distribution of the most common symptoms reported. Three purported signs of TMJ dysfunction were limited jaw opening,

deviated jaw opening, and joint sounds.[17] In addition, we found tension headache as a common complaint in our series. When these complaints were analyzed according to age, it was found that the symptoms were very common in the age-group 30-34 years [Fig. I]. Little, or no abnormality, was seen in TMJ radiographs. In our College, the first line of investigative radiographs were the TMJ views - open and closed, in addition to tomograms. Little, or no abnormality, was seen in these radiographs. In cases where disc displacement or damage was suspected, arthrograms were done. In four cases, derangement of the disc was diagnosed, and in three others disc perforations were detected. However, these cases do not fall under the scope of this paper. Magnetic resonance imaging (MRI) or computerized axial tomography (CAT) was not readily available in the College, and had, therefore, not been utilized. It must be emphasized that careful patient assessment and clinical experience are invaluable tools in the diagnosis of TMJ disorders. We agree with Smith and Markus[2] that these modalities, although very accurate, are invasive procedures, and often uncomfortable which require specialist's training and facilities. Also, Solberg[18]

Table 1. Distribution of the common symptoms according to intensity.

Symptoms	Number	Percentage
TMJ sounds (clicking, crepitation)	18	100
Tenderness, TMJ regions	18	100
Difficulty in opening mouth widely	16	88.9
Tension headache	8	44.4

Table 2. Distribution of occlusal disharmony.

Occlusion	No. of patients (N = 18)	% Age
Deep bite	7	38.9
Missing teeth	9	50
Restorations	18	100
Bruxism	10	55.6

Table 3. Symptomatology as critera for treatment outcome.

Symptoms	No. (N = 18)	Percentage
Improved	13	72.2
Slightly improved	3	16.7
Unimproved	2	11.1
Worse condition	0	0

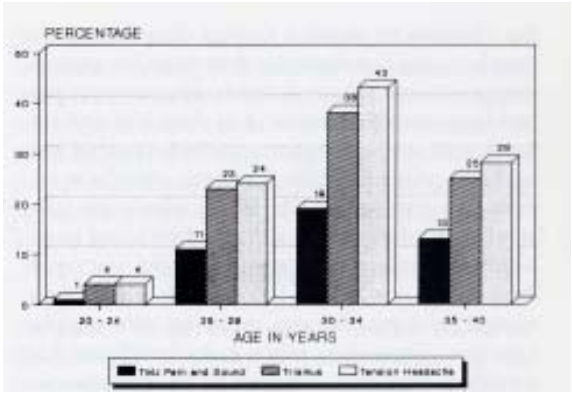

Figure 1. Age distribution of TMJ pain, trismus and headache

stresses that "radiographs of the TMJ should be considered mostly for cases where the cause of pain and dysfunction cannot be understood, or where conservative short-term care does not alleviate the symptoms". The records of the patients' occlusion showed that while only 7 patients had deep bite, all 18 had restorations of either amalgam, crown or bridges. Nine had missing teeth, mostly first molar teeth, and 10 showed evidence of bruxism. It should be noted here that in some cases, one patient fell into more than one of the aforementioned groups (Table 3).

Treatment

A treatment plan was formulated after complete history and examination. The history stated in the patients own words was often found very revealing as it included the first appearance of pain, its location and clicking. In older patients, a relevant record of extended medical history of rheumatic joint pain was noted.

Observation of possible jaw deviation during mouth opening and palpation at the joint assessed the degree of pain and quality of joint noises, and their relationship to jaw opening.

Auscultation with stethoscope often confirmed the palpatory findings. Joint noises were classified as occurring early during opening as initial clicking, or late as terminal clicking. In some cases there was crepitation which was different from clicking. Finally, the occlusion, as recorded previously, (Table 2) was noted. It must be emphasized here that this phase of patient assessment is a very important aspect in the treatment, since it enabled

the clinician to make a correct diagnosis of the problem, and consequently determine the appropriate treatment. Those patients whose symptoms had been over 12 months, had deep bite and suffered more severe symptoms and were treated with occlusal splints in addition to intraarticular injections of corticosteroid. The splints were made from acrylic over the occlusal surface of the lower teeth, which the patient wore day and night, but could remove for cleaning. Seven such cases were treated for *2* months after receiving intra-articular injection. Thereafter, when pain symptoms had subsided, they were referred to the orthodontics clinic for occlusal rehabilitation.

Intra-articular Injection Technique

According to Toller[14] the average volume of the lower joint cavity is 0.9 ml and that of the upper joint cavity is 1.4 ml. In all our cases we utilized methylprednisolone* 40 mg in 1 ml aqueous solution for both joints.

