Effect of Quality of Life Measures on the Decision to Remove Third Molars in Subjects With Mild Pericoronitis Symptoms

Dana T. Tang, DDS, * *Ceib Phillips, PhD, MPH,* † *William R. Proffit, DDS, PhD,* ‡ *Lorne D. Koroluk, DMD, MSD, MS,* § *and Raymond P. White, Jr, DDS, PhD* ‖

Purpose: To assess how quality of life (QoL) measures affect the decision for third molar (3M) removal in patients with mild symptoms of pericoronitis.

Patients and Methods: Healthy subjects, aged 18 to 35 years, with mild symptoms of pericoronitis were enrolled in an institutional review board–approved study. The demographic, clinical, and QoL data were collected at enrollment. The subjects voluntarily scheduled surgery for 3M removal. The principal outcome variable was their decision to undergo or not undergo surgery within 6 months of enrollment. The possible predictor variables in a multivariate logistic regression analysis were the demographic characteristics, dental insurance, and QoL measures.

Results: The mean age of the 113 subjects was 23.2 ± 3.8 years. Of the 113 subjects, 79 elected to undergo 3M removal within 6 months of enrollment (removed group) and 34 elected to retain their 3M at 6 months after enrollment (retained group). A significantly greater proportion of the removed group were white (58% vs 35%; $P = .03$) and reported having at least "a little trouble" with opening their mouths (38% vs 18%; $P = .04$) and taking part in social life (27% vs 6%; $P = .01$). The multivariate logistic regression model suggested the odds of electing 3M removal within 6 months of enrollment were greater for those who were white (odds ratio [OR] 2.69, 95% confidence interval [CI] 1.14 to 6.32) and those who had at least "a little trouble" with interactions in their social life (OR 3.22, 95% CI 1.08 to 9.58).

Conclusions: In subjects with mild pericoronitis symptoms, experiencing problems with oral function and lifestyle, factors not often considered by clinicians, were significantly associated with subjects' decision for early 3M removal.

J Oral Maxillofac Surg 72:1235-1243, 2014

Pericoronitis is a chronic periodontal inflammatory condition associated with a partially or fully erupted tooth, most often a mandibular third molar (3M).[1,2] This symptomatic condition will be commonly diagnosed in individuals aged 16 to 30 years and has a wide range of symptoms, including pain and swelling. The more severe clinical signs include purulence, trismus, dysphagia, enlarged lymph nodes, and fever.[1] Although an acute pericoronitis episode could last for only a few days, recurrences will typically follow, with a remission period of 7 to 15 months.[1] Ventä et al[3] evaluated the history of patients with symptomatic 3Ms and found that

Received from University of North Carolina School of Dentistry, Chapel Hill, NC.

*Senior Resident, Department of Orthodontics.

†Professor, Department of Orthodontics.

‡Kenan Distinguished Professor, Department of Orthodontics.

§Associate Professor, Departments of Orthodontics and Pediatric Dentistry.

‖Dalton L. McMichael Distinguished Professor, Department of Oral and Maxillofacial Surgery.

The present study was supported by the Oral and Maxillofacial Surgery Foundation, American Association of Oral and Maxillofacial Surgeons, and the Department of Oral and Maxillofacial Surgery, University of North Carolina School of Dentistry.

Conflict of Interest Disclosures: None of the authors reported any disclosures.

Address correspondence and reprint requests to Dr White: Department of Oral and Maxillofacial Surgery, University of North Carolina School of Dentistry, Chapel Hill, NC 27599-7450; e-mail: ray_white@unc.edu

Received December 13 2013

Accepted March 24 2014

0278-2391/14/00335-8$36.00/0

http://dx.doi.org/10.1016/j.joms.2014.03.022

51% of reported patients had had 1 previous episode with the same tooth. The prevalence of pericoronitis has not been studied for the US population. Berge[4] has reported the only population data for pericoronitis, with an approximately 9% prevalence, from a Norwegian population using reports from general dentists. Estimates from the available data have varied, ranging from 2 to 9%.[4-6] Currently, the most effective treatment of pericoronitis is removal of the symptomatic tooth.[7]

The most prevalent 3M symptom is pain, usually associated with pericoronitis. Berge and Boe[8] found, in a random sample of 176 general dentists, that pericoronitis contributed to 43% of 3M problems. Furthermore, pericoronitis has been the most commonly reported reason for 3M removal in young adults and older age groups.[9] For example, in a cohort of patients 35 years or older, 41% reported pericoronitis as the reason for electing to have their 3Ms removed, followed by periodontal problems at 25%.[9]

In addition to symptoms of pain, pericoronitis also has an effect on one's quality of life (QoL), including lifestyle and oral function.[2] McNutt et al[2] assessed the QoL of 57 subjects with mild symptoms of pericoronitis and found that 68% reported the worst pain they had experienced in the week before enrollment to be at least moderate in severity. Almost one quarter of the subjects reported oral function problems and had "quite a bit/lots" of difficulty with eating.[2] Also, 19% had "quite a bit/lots" of difficulty with chewing.[2]

Removal of 3Ms will improve the QoL measures in patients with pericoronitis symptoms.[10,11] McGrath et al[10] assessed the QoL measures in 69 subjects with pericoronitis. At 6 months after having 1 mandibular 3M removed, the QoL had improved as measured using the 14-item Oral Health Impact questionnaire.[10] Similarly, Bradshaw et al[11] evaluated 60 subjects who had presented with mild symptoms of pericoronitis and elected to have all 3Ms removed. At a median of 7.7 months after surgery, significant improvements in the QoL measures were reported. For example, at enrollment, 15% of the subjects had reported their pain intensity in the week before enrollment as "nothing," "faint," or "very weak." This outcome had improved to 97% at follow-up. Regarding oral function, 42% had reported having no difficulty with eating in the week before enrollment, and this had increased to 95% at follow-up.[11]

Although studies have clearly shown that pericoronitis negatively affects the QoL and that removal of the affected teeth can improve QoL, not everyone with these 3M problems will elect to have their 3Ms removed.[12,13] In a longitudinal study by Ventä et al,[13] one third of the subjects had 3M symptoms, and most of the subjects with symptoms, 87%, but not all, underwent 3M removal.[13]

The question of which factors, in addition to the symptoms of pain, influence the decision to have 3Ms removed in subjects with pericoronitis remains. The present study focused on the demographic characteristics, availability of dental insurance, and QoL measures as possible explanatory variables for a patient with mild pericoronitis symptoms to decide to remove or retain 3Ms within 6 months after enrollment.

Patients and Methods

The subjects were enrolled in a study designed to better understand the clinical signs and symptoms of mild pericoronitis affecting mandibular 3Ms as they relate to oral and systemic inflammation. The subjects were recruited at a single academic clinical center, the University of North Carolina, for an institutional review board–approved, prospective, exploratory clinical study. The present study was registered with ClinicalTrials.gov (identifier NCT 01882270). All data from those enrolled from 2006 to 2012 with information about whether their 3Ms had been removed or retained at 6 months after enrollment were included in the analyses. Those who had undergone 3M removal were seen for follow-up at least 3 months after surgery.[11] All those who had not undergone 3M removal were followed up for at least 1 year after enrollment.

The inclusion criteria for the study specified that the subjects be aged 18 to 35 years, have a health risk assessment level of I or II according to the American Society of Anesthesiologists' classification, and have mild signs or symptoms of pericoronitis, including spontaneous pain, purulence or drainage, and/or localized swelling, that affected at least 1 mandibular 3M. Those with severe signs or symptoms of pericoronitis, such as limited mouth opening, dysphagia, a temperature greater than 101°F, facial swelling or cellulitis, or severe uncontrolled discomfort were excluded. Additionally, those with a medical condition contraindicating periodontal probing, an acute illness, a body mass index (BMI) greater than 29 kg/m^2, a history of antibiotic treatment within the previous 2 months, or generalized periodontal disease (Class IV according to the American Academy of Periodontology index) and those who used tobacco were excluded.

Once consent to participate in the present study had been obtained, the demographic, clinical, and QoL data were collected from each subject. To assess the effect of mild pericoronitis on QoL in the previous week, at enrollment, the subjects were asked to complete the Health-Related QoL instrument, which includes 2 items in the pain domain and 4 each in the domains of lifestyle and oral function. The instrument was developed by Shugars et al[14] specifically for 3M problems. The subjects were asked to report how their oral function and lifestyle had been affected in the week before enrollment using a 5-point Likert-type scale, ranging from "no trouble" (score 1) to "lots of trouble" (score 5). Because pain is the predominantly