HYPNOTHERAPY IN THE TREATMENT OF THE CHRONIC NOCTURNAL USE OF A DENTAL SPLINT PRESCRIBED FOR BRUXISM

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Abstract: A behavioral medicine case is described in which the patient was treated with a combined approach involving both hypnoanalytic and hypnobehavioral techniques. A 55-year-old man with bruxism was referred after 10 years of craniomandibular treatment because of his dependency on a dental splint prescribed for nocturnal use. A projective hypnoanalytic exploration helped to uncover and consequently resolve an earlier conflict that had been reactivated in the patient’s work situation and which had become a constant source of mental and muscular tension. The hypnoanalytic exploration was followed by a cognitive-behavioral hypnotic intervention that was tape-recorded and prescribed for bedtime practice. Pre- and posttherapy psychological, physiological, and self-report measurements corroborated the patient’s sense of well being that came with his newly found ability to sleep without the dental splint. The importance of considering multiple etiological factors in the treatment of such somatopsychic disorders as bruxism is discussed.

Bruxism is considered to be a component of the syndrome known as temporomandibular joint (TMJ) dysfunction (Ramsfjord, 1961). Stressful grinding of the teeth is frequently associated with pain that varies from slight morning discomfort of musculature to intense soreness of teeth and severe pain of the TMJ and the muscles of the face (Rugh & Solberg, 1985).

The chronic clenching of jaws and grinding of teeth can cause not only abrasion and fracture but also chronic dislocations of the mandible (Solberg, Flint, & Brantner, 1972). The muscle tension associated with bruxism is related to headaches; earaches; tenderness of masticatory muscles; and painful spasms in such muscular tissues as the mastoid, tempora- ralis, and frontalis. One of the common methods used in craniomandibular dentistry in order to give the overworked muscles an opportunity to rest and heal is the dental splint (Greene & Laskin, 1972). The splint prevents the teeth from over-closing and thus does not allow the muscles to over- work. The raised bite takes the pressure from the TMJ and prevents harm to internal TMJ structures. It also protects the teeth from further grating.

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and grinding damage. Patients are usually instructed to wear the appliance between 8 to 12 weeks. Most patients do not require reconstructive treatment other than minor coronoplasty: a procedure of reshaping the contours of the teeth so that the bite is in harmony with the adjusted muscular position.

Splint therapy and nocturnal biofeedback have been reported to decrease bruxism behavior (Beemsterboer, Clark, & Rugh, 1978; Kardachi, Bailey, & Ash, 1978; Kardachi & Clarke, 1977; Rugh & Johnson, 1981; Rugh & Solberg, 1975). One major problem facing both clinicians and bruxers is associated with symptom relapse. When biofeedback or splint treatment are withdrawn, bruxism tends to return to the baseline level (Pierce & Gale, 1988; Rugh & Solberg, 1975). One possible reason for this may be related to the psychological aspects of the disorder.

The relationship between personality or emotional states and bruxism has been previously documented (Graf, 1969; Gross & Vacchiano, 1973; Schwartz, 1974, Solberg et al., 1972; Rugh, 1983). Theorists from the psychoanalytic tradition hypothesized that bruxism is an unconscious manifestation of repressed oral aggression (Fond, 1968; Shapiro & Shannon, 1965; Walsh, 1965) and that bruxers tend to be oral-receptive and oral-aggressive individuals who attempt to gratify oral pleasures denied in their early childhood (Frohman, 1931, 1932). More modern approaches have provided both correlational (Rugh & Solberg, 1975) and experimental (Mercuri, Olson, & Laskin, 1979) evidence to support the assumption that at least a significant number of bruxers are under stress (Giaros & Rao, 1977).

Stress reduction treatments seem to constitute a promising approach to the psychological treatment of the disorder (Casas, Beemsterboer, & Clark, 1982). Clinicians who treat chronic bruxism patients, however, face a two-fold challenge. They need to (a) help the patient identify and resolve the conflict that could be fueling the muscle tension, and (b) help the patient reestablish a subconscious control mechanism to regulate and decrease TM muscle activity, not only during the day but also while asleep.

The following case history describes a treatment-dependent chronic bruxism patient and a suggested therapeutic approach involving both hypnopaeanalytic and hypnoubehavioral techniques. These were designed to help the patient uncover the ongoing source of stress as well as to help him gain greater self-efficacy in controlling his bruxism.

**Case Report**

**History**

The patient was a 55-year-old man, originally diagnosed in 1978 as suffering from bruxism with both diurnal and nocturnal activity, severe mandibular hypomobility with muscle splinting, and chronic masseter^3^.

^2^A protective reflex producing increased muscle tone.

