

# Long-term prognosis for the clicking jaw

R.I. Brooke, B.Ch.D.,

L.D.S. Leeds, M.R.C.S. (Eng), L.R.C.P. London, F.D.S.R.C.S. (Eng), F.R.C.D.(C),\*

and R.M. Grainger, D.D.S., Dip.D.P.H., M.Sc.D. Toronto, F.R.C.D.(C),\*\*  
London, Ontario, Canada

THE UNIVERSITY OF WESTERN ONTARIO

Ninety-four patients who complained of clicking of the temporomandibular joint not associated with pain were followed up for varying lengths of time. Analysis of the follow-up indicates that approximately 70% of the patients who have a painless, clicking temporomandibular joint will eventually have pain and that the use of a nonrepositioning occlusal splint does not lessen the likelihood of pain ensuing.

(ORAL SURG ORAL MED ORAL PATHOL 1988;65:668-70)

Theories about the cause of temporomandibular joint dysfunction have come and gone for almost 150 years. Eversole and Machado,<sup>1</sup> in their excellent review article, point out that Cooper<sup>2</sup> and Annadale<sup>3</sup> were describing cases of painful, clicking jaws in the early part of the 19th century. They were using such terms as *internal derangement* and *subluxation* of the temporomandibular joint. The problem was thought by them to be due to anterior displacement of the disk.

Since Costen's article<sup>4</sup> in 1934, theories of etiology have, in turn, emphasized occlusal problems, muscular dysfunction, and psychological disorders. It was not until the late 1970s that the concept of internal derangement was again brought forward as a possible etiologic factor in this condition. Some recent workers have attempted to distinguish between internal derangements and myofascial pain dysfunction, the latter condition being described as a muscular problem, not associated with joint derangement. However, many clinicians include clicking in the symptom complex of myofascial pain dysfunction. Lundh and coworkers<sup>5</sup> followed the course of 70 patients with reciprocal clicking for 3 years and found that those with the most initial pain had a significantly higher chance for the development of locking. Thus, there appears to be an overlap of symptoms in the two conditions, and some feel that we have created a distinction without a difference. Whatever arguments obtain relating to the diagnosis, it is obvious to any clinician involved with treating

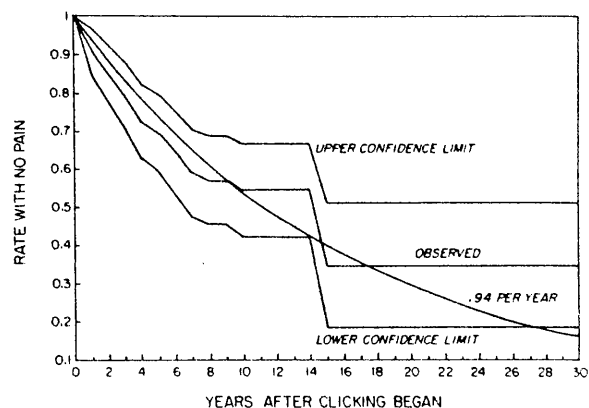


Fig. 1. Years survival without pain after clicking began for 93 subjects with confidence limits. The line  $y = 9.4n$  is a good approximation for 15 years.

temporomandibular joint problems that some patients have pain, unaccompanied by clicking that, others have a click accompanied or not accompanied by pain, and that restriction of jaw movement may be associated with any of these modes of presentation. Greene and coworkers<sup>6</sup> interviewed 47 patients with temporomandibular joint problems by telephone at least 5 years after treatment for pain and dysfunction; these patients had received no specific treatment for clicking. Their findings indicated that despite the persistence of long-term clicking in more than two thirds of these patients, the condition did not generally lead to more significant problems.

The question of what should be done for the patient who has a clicking jaw, unaccompanied by pain, has been raised. Opinions range from those who advocate that all these patients should be treated to

\*Professor of Oral Medicine and Dean, Faculty of Dentistry; Vice Provost Health Sciences.

\*\*Professor, Faculty of Dentistry.

**Table I.** Comparison by gender of survival time without pain for subjects with clicking, standardized for locking and treatment

Treatment	Locking	Males		Females	
		Av	SE	Av	SE
No	No	.973	.073	.937	.057
No	Yes	.923	.091	.897	.112
Yes	No	.964	.056	.778	.156
Yes	Yes	.892	.062	.829	.062

**Table II.** Comparison by treatment of survival time without pain for subjects with clicking, standardized for gender and locking

Gender	Locking	No Treatment		Treatment	
		Av	SE	Av	SE
Male	No	.973	.073	.964	.056
Male	Yes	.923	.091	.892	.062
Female	No	.938	.057	.778	.156
Female	Yes	.897	.112	.829	.062

those who state that the click will resolve in time and that no treatment is required. Is the click the initial symptom of a progressive problem that goes on to locking and ultimately results in degenerative joint disease?

The purpose of this article is to report the results of a long-term follow-up of 93 patients who, although without pain as yet, were motivated by the severity of the clicking to seek treatment. They were seen in the Facial Pain Clinic at the University of Western Ontario between 1973 and 1983. Of these patients, 50 had the additional symptom of intermittent restriction of the movement of the jaw at the time of initial contact; intermittent locking developed in 5 patients during the observation period. All of the patients who were originally seen in the clinic were given simple jaw-opening exercises. If the placement of a wax wafer between the teeth eliminated the click, the patient was fitted with a nonrepositioning maxillary occlusal splint, which was worn initially for 10 days and then for 3 weeks at night only. Thirty-one patients fell into this category.

From 1 to 10 years after the initial consultation at the clinic, a follow-up was carried out to determine whether or not pain and/or locking had been experienced since the original visit. If either had occurred, the date of onset was recorded. (It should be noted that this original visit may have been up to 30 years after the first onset of clicking.) Thus the data available for analysis consisted of the age when clicking started and the known months of survival time from the onset of clicking until pain was experienced, subclassified according to locking and treatment status.

## RESULTS

Because of the varying follow-up time, life table survival analysis<sup>7</sup> of the time without pain after commencement of the clicking was carried out. Fig. 1 shows the survival years without pain for all of the 93 subjects with upper and lower confidence limits.

**Table III.** Comparison by locking of survival time without pain for subjects with clicking, standardized for gender and treatment

Gender	Treatment	No Locking		Locking	
		Av	SE	Av	SE
Male	No	.973	.073	.923	.091
Male	Yes	.964	.056	.892	.062
Female	No	.938	.057	.897	.112
Female	Yes	.778	.156	.829	.062

It is observed that about 70% of all patients with clicking do have pain eventually. A useful way of summarizing this analysis is to calculate the weighted average proportion surviving for the thirty one-year intervals with the following equation:

$$avp = \frac{\sum wp}{\sum w}$$

where p is the proportion surviving a 1-year interval and w represents the subjects at risk at the start of the interval. For the data of Fig. 1, the average interval survival rate is 0.94. A curve,  $p = 1 * 0.94^n$ , where n is the number of years after commencement of clicking, is also shown. At least for the first 15 years, this simple line describes the observed curve fairly well, but it is too low thereafter. Two further observations may be made: (1) one can expect about 6% of the patients with clicking and no pain to have pain during the following year; and (2) with the passage of time, the probability of subjects with clicking having pain decreases somewhat.

During the observation time, 18 subjects ceased to have clicking. Of these, 8 had and continued to have intermittent locking, whereas 10 had no locking at the time of initial consultation or thereafter. Thus, discontinuation of clicking seems unrelated to locking.

Was the onset of pain for subjects with clicking related to gender, to presence of locking, or to provision of treatment? Tables I, II, and III show

standardized comparisons of the weighted average interval survival without pain according to gender, locking, and treatment, respectively. The results are not statistically significant, but there is a highly suggestive consistency in the row differences such that the females and the locking group have shorter survival times without pain. It is thought that these results justify undertaking a larger study.

#### DISCUSSION

It can be concluded that pain will occur in approximately 70% of the patients who have clicking of the jaw and that its onset rate is rather constant at about 6% per year for each year after the commencement of the clicking. There is very little information still that would signal when the onset of pain will occur for a particular subject; one can only say that the risk is present. This study suggests that there may be slightly higher probability of pain occurring in females or in those who have or come to have locking and that the treatment provided does not lessen the likelihood of pain occurring.

#### REFERENCES

1. Eversole LR, Machado L. Temporomandibular joint internal derangements and associated neuromuscular disorders. *J Am Dent Assoc* 1985;110:69-79.
2. Cooper AP. A treatise on dislocations and fractures of the joints. In: Cooper BB, ed. London: J Churchill, 1841:393.
3. Annadale T. Displacement of the interarticular cartilage of the lower jaw, its treatment by operation. *Lancet* 1887; 1:411.
4. Costen JB. A syndrome of ear and sinus symptoms dependent upon disturbed functions of the temporomandibular joint. *Ann Otol Rhinol Laryngol* 1934;43:1.
5. Lundh H, Westesson P, Kopp S. A three-year follow-up of patients with reciprocal temporomandibular joint clicking. *ORAL SURG ORAL MED ORAL PATHOL* 1987;63:530-3.
6. Greene CS, Laskin DM, Link M. Long-term effect of TMJ Clicking. *J Dent Res* 1987;66:337. (Special issue.)
7. Rolling I, Thylstrup A. The life table method in clinical dental research. *Community Dent Oral Epidemiol* 1975;3:5-10.

#### *Reprint requests to:*

Dr. R.I. Brooke  
Professor of Oral Medicine and Dean,  
Faculty of Dentistry  
The University of Western Ontario  
London, Ontario  
Canada N6A 5C1