Under aseptic conditions, the skin surface in the parotid area was first cleaned with alcohol swab and the patient was asked to open his mouth as wide as he could. With the mouth open, it is easy to palpate the depression pre-auricularly when the condylar head glides forward leaving the glenoid fossa empty. Since Depot Medrol® is very painful, local anesthetic is introduced followed by 0.5 ml of the medication in each joint cavity. The injection must be truly intra-articular since success of treatment depends highly on the proper technique, and a small error may allow the fluid to pass outside the joint cavity. If, for instance, the patient complains of the taste of the drug, this is an indication that the injection was out of the joint cavity and had dispersed via the surrounding vascular plexus to the tongue. It must be noted that a poor medication technique will result in an unacceptably low success rate. Patients were sent home without any further medications or restrictions and were examined after one week.

Results

After an intra-articular injection of Depot Medrol®, patients often complained of increased pain in the next day or two, followed by a gradual disappearance of the TMJ pain. In cases where moderate improvement only occurred or when it was felt that the first injection was misplaced, a second injection was given after one week. In 10 out of 18 cases, only one dose of injection sufficed. Six patients received a second intra-articular injection before significant improvement was reported. No patient of the sample received more than three injections. The average follow-up period was 12 months, ranging from 6 to 26 months. Thirteen of the patients had complete resolution of the signs and symptoms. Three patients improved moderately. There were only two cases that did not show any improvement. None of the cases got worse, and there were no complications (Table 3).

Discussion and Conclusion

In our clinical practice, the most common complaints for which patients sought treatment were pain and clicking in the temporomandibular joint, limitation of mouth opening, locking, and headache. Diagnosis was most frequently made based on clinical findings, patient evaluation, radiographs in open and closed views, and TMJ tomographs where arthritic changes were suspected. We agree with Landa[19] that diagnostic radiology was being used either too much, or its interpretation was too wide in the diagnosis of TMJ pain dysfunction. In this disorder, there may have been no radiological evidence for the pain or clicking, and therefore radiography has a somewhat limited value in the diagnosis and treatment planning of TMJPD. However, if there is degenerative joint disease, disc displacement or perforation, newer modalities in radiographic technique, such as arthrography and arthroscopy, can prove to be of excellent value. However, it must be recognized that these are invasive diagnostic procedures and are sometimes not without complications.[2] Accordingly, these radiographic investigations should be undertaken when conservative treatment has failed and surgical intervention is contemplated.

In the past 40-50 years, emphasis has shifted from symptomatic treatment which is based on a purely mechanical concept to a more physiological approach. In those early years, ethyl chloride spray and intramuscular injections of local analgesic were utilized, or tranquilizers were prescribed.

* Depot Medrol®, Upjohns

In synovial fluid of patients with TMJ dysfunction, chronic inflammatory condition is often present and oxygenated metabolites of the arachidonic acid, such as prostaglandin E2 and leukotriene B4, have been found.[18,20]

It is known that corticosteroids have an anti-inflammatory activity. With intra- articular injection of corticosteroid, Poswello in 1970 achieved 91 % success in patients over 40 years of age, but the result of his treatment in younger patients under 25 years of age was reportedly generally poor.[15] He, therefore, recommended that intra-articular injection of cortico-steroid should be limited to patients over 35 years of age.

In the sample of patients in this report, recovery or improvement was reported by 16 of the patients after several months and up to 26 months from the administration of this conservative treatment. This number represents 88.9% success rate. Brooke et al[21] also found that 81% of their patients were either free of symptoms or greatly improved 16 to 44 months after the first treatment.

As Rugh and Solberg[22] pointed out, it is important to recognize that not all patients with TMJ disorder wili respond to this treatment. In fact, some patients continue their sick role even beyond the point where the original stimulus ceases. In this regard, it is important that the dentist recognizes this fact in his role in the management of TM) disorders.

Results of many studies focussed on reductions in pain, and little attention had been paid to other characteristic features of dysfunction such as clicking, and difficulty in opening the mouth. In the sample of patients in this report, these parameters were considered in assessing success, however. In one female patient the restriction of joint movement was so severe that the mouth opening was limited to an interincisal distance of only 8 mm. After one dose of intra-articular injection of methyl-prednisolone in both joints, the patient regained normal mouth opening of 42 mm by the next visit which was only one week later. The pain had aiso disappeared.

As it is well known, there is a psychological component in the causation of TMJ dysfunction syndrome.[3,22-24] Therefore, a patient with TMJ pain dysfunction should be counselled and in patients suffering from depression, a psychiatrist opinion is sought. The awareness of factors that influence pain dysfunction, such as bruxism, clenching and too wide yawning, may help the non-surgical treatment modalities that are employed. Cases that do not respond to the use of intra-articular injection of corticosteroid and show radiological evidence of joint pathology should be considered for surgery as further injections may do more harm than good.

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