^3^Jaw muscle.
and temporalis pain peaking twice daily: upon awakening and around midday. Damage involved abnormal wear of all but his incisors. No anatomical cause for bruxism could be identified. The patient did not exhibit intracapsular TMJ pathology. Except for all of his third molars, he had no teeth missing, was not suffering from oral infections, and was not taking any prescription medication.

A dental splint was prescribed for nocturnal use by his dentist, a craniomandibular specialist. At that time, the patient had been instructed to routinely place his tongue between his posterior teeth (Neilburger, 1971) and to use self-talk reminders to keep his teeth apart (Secter, 1971). The treatment resulted in significant improvements in his mandibular hypomobility. The patient became aware of his daytime bruxing and reported a significant decline in this behavior. The mouthpiece prevented further dental damage, but the patient continued to complain of masseter soreness and of an inability to sleep without the splint. The patient also felt he needed to return home from working during lunchtime (he lived and worked in a small rural community) for an hour of rest with the mouthpiece installed. He tended to develop severe headaches whenever he skipped this self-induced midday therapy hour. Continued nocturnal masseter hyperactivity was evident from the constant damage caused to his mouthpiece. Damage was so serious that the appliance had to be periodically replaced.

After 10 years of craniomandibular care, the patient was referred to the present author for evaluation and possible treatment. The intake interview revealed further relevant information. The patient, a skilled carpenter, immigrated to Israel in 1960 from South America and settled in a Kibbutz (a communal settlement) with his family. He first noticed his TMJ disorder symptoms shortly after his arrival in Israel. In the Kibbutz he joined the carpentry shop and was nominated manager in 1975. The patient, a soft-spoken, thin, small-framed man reported having had significant assertion difficulties since that time. Most of his non-working hours were dedicated to the care of his wife, a hemiplegic stroke victim since 1977. He first sought treatment for facial pain, headaches, and insomnia a few months after his wife’s stroke.

Supplementary Evaluation Procedure

The patient was given pre- and posttherapy psychological and physiological tests, and self-report evaluations. These tests included:

1. The Hebrew version (Montag, 1977, Tel Aviv-MMPI) of the Minnesota Multiphasic Personality Inventory (MMPI) of W. G. Dahlstrom, Welsh, and L. E. Dahlstrom (1972). This standardized self-report scale provides information concerning relatively stable personality characteristics.

2. The electromyographic (EMG) biofeedback measurements (Model M-52, J&J Enterprises, Poulsbo, WA). The patient was instructed to sit
back, relax, and think pleasant thoughts after EMG-BF electrodes had been taped to the skin over the masseter muscle. Two consecutive 10-minute measurements were taken. Ten-minute EMG averages as computed by the biofeedback equipment were noted.

3. The level of facial muscle discomfort was also assessed by means of an 11-point (0 = no discomfort; 10 = highest discomfort possible) Subjective Units of Disturbance scale (SUD) of Wolpe (1982). The SUD had shown positive correlations with objective physiological indicators of stress (Thier, Papsdorf, Davis, & Vallecorsa, 1984). The patient was asked to note his SUD four times daily — upon awakening, at 1:00 P.M., at 6:00 P.M., and before bedtime. These measures were taken for 7 consecutive days.

Treatment

During the first session, patient reported that most of his daytime teeth clenching occurred during the mornings. He further indicated that his discomfort could only be alleviated through a midday nap with the splint in place. His pretherapy SUD levels suggested possible time contingencies between signs of discomfort and the carpenters' staff meeting. Upon further exploration of this difficulty, the patient stated that the very notion of management goes against his socialist egalitarian beliefs and that the carpentry shop should have been run by consensus. All subsequent attempts to clarify this difficulty generated more intellectualizations.

The third and fourth sessions were dedicated to the exploration of his childhood experiences, particularly those related to his now deceased father. The patient was observed clenching his jaws as he reflected on his early fears of his critical and demanding father. It was his father who originally taught him the art of carpentry.

Further uncovering continued on the following session. After a brief explanation of hypnosis was given, an eye fixation and body relaxation induction (Kroger, 1977) were successfully performed. Trance was deepened with an escalator technique. The theater hypnoprojective technique (Brown & Fromm, 1986) was then utilized. In the projected scene, the patient saw a small child taming wild animals in a caged circus arena as the adult coach was watching from outside the cage. The child appeared to the patient to be frightened. As the scene came to a close, the patient expressed his wish to come out of hypnosis.

After awakening he shared some relevant recollections. The patient remembered how since age 10 his father used to put him in charge of five adult employees of the family carpentry business. This practice was repeated during every summer vacation. The patient remembered feeling tense and embarrassed as he complied with his father's expectations that he "be a man" and help to protect the family business interests by supervising "those untrustworthy hired hands." The patient recognized how
his political views were shaped by these experiences and indicated he wished no longer to fulfill the role designated to him by his father. In a subsequent session, the patient reported having asked the kibbutz secretariat for a managerial rotation (a common practice in many kibbutz plants).

In the next session the patient reported that indeed another fellow carpenter had replaced him and that he had experienced a significant decrease in his morning bruxism discomfort. He indicated that he was still afraid to sleep without the splint. Any attempt to do so resulted not only in severe sleep disturbances but also in morning headaches.

In the seventh session, cognitive-behavioral hypnosis was conducted. The patient was given suggestions that his mouth would be much more relaxed during sleep and that he would awaken should he attempt to grind down on his teeth (Crasilneck & Hall, 1975). It also was suggested that any time you do wake up from your night sleep, you will know you are getting better since you just avoided bruxing. You then will be able to thank your subconscious mind for helping you relax your jaw and go right back to sleep with a sense of hope and optimistic curiosity with regard to the next sign of recovery.

This hypnotic session lasted about 20 minutes and was tape-recorded in its entirety. The patient was asked to play this tape every night before bedtime. After consultation with his dentist, the patient was also encouraged to avoid wearing the splint as much as he possibly could. He was instructed to call his dentist or the present author if any serious difficulties arose.

In the subsequent session, the patient reported his mood had improved and that he had been sleeping without the splint 5 out of the last 7 nights. He added he frequently awakened during the night and that he felt quite fatigued on the following day. The patient's gains were reinforced. His insomnia and diurnal fatigue were interpreted as encouraging signs of recovery, and he was instructed to continue with his bedtime audiotaped hypnosis.

The next two sessions were dedicated to teaching the patient early identification of tension build-up in the masseter muscle, and its counter-action with a brief open-eyed relaxation technique. Session 12 was the final one. The patient reported feeling well, having good uninterrupted sleep, much less pain, no need for the splint, and no need for the daily lunch rest.

At a follow-up visit 1 month later, the patient reported that he still maintained his accomplishments. At this point, posttherapy evaluations were administered.

**Evaluation Results**

The Tel-Aviv MMPI scores indicated an overall decline of distress. The patient's pretherapy profile was 2'071', compared to 20' posttherapy (see
TABLE 1
Pre- and Posttherapy Standardized Tel-Aviv MMPI Scores

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Pretherapy: 50 60 53 70 69 58 73 61 45 73
Posttherapy: 50 55 64 64 58 64 58 55 50 70

TABLE 2
Pre- and Posttherapy Mean EMG-Measured Masseter Activity (in Microvolts)

<table>
<thead>
<tr>
<th></th>
<th>First Reading</th>
<th>Second Reading</th>
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<tr>
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<td>47</td>
<td>41</td>
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<td>Posttherapy</td>
<td>21</td>
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TABLE 3
Pre- and Posttherapy Subjective Units of Disturbance

<table>
<thead>
<tr>
<th></th>
<th>Awakening</th>
<th>1:00 P.M.</th>
<th>6:00 P.M.</th>
<th>Bedtime</th>
<th>Total</th>
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<td>X S.D.</td>
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<td>Pretherapy (1 week)</td>
<td>6.14 1.72</td>
<td>4.57 1.68</td>
<td>3.71 1.75</td>
<td>3.43 .73</td>
<td>4.96 1.86</td>
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<td>Posttherapy (1 week)</td>
<td>2.29 .45</td>
<td>2.0 0</td>
<td>3.0 0</td>
<td>3.71 .70</td>
<td>2.75 .78</td>
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<td>4.82***</td>
<td>3.76**</td>
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<td>27</td>
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*Paired t tests were used to evaluate pre- and posttherapy SUD changes.

Table 1). Basic personality characteristics remained similar in quality. After therapy, the patient remained a rather dysphoric and shy individual. Noticeable changes can be identified, however, in scales 2, 7, and 1, reflecting possibly less pessimistic worrying, better mood, less anxiety, and less concern about his body.

Tables 2 and 3 reflect EMG-measured decline in masseter activity and a corresponding significant decrease in SUD levels. Decrease in SUD levels was particularly evident for the awakening and 1:00 P.M. readings, where the original disturbance was the greatest. The evaluation results suggest a main effect for the pretreatment and posttreatment dimension in this single-case study.

The patient was contacted again by telephone, 3, 6, and 12 months after termination and reported sleeping well without the splint and no other significant discomfort. A medical examination after 6 months revealed significant improvements in mandibular mobility but identified
some bilateral masseter palpation pain. This finding may probably be related to the still somewhat elevated posttherapy EMG readings.

**Discussion**

The pretreatment psychological evaluation of the presented case revealed considerable emotional distress that could only partially be explained by the TMJ disorder. Record keeping of pretreatment SUD levels uncovered a specific situational stressor that later enabled the patient to resolve an early unconscious identity conflict. Bruxism, it is suggested, should not be conceptualized solely as a generalized or an environmentally specific stress. Although teaching the patient to relax can often be an essential component of a successful treatment for bruxism, the patient's stress sometimes is fueled by underlying emotional problems (Nadler, 1973). When such unconscious processes are suspected to exist, exploratory hypnoprojective techniques can be of immense value.

Another contribution to the resolution of the present case offered through hypnosis relates to bruxism behavior occurring during sleep (nocturnal bruxism). Assuming the conscious mind is not awake during sleep, significant relearning needs to address the subconscious mind. Cognitive-behavioral hypnosis can be a natural adjunct treatment of choice. The temporal proximity of the hypnosis procedure to the onset of sleep probably further enhanced this patient's speed of recovery.

Both nocturnal biofeedback and maxillary occlusal splint therapy have been demonstrated to decrease severity of bruxing activity from pre- to posttreatment times. The problem facing clinicians has been related to lack of a long-term treatment effect and the return of bruxing behavior to baseline levels soon after treatment (Pierce & Gale, 1988; Rugh & Solberg, 1975). It is suggested, that this troubling phenomenon may represent a diagnostic conceptualization in exclusive dental terms. The dental approaches to the treatment of bruxism derive from an etiological perspective that is primarily mechanical. Scandrett and Ervin (1973), for example, have suggested that a feedback mechanism exists between the central nervous system and the proprioceptors of the mandible and that a dental splint may interrupt the feedback loop that has been hypothesized to maintain the problem. Another example of an exclusively dental conceptualization is represented in Pierce and Gale's (1988) hypothesis that it was the brevity of their 2-week interventions that did not permit a lasting learning process to take place. This argument is not very helpful in explaining the 10-year treatment dependency experienced by the patient described in this paper. Obviously, relevant psychological aspects of this patient's disorder had been overlooked.

The present paper underscores the ethical and professional necessity for routine psychological assessment of every TMJ patient. It is believed that such a procedure could help decrease both TMJ chronicity and
treatment dependency. Such practice would be in accordance with previous findings which suggest that at least a significant number of bruxists are under stress, either from intrapersonal psychological sources or from situational sources (Glaros & Rao, 1977). Bruxism is a psychosomatic disorder. Therefore, in order to produce maximally effective treatments, psychologists and dentists must work cooperatively to avail their clients of both forms of etiological inquiry and derivate treatments.

REFERENCES


**Hypnotherapie in der Behandlung des chronischen Nachtgebrauchs von einer für Bruxismus verschriebenen Zahnspange**

Eli Somer


L'hypnotherapie dans le traitement de l'utilisation chronique d'un protège-dents nocturne prescrit pour grincement de dents

Eli Somer

Résumé: Un cas de médecine behaviorale est décrit dans lequel le patient a été traité selon une combinaison de techniques hypno-analytique et hypnoti-béhaviorale. Après 10 ans de traitement craniomandibulaire pour de graves problèmes de grincement de dents, un homme de 55 ans a été référé pour un problème de dépendance à un protège-dents
nocturne. Une exploration hypno-analytique a été utile pour découvrir et résoudre un conflit antérieur qui avait été réactivé dans le milieu de travail actuel du patient et qui était source de tension mentale et musculaire. L'exploration hypno-analytique a été suivie d'une intervention hypnotique cognitive-behaviorale qui a été enregistrée pour fins de pratique, avant le sommeil. Des évaluations psychologiques, physiologiques, ainsi que des rapports d'auto-évaluation pré- et post-traitement ont corrobéré le sentiment de bien-être du patient, suite à l'élimination de l'utilisation du protège-dents pour dormir. L'importance de considérer plusieurs facteurs étiologiques dans le traitement de désordres psychosomatiques tels que le grincement de dents est discuté.

Hipnoterapia en la utilizacion cronica nocturna de un splint dental indicado para el bruxismo

Eli Somer

Resumen: Se describe un caso de medicina conductual en el cual el paciente fue tratado con un enfoque que combinó técnicas hipnoanalíticas e hipnoconductuales. Se trataba de un hombre de 55 años que padecía de bruxismo y que había generado una dependencia a un splint dental para uso nocturno prescrito en un tratamiento craneocondíbular desde hacía 10 años. Una exploración proyectiva hipnoanalítica ayudó a descubrir y a resolver un conflicto temprano reactivado en la actividad laboral del paciente y que se transformó en una fuente constante de tensión mental y muscular. La exploración hipnoanalítica fue seguida por una intervención hipnótica cognitiva que se grabó con la indicación de ser practicada al irse a acostar. Las mediciones anteriores y posteriores a las terapias psicológicas y fisiológica, así como las autoevaluaciones, corroboraron la sensación de bienestar del paciente, consecutivas a esta nueva capacidad de dormir sin el splint dental. Se discute la importancia de tomar en consideración la etiología múltiple en el tratamiento de un desorden psicosomático como es el bruxismo.