

The “Point of Care” section answers everyday clinical questions by providing practical information that aims to be useful at the point of patient care. The responses reflect the opinions of the contributors and do not purport to set forth standards of care or clinical practice guidelines. Readers are encouraged to do more reading on the topics covered. If you would like to submit or answer a question, contact editor-in-chief Dr. John O’Keefe at jokeefe@cda-adc.ca.

QUESTION 1

How can I tell if a patient has obstructive sleep apnea?

Background

Much is now known about obstructive sleep apnea syndrome (OSAS),¹ to the extent that it is almost a household term in some communities. The media are aware of this condition, and family doctors are recognizing the symptoms with more regularity. The dental industry has climbed on board by promoting the fabrication of mandibular advancement appliances to control snoring, and some authors have suggested that these can help with obstructive sleep apnea.² However, care is required in their application.

Obstructive sleep apnea is defined as sleep-disordered breathing that results in relaxation of the soft tissues surrounding the airway such that the airway is occluded or partly occluded during sleep. It is diagnosed on the basis of polysomnography or a “sleep study” performed in a sleep laboratory to determine the number of apneic and hypopneic events during sleep. Apnea is the cessation of breathing for 10 seconds or more in the presence of respiratory effort, and hypopnea is a reduction in airflow for 10 seconds with evidence of an arousal and/or decrease in oxygen saturation by more than 3%. The total number of apneic and hypopneic events is divided by the total number of hours of sleep to give an index referred to as the apnea/hypopnea index or AHI.

As the person’s airway becomes partially or fully obstructed

and the level of blood oxygen drops, blood pressure and heart rate fluctuate and sleep is disturbed. These fluctuations in physiologic parameters can be likened to stepping on the gas and then slamming on the brake repeatedly while driving a car. Because of the arousals, the person may not reach the necessary stages of deeper sleep. Usually the individual is unaware of the arousals, but may notice the short-term effects, including tiredness during the day, not feeling refreshed after a night’s sleep, morning headaches and daytime somnolence. The long-term effects can be dangerous to the cardiovascular system, and pulmonary hypertension and heart failure may develop later.

Recognition of OSAS

The most common symptom reported by patients with OSAS is loud snoring; often it is the person’s bed partner who notices and reports (either to the person or to his or her physician) the



Figure 1a: Preoperative cephalogram of patient with severe obstructive sleep apnea. Note the restricted posterior airway space (arrows).



Figure 1b: Postoperative cephalogram showing a positive change in size of the posterior airway space (arrows) after maxillo-mandibular advancement surgery. The patient is now free of apnea and no longer dependent on continuous positive airway pressure.

relentless snoring and pauses in breathing throughout the night. The partner may repeatedly elbow the snorer in the ribs to start his or her breathing during these “pauses.” In some instances, the snoring is so bad that the snorer is relegated to a spare bedroom or even a distant room in the house so as not to disturb the rest of the family. The typical person with OSAS is a middle-aged, overweight male, but not all patients have this stereotypical appearance, and younger, average-sized women may also suffer from OSAS. These people can be so affected by daytime fatigue that they fall asleep “at the drop of a hat,” which can be deadly if it occurs while driving.

A questionnaire like the Epworth Sleepiness Scale⁴ or overnight pulse oximetry can help to screen patients for OSAS, but only a full polysomnogram is diagnostic. A dentist might suspect OSAS if a patient exhibits the following symptoms: loud disruptive snoring, reported pauses in breathing during sleep, morning headaches, daytime somnolence and impaired cognitive function due to lack of feeling refreshed on waking in the mornings. Lateral cephalometric radiography, which allows assessment of the posterior pharyngeal airway space, can be a useful diagnostic tool (Fig. 1),³ since many of these patients exhibit an anatomic abnormality.

Conclusions

OSAS is an increasingly prevalent problem in our society with serious immediate and long-term health consequences. If a patient asks a dentist for an appliance to help in management of a severe snoring problem, the dentist should consider OSAS and refer the patient to a sleep specialist for assessment. ♦

THE AUTHOR



Dr. Archie Morrison is director of graduate training in oral and maxillofacial surgery, department of oral and maxillofacial sciences, faculty of dentistry, Dalhousie University, Halifax, Nova Scotia. Email: Archie.Morrison@dal.ca.



Dr. Morrison is a member of the Canadian Association of Oral and Maxillofacial Surgeons.

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QUESTION 2

What are the roles of surgery, radiation therapy and chemotherapy in the treatment of oral cancer?

Background

In Canada there are approximately 3,200 new cases of oral cancer and 1,100 deaths related to the disease per year.¹ Over 90% of oral cancers are squamous cell carcinomas. With the exception of lower lip cancer, which is related to sun exposure, tobacco and alcohol use remain the major risk factors for oral cancer in the Western world.

Patients with oral cancer may be asymptomatic or they may report pain, paresthesia, dysphagia, odynophagia, dysarthria, tooth mobility, neck mass and/or weight loss. Squamous cell carcinoma of the oral cavity may appear as a white lesion, a red lesion, an ulcer or a mass. Locations most frequently involved include the lower lip, the lateral and ventral surfaces of the tongue, and the floor of the mouth. Once a diagnosis of oral cancer has been established based on a tissue biopsy and histopathologic evaluation, a complete workup is required, including a thorough head and neck examination, computed tomography or magnetic resonance imaging, chest x-ray and blood work.

The patient's cancer is then staged according to the TNM (tumour, node, metastasis) classification (Tables 1 and 2).² Each case is then presented individually to a multidisciplinary head and neck tumour board, generally at a hospital-based regional cancer centre. Members of the board include otolaryngologists, oral and maxillofacial surgeons, radiation oncologists, medical oncologists, pathologists, radiologists, maxillofacial prosthodontists, speech pathologists, dieticians and social workers. The board provides a consensus opinion regarding treatment. Currently available therapeutic modalities for oral cancer include surgery, radiation therapy and chemotherapy.

Considerations in the Choice of Treatment

The goal of oral cancer treatment is to cure the disease while minimizing the sequelae of treatment and preserving or restoring form and function. Factors affecting the choice of treatment include the site and size of the primary lesion, the presence of metastasis and the general health of the patient.

Smaller (T1 and T2) oral tumours are equally amenable to surgery and radiation therapy; however, the long-term sequelae and potential complications of radiation, such as xerostomia, radiation-induced caries and osteoradionecrosis,

Table 1 TNM classification for oral cancer according to the American Joint Committee on Cancer²

Primary tumour (T)	
TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour
Tis	Carcinoma in situ
T1	Tumour ≤ 2 cm in greatest dimension
T2	Tumour > 2 cm but ≤ 4 cm in greatest dimension
T3	Tumour > 4 cm in greatest dimension
T4	Tumour invades adjacent structures
Regional lymph nodes (N)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node ≤ 3 cm in greatest dimension
N2a	Metastasis in a single ipsilateral lymph node > 3 cm but ≤ 6 cm in greatest dimension
N2b	Metastasis in multiple ipsilateral lymph nodes ≤ 6 cm in greatest dimension
N2c	Metastasis in bilateral or contralateral lymph nodes ≤ 6 cm in greatest dimension
N3	Metastasis in a lymph node > 6 cm in greatest dimension
Distant metastasis (M)	
MX	Distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

must be considered when contemplating radiation therapy, especially if the lesion is close to bone. As a result, surgery remains the primary mode of therapy for most oral carcinomas. Early-stage lesions are often treated with surgery alone, whereas treatment of late-stage lesions also frequently includes postoperative radiation therapy or concurrent postoperative chemotherapy and radiation therapy.

The 3 aspects of surgical treatment are resection of the primary tumour, management of cervical metastasis and reconstruction of the ablative defect. With squamous cell carcinoma, the aim of resection of the primary lesion is to obtain a 1-cm margin of normal tissue. Reconstruction options include simply allowing the defect to granulate in;

Table 2 Oral cancer stage groupings according to the American Joint Committee on Cancer²

Stage	Primary tumour	Regional lymph nodes	Distant metastasis
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3	N0	M0
	T1	N1	M0
	T2	N1	M0
IVA	T3	N1	M0
	T4	N0	M0
	T4	N1	M0
	Any T	N2	M0
IVB	Any T	N3	M0
IVC	Any T	Any N	M1

primary closure; split-thickness skin grafting; local flaps; regional flaps; free flaps involving microsurgical techniques; delayed nonvascularized bone grafting; placement of osseointegrated implants; and maxillofacial prostheses.

If there is clinical and/or radiologic evidence of cervical metastasis, therapeutic neck dissection is performed to remove the lymphatics and lymph node chains from the levels of the neck that are at risk for metastasis. If the patient has no evidence of cervical metastasis yet the risk of occult metastasis is greater than 20%, elective neck dissection is performed to remove the lymphatics and lymph node chains from the levels of the neck most likely to harbour occult metastasis. Factors used to determine the risk of occult metastasis include the site and size of the primary lesion, depth of invasion, vascular or lymphatic invasion and cellular differentiation.

Squamous cell carcinomas of the palatine tonsil and base of the tongue are frequently treated with primary radiation therapy alone or concurrent chemotherapy and radiation therapy (in advanced disease). Indications for postoperative radiation therapy for carcinomas of the oral cavity include

larger (T3 or T4) lesions, high-grade histology (lesions that are poorly differentiated or undifferentiated as well as lesions with infiltrating rather than pushing borders), presence of perineural or vascular invasion, tumour at or close to the surgical resection margin, metastasis to 2 or more cervical nodes, or cervical metastasis with extracapsular spread. Patients receiving radiation therapy for oral cancer must undergo a thorough dental assessment followed by any necessary dental treatment to minimize the need for future extractions in the irradiated field. In addition, they should be educated about the risk of radiation caries and osteoradionecrosis, and daily fluoride therapy should be started.

Recent evidence has demonstrated improvement in local and regional disease control, as well as survival benefit, with concurrent postoperative chemotherapy and radiation therapy for advanced oral cancer (stage III and IV disease).^{3,4} This has become the standard of care for patients able to tolerate the toxicity associated with concurrent chemoradiation therapy. ♦

THE AUTHOR



Dr. Chad Robertson is assistant professor in the department of oral and maxillofacial sciences, Dalhousie University, Halifax, Nova Scotia. Email: cgrobert@dal.ca.



Dr. Robertson is a member of the Canadian Association of Oral and Maxillofacial Surgeons.

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QUESTION 3

Can an impacted mandibular third molar be removed in a way that prevents subsequent formation of a periodontal pocket behind the second molar?

Background

Pocket formation behind the second molar after surgical removal of an impacted mandibular third molar is an occasional postoperative complication that cannot always be prevented.¹⁻³ This complication might necessitate further surgical intervention to eliminate the pocket or to regenerate bone.^{4,5} Such interventions are fraught with difficulty and meet with limited success.⁴ We have encountered cases where we tried several methods to treat this complication, but ultimately, removal of the second molar was the only way to treat the deep periodontal pocket extending to the apex of the distal root. In certain cases, however, pocket formation can be prevented.

Applicable Cases

Some patients with impacted mandibular third molars (especially semi-impacted ones) may present with periodontal pockets at the initial examination (because of loss of distoproximal crestal bone of the second molar). Such patients often benefit from removal of the impacted tooth; in adolescent patients, the resultant bone formation might even lead to attachment gain.¹

There are cases, however, where a bone-impacted mandibular third molar may present with no periodontal pocket distal to the second molar, even though the crown of the impacted tooth is in close contact with the distal root of the second molar and there is no radiographic evi-

dence of distoproximal bone below the alveolar crest and behind the second molar. This is because the alveolar crestal bone overlying the impaction is intact (Figs. 1 and 2). In such cases, removal of this overlying alveolar crestal bone to remove the impaction may cause a deep bone defect distal to the second molar extending down to the base of the extraction socket (Fig. 3). It is therefore prudent to preserve the bone overlying such impactions. However, an impacted third molar is usually removed through the alveolar crest (which predisposes to postsurgical pocket formation),^{5,6} and flap design makes no difference in this regard.⁶ Thus, in cases where a bone-impacted mandibular third molar with overlying crestal bone must be removed, we propose a lateral approach, as described below.

Surgical Technique

A full-thickness mucoperiosteal envelope flap is reflected and bone removal is started in the lateral cortex 2 to 3 mm below the bony crest using an electric surgical handpiece and a round surgical bur. An oval “window” of buccal bone is removed over the lateral aspect of the crown of the impacted wisdom tooth (Fig. 4). The anterior part of the buccal window should be no closer than 1 to 2 mm from the distal root of the second molar (to prevent iatrogenic root damage). After the crown and cervical part of the impacted tooth and the upper third of its roots have been exposed, the tooth is

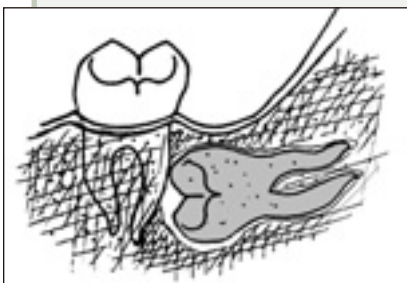


Figure 1: Bone-impacted mandibular third molar with no periodontal pocket distal to the second molar. The alveolar crestal bone overlying the impaction is intact.

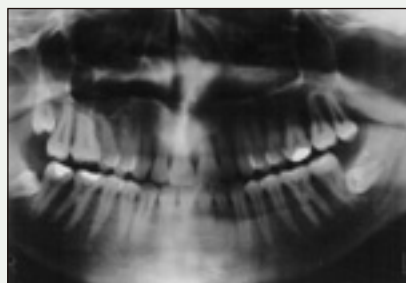


Figure 2: Orthopantomogram of horizontal bone-impacted left mandibular third molar in contact with the distal root of the second molar and not separated by a distoproximal bony septum.

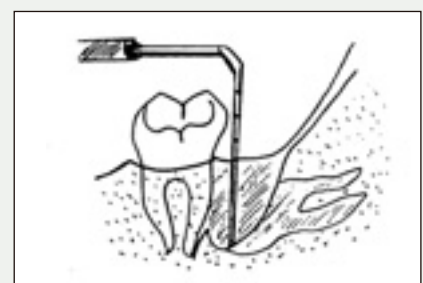


Figure 3: Postoperative bone defect distal to the second molar, which occurred after removal of the overlying alveolar crestal bone to take out the impacted tooth. The defect extends down to the base of the extraction socket.

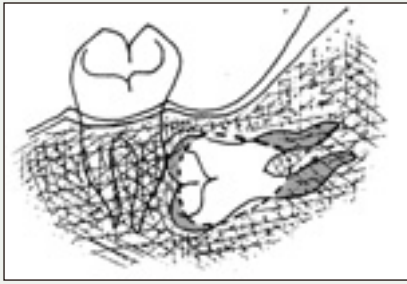


Figure 4: Removal of an oval window of buccal bone over the lateral aspect of the crown of the impacted wisdom tooth 2 to 3 mm below the crest and 1 to 2 mm behind the distal root of the second molar.



Figure 5: Intraoperative view shows the crown of the impacted wisdom tooth being delivered through the "buccal window."

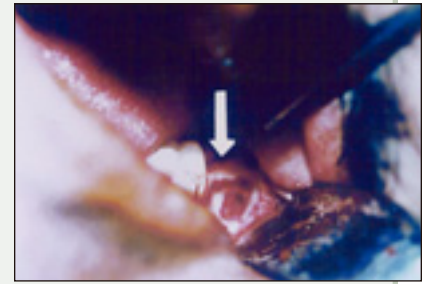


Figure 6: Intraoperative view shows the lateral bone defect (the "buccal window") and preservation of a rim of alveolar crestal bone superiorly and behind the second mandibular molar (arrow).

sectioned vertically at the cemento-enamel junction using a rose or fissure bur; the gap created in this way should be sufficient to accommodate the sectioned crown. However, to prevent damage to the lingual or the alveolar nerve, the tooth is not sectioned completely. A straight elevator is placed in the groove to separate the crown from its roots. The crown is then sectioned horizontally and delivered buccally (in pieces) using a hemostat (Fig. 5). Next, the roots are sectioned at the bifurcation and removed. After removal of the dental follicle, the flap is sutured in place.

Rationale

By preserving the alveolar crestal bone overlying the impaction, the buccal surgical defect created (the "buccal window") lies several millimetres below the preserved alveolar crest and behind the second mandibular molar (Fig. 6). Thus, a lateral (rather than vertical) bone defect is created, through which the tooth is delivered. After the flap is sutured in place, the defect is inaccessible. Therefore, regardless of bone formation, this type of defect prevents pocket formation even if a fibrous scar develops or epithelium migrates laterally into the defect. Wound dehiscence and lodging of debris is also prevented, as is damage to the lingual structures, because the flap is not extended or

reflected lingually. Case selection, however, is important to avoid risks and complications; as previously stated, this technique is applicable only to fully bone-impacted teeth, especially in the younger age groups. ♦

THE AUTHOR



Dr. Mohammad Hosein Kalantar Motamedi is associate professor of oral and maxillofacial surgery, Trauma Research Center Faculty, Baqiyatallah Medical Sciences University, and attending surgeon, department of oral and maxillofacial surgery, Islamic Azad University of Medical Sciences, Dental Branch, Tehran, Iran. Email: motamedical@lycos.com.

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QUESTION 4

A 25-year-old woman presents for treatment with a chipped front tooth and a black eye. Should I ask about domestic violence and, if it is occurring, what should I do?

Background

The statistics on intimate partner violence (IPV) are staggering. In Canada, 8% of women and 7% of men are victims of intimate partner abuse of some form, and 75% to 90% of Aboriginal women report abusive relationships. A third of blunt facial trauma in females is because of IPV.

Pregnancy is a particularly dangerous time for women living in abusive relationships. Up to 21% of women are assaulted during their pregnancy, and IPV is the leading cause of death in pregnancy for women. Because fewer than 20% of these women are likely to report the physical abuse, the practitioner must have a wary eye when blunt trauma is found in the female patient.

How to Help

First, identify the problem. Routine universal screening for IPV is gaining support throughout Canada. As there are significant personal, professional and social barriers to the disclosure, the only reasonable step is to screen all female patients with blunt facial injuries. In private, ask a general screening question: “Many patients have been hurt by one or more types of abuse. Have you ever experienced abuse as an adult?” Or a focused question: “Your facial injury suggests that someone has hit you. Is that what happened?” Be aware of the red flags for abuse (Box 1).

Box 1 Red flags of abuse

- Common physical injuries such as trauma to the head or face
- Explanation of injuries that does not fit the injury pattern or amount of force
- Multiple bruises in various stages of healing
- Delayed medical treatment for significant injuries
- Physical injury in pregnancy
- Chronic pain complaints
- Depression, suicidal ideation or post-traumatic stress disorder
- Alcohol or substance abuse
- Overly controlling partner not willing to leave woman alone with care provider

Second, ensure the safety of children involved in the relationship. Professional obligation to the children of your patients gives rise to one of the few instances when a situation must be reported regardless of the adults’ right to confidentiality. The Child and Family Services Act states that professionals must report any suspected child abuse or neglect to a children’s aid society (CAS). Witnessing violence is now deemed a form of emotional abuse or neglect, as research reveals the detrimental impact of growing up in an abusive

Box 2 Lethality checklist

The more items checked, the greater the danger. The perpetrator:

- Objectifies partner, believes partner is a personal possession (e.g., calls the partner names, body parts, animals)
- Blames the victim for abusive incidents
- Is obsessed with partner
- Is hostile, angry or furious
- Is extremely jealous and may suggest that partner is unfaithful
- Has been involved in previous incidents of significant violence with current partner or previous partners
- Has killed or injured pets
- Has made threats to kill or harm woman or children
- Has made previous suicide attempts or threatens suicide if partner leaves
- Has access to guns/weapons
- Uses alcohol or illicit drugs
- Has thoughts or desires of hurting partner
- Is recently separated or discussing separation or in process of divorce
- Has destroyed personal belongings of partner
- Has a diagnosed mental illness or may not be taking prescribed medications
- Police have previous involvement in domestic incidents

Box 3 Safety checklist during a crisis

- Call 911, yell loudly for help.
- Arrange for a friend or neighbour to call the police if they hear a disturbance coming from your home.
- Have a code word to use with children, family, friends or neighbours.

home. If you are unsure about a specific situation, call the CAS without giving any names and the CAS will tell you if reporting is required. If the situation does not meet the minimum requirement, then your obligation is to protect the privacy of the patient.

Third, help the patient get safe. This will mean different things to different patients. Ensure that the disclosure of IPV to you is handled in confidence and that staff are not likely to disclose the information elsewhere or by accident in the office. If the patient's partner is present, use the time when he has left the room to allow radiographs as an opportunity to ask questions and discuss the issue. Once a woman has left an abusive relationship, consideration and care must be given to any release of her personal information that may reveal where she is living.

After dealing with her current injury, ask your patient if she is safe to return home. A lethality checklist (**Box 2**) helps predict how dangerous an abusive partner might be. Document your clinical findings and ask whether your patient has an emergency plan — in case the partner's behaviour escalates. Safety checklists may help her plan for this event (**Box 3**). Give her telephone numbers for local women's shelters and crisis lines.

Each patient will have a different awareness of abuse. Let her know that you think she is being abused, tell her about available resources and, if necessary, help her get to a safe place such as an abused women's shelter. Ensure that all questions are asked and resources offered to the patient alone and in a discreet manner, so that the partner is unaware of the disclosure. Finally, not everyone is prepared to acknowledge the abuse; ask the questions and offer the help, but in the end it is the patient who will need to act. ♦

THE AUTHORS

Dr. Ian Furst is staff surgeon, oral and maxillofacial surgery, Cambridge Memorial Hospital and partner, Coronation Dental Specialty Group, Cambridge, Ontario. Email: ifurst@cdsg.ca.

Ms. Siobhan Furst is team leader and nurse practitioner, Guelph-Wellington Care and Treatment Centre for Sexual Assault/Domestic Violence, Guelph General Hospital, Guelph, Ontario.

The views expressed are those of the authors and do not necessarily reflect the opinions or official policies of the Canadian Dental Association.

Further Reading

Centre for Research on Violence against Women and Children: www.crvawc.ca

Domestic violence handbook of the Oakland County Coordinating Council Against Domestic Violence: www.domesticviolence.org/safe.html

International domestic violence and abuse agencies list: www.hotpeachpages.net

Investigative Bureau Services of the Nashville Police (information on safety planning): www.police.nashville.org/bureaus/investigative/domestic/stalking.htm

Minnesota Center Against Violence and Abuse (large database of safety planning information and research on domestic violence): www.mincava.umn.edu

U.S. National Coalition Against Domestic Violence: www.ncadv.org