Gastrointestinal Illnesses and Their Effects on the Oral Cavity

Michaell A. Huber, DDS

KEYWORDS

• Reflux disorders • Gastrointestinal polyposis syndromes
• Inflammatory bowel disease

Anatomically and functionally, the oral cavity represents the beginning of the gastrointestinal (GI) tract. Many disease processes affecting the GI tract may cause observable changes to the oral cavity. In fact, oral cavity changes for which the patient may seek a dental assessment may represent the first clinical manifestation of an underlying GI condition. The astute oral health care provider's recognition and appropriate referral of a possible GI condition contribute to the patient's overall health and wellness. Some of the more important GI conditions that may manifest oral cavity involvement are: reflux disorders, inherited GI polyposis syndromes, and inflammatory bowel disease (IBD). This article briefly reviews the aforementioned topics.

REFLUX DISORDERS

Virtually everyone experiences gastroesophageal reflux (GER) at some time or another, such as after an overindulgent meal.[1,2] This frequently occurring phenomena serves to help relief stomach distention, is short-lived, and not pathologic. Episodes of excessive or extensive GER, however, can damage the tissues of the aerodigestive tract. The etiopathogenesis of reflux disorders is complex and involves interplay of esophageal sphincter function, epithelial tissue sensitivity, and exposure time.[3] Signs and symptoms of reflux localized to the esophagus are termed gastroesophageal reflux disease (GERD), a condition thought to affect 15% to 40% of the population.[4,5] Complications attributed to untreated GERD include reflux esophagitis, esophageal hemorrhage, stricture, Barrett's esophagus, and adenocarcinoma.[2,6]

Manifestations of reflux-induced damage to the laryngopharynx include asthma, cough, hoarseness, globus, dysphagia, throat clearing, sore throat, postnasal drip, earache, and sinusitis.[1–4,7–13] Some authorities consider the laryngopharyngeal involvement of reflux as a distinct entity termed laryngopharyngeal reflux (LPR).[1,2,8] They note the numerous discordant characteristics between GERD and LPR to justify the distinction. Most cases of LPR do not manifