Temporomandibular Joint Disorder Management in Oral and Maxillofacial Surgery

Louis G. Mercuri, DDS, MS

Purpose: This article discusses why the management of temporomandibular joint disorder (TMD) cases leads to some oral and maxillofacial surgeons to actively avoid attracting such patients to their practices, offers some evidence-based explanations, and provides recommendations for resolution that will benefit not only the specialty, but more importantly the patients it serves.

Materials and Methods: A review of the reasons some surgeons state they do not wish to manage TMD cases is presented, followed by an updated review of the TMD and orthopedic literature discussing not only the importance of a proper diagnosis but also the impact of comorbid conditions, genetics, clinical experience, and patient expectations important to achieving good TMD management outcomes.

Results: The literature shows that the frustration clinicians and TMD and orthopedic patients have had in the past are related to initial misdiagnosis leading to multiple failed procedures, failed materials and devices, failure to understand the impact of comorbid conditions and genetic features on outcomes, clinicians’ experience in complex cases, and unrealistic outcomes expectations by the clinician and the patient.

Conclusion: Although it is not reasonable to believe that every graduate of an oral and maxillofacial surgery residency will have an interest in management of TMD cases in their future practices, those who will must understand the importance of the issues of proper diagnosis, the relation of TMD patient comorbidities and prior management to final outcomes, honest awareness of their experience and ancillary support to manage complex cases, and how essential a realistic prognosis is to a successful outcome for the clinician and the patient.

© 2016 American Association of Oral and Maxillofacial Surgeons

Ten years ago, I penned a Letter to the Editor of the Journal of Oral and Maxillofacial Surgery titled “Are We Getting Out of TMJ Surgery?” This letter was prompted by what I heard while on hold as I returned calls to oral and maxillofacial surgeons’ offices. I was struck by the fact that the recorded menu of services most surgeons offered patients, although inclusive of most services commonly provided by our specialty, excluded the management of temporomandibular joint (TMJ) disorders (TMDs).

This registered as odd to me, because TMD management has been considered one of the core competencies in our residency programs. Further, surgical management of intra-articular TMJ problems is one of the required components for program certification by the Commission on Dental Accreditation (CODA). So I wondered why would offices not offer this service to patients?

During the ensuing phone conversations, I asked surgeons why their menu of services did not include TMD management. Table 1 presents some of the
The patients are too difficult to deal with and never get better.
The reimbursement is low or nil.
Other areas of patient management are more rewarding.
My practice is office based; I gave up hospital OR privileges to avoid trauma call.
TMJ is a nothing but big black hole.
Never got a handle on it during my residency.
I’m uncomfortable with these patients.
These patients belong at a multidisciplinary ‘university’ center.
No interest in the subject at all.
No data to support treatment options are currently available.
Too much liability.
Never saw a TMJ surgery during my residency.
I send all my TMJ patients to the ‘experts’.
I learned my lesson with Proplast-Teflon.

Abbreviations: OR, operating room; TMJ, temporomandibular joint.

Table 1. SOME OF RESPONSES GIVEN AS TO WHY SURGEONS SAY THEY DO NOT OFFER TMJ MANAGEMENT SERVICES TO PATIENTS

Anesthesia
Exodontia
Preprosthetic surgery
Dental implants
Orthognathic surgery
Cosmetic surgery
Trauma
Pathology

Anesthesia ASA, ASDA, CRNA
Exodontia GD, Perio, Endo, etc
Preprosthetic surgery GD, Perio, Prosth
Dental implants GD, Perio, Prosth, Endo, etc
Orthognathic surgery PRS, CPS, ENT
Cosmetic surgery PRS, ENT, Der, Ophth, etc
Trauma PRS, ENT, CPS
Pathology GD, Perio, PRS, ENT, H&NS

Abbreviations: ASA, American Society of Anesthesiology; ASDA, American Society of Dental Anesthesiology; CPS, craniomaxillofacial surgeons; CRNA, certified registered nurse anesthetists; Der, dermatology; Endo, endodontics; ENT, otorhinolaryngology; GD, general dentistry; H&NS, head and neck surgeons; Ophth, ophthalmology; Perio, periodontics; Prosth, prosthodontics; PRS, plastic and reconstructive surgery.

Table 2. SERVICES PROVIDED BY ORAL AND MAXILLOFACIAL SURGEONS AND COMPETING DENTAL AND MEDICAL SPECIALTIES

Anesthesia (ASA, ASDA, CRNA)
Exodontia (GD, Perio, Endo, etc)
Preprosthetic surgery (GD, Perio, Prosth)
Dental implants (GD, Perio, Prosth, Endo, etc)
Orthognathic surgery (PRS, CPS, ENT)
Cosmetic surgery (PRS, ENT, Der, Ophth, etc)
Trauma (PRS, ENT, CPS)
Pathology (GD, Perio, PRS, ENT, H&NS)

Abbreviations: ASA, American Society of Anesthesiology; ASDA, American Society of Dental Anesthesiology; CPS, craniomaxillofacial surgeons; CRNA, certified registered nurse anesthetists; Der, dermatology; Endo, endodontics; ENT, otorhinolaryngology; GD, general dentistry; H&NS, head and neck surgeons; Ophth, ophthalmology; Perio, periodontics; Prosth, prosthodontics; PRS, plastic and reconstructive surgery.

In medicine, comorbidity is the presence of at least 1 additional disease or disorder co-occurring with (concomitant or concurrent with) a primary disease or disorder; in the countable sense of the term, a comorbidity is each additional disorder or disease. It is well documented that patients with TMD have several comorbid conditions. Table 3 lists some examples. The orthopedic literature also shows that the larger the number of preoperative comorbidities, the poorer the outcomes.

Table 3. EXAMPLES OF COMORBID CONDITIONS IN PATIENTS WITH TMD

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular disorders</td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Renal disease</td>
</tr>
<tr>
<td>Chronic obstructive sleep apnea</td>
</tr>
</tbody>
</table>

Abbreviations: OR, operating room; TMJ, temporomandibular joint.


This scenario only leads to feelings of frustration, anxiety, and ultimately depression in the patient and the clinician.

In medicine, comorbidity is the presence of at least 1 additional disease or disorder co-occurring with (concomitant or concurrent with) a primary disease or disorder; in the countable sense of the term, a comorbidity is each additional disorder or disease. It is well documented that patients with TMD have several comorbid conditions. Table 3 lists some examples. The orthopedic literature also shows that the larger the number of preoperative comorbidities, the poorer the outcomes.

Table 3. EXAMPLES OF COMORBID CONDITIONS IN PATIENTS WITH TMD

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular disorders</td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Renal disease</td>
</tr>
<tr>
<td>Chronic obstructive sleep apnea</td>
</tr>
</tbody>
</table>

Abbreviations: OR, operating room; TMJ, temporomandibular joint.

Further, studies of patients with TMD have shown that the presence of comorbid conditions can explain why 50% of patients seeking care for TMD pain, some of whom were multiply operated on or exposed to failed materials or devices, still report experiencing pain 5 years later; and 20% of patients with chronic pain develop long-term disability from their pain.\(^{16-22}\) Therefore, it is important that any comorbid conditions and their effects on outcomes be known and considered by clinicians managing patients with TMD.

The effect of genes as one of the variables associated with the etiology of the TMDs has become a topic of interest and research.\(^{25}\) The increasing scientific evidence suggests that genetic factors can play an important role in the pathology of TMDs. However, their underlying mechanisms in TMDs remain largely unknown.\(^{24,25}\)

Sangani et al.\(^{26}\) performed a systematic review to identify genes associated with TMDs. They concluded that although most studies had been performed in small samples, 28 of 31 studies identified genes to be causal or associated with TMDs. In total, 112 genes were identified to be meaningfully and specifically associated with TMDs. This systematic review provided a list of accurate genes associated with TMDs and suggested a genetic contribution to the pathology of the TMDs. These findings led them to conclude that gene mutations are a causative factor for the incidence of TMDs.

Other variables that the clinician must consider are the patient’s willingness to comply with the management plan, any pending litigation related to the onset of symptoms, and drug or alcohol abuse resulting from chronic pain. Knowledge of these variables and the effects of prior management failures, comorbid conditions, genetics, and chronic centrally mediated pain have on patients with TMD should allow clinicians to appropriately manage any functional or end-stage disease process in this unique patient population.

This starts with understanding that the primary goal of intra-articular TMD management is restoration of function and form, not complete pain relief. Therefore, surgeons must constantly remind themselves and these patients that any notable decrease in pain is only a secondary benefit that could occur in some cases.\(^{27}\) When surgeons promise 100% pain relief, this only adds to the unreasonable, unrealistic, and unattainable outcomes these types of patients might already have developed.

It also has been well documented that the more prior invasive TMJ surgeries patients undergo, especially if they were misdiagnosed with extra-articular TMD, the lower the chances for good subjective outcomes (pain, estimation of jaw function, diet consistency) after joint replacement.\(^{28-33}\) This mimics the results in other joints as reported in the orthopedic literature.\(^{12,14,15}\)

To complicate some of these cases further, there are a group of these patients who not only have undergone multiple prior failed TMJ invasive procedures, but also have been exposed to failed or failing alloplastic materials (eg, Proplast and Teflon, silicone rubber) or devices (eg, metal-on-metal or metal-on-polymethylmethacrylate total joint replacements, hemiarthroplasty). The literature shows that despite good functional and form outcomes, subjective outcomes are lower than for patients never exposed to such failures.\(^{31-33}\)

Therefore, surgeons must explain these factors to this group of patients to assure appropriate outcomes expectations.

Before considering management of this last group of patients, the clinician must honestly assess his or her experience, technical limitations, and the personnel and clinical resources available. Establishing the failure mechanism in each case is essential to avoid repeating it. Performance of adequate pre-revision planning to assure proper mandibular function, dental occlusion, and facial esthetics is paramount. If joint replacement is indicated, then the surgeon must choose the most appropriate replacement system for the problem associated with each specific case. Most importantly, the surgeon must be sure the patient is fully informed as to the realistic outcome expectations.\(^{34}\)

Management of TMD cases, especially those requiring surgery, is time consuming and can be frustrating for the surgeon and the patient. However, if the clinician has made the right diagnosis, understands the patient variables discussed earlier, performs the surgery correctly, and uses the right equipment, the results will be professionally satisfying for the clinician and most importantly will provide the best outcome for the patient.

### Table 3. COMORBID CONDITIONS OFTEN ASSOCIATED WITH TEMPOROMANDIBULAR JOINT DISORDER

<table>
<thead>
<tr>
<th>Condition</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinus disease</td>
<td>GI problems</td>
</tr>
<tr>
<td>Depression or anxiety</td>
<td>Smoking</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>Fainting or dizzy spells</td>
</tr>
<tr>
<td>Allergies</td>
<td>Panic attacks</td>
</tr>
<tr>
<td>Earaches or tinnitus</td>
<td>Night attacks</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>Concentration issues</td>
</tr>
<tr>
<td>Sleep disorders</td>
<td>Irritable bowel syndrome</td>
</tr>
<tr>
<td>Interstitial cystitis</td>
<td>Chronic fatigue syndrome</td>
</tr>
<tr>
<td>Drug abuse</td>
<td>Somatic symptom disorder</td>
</tr>
</tbody>
</table>

Abbreviation: GI, gastrointestinal.

Although it is not reasonable to believe that every graduate of an oral and maxillofacial surgery residency will have an interest in management of patients with TMD in their future practices, those who will must understand the importance of proper diagnosis, the relation of TMD patient comorbidities and prior management to final outcomes, an honest awareness of their experience and ancillary support to manage complex cases, and how essential a realistic prognosis is to a successful outcome.

If clinicians follow these caveats, oral and maxillofacial surgery will continue to be at the forefront in the management of these cases. Perhaps TMD management will be a service that will be added to their phone message again!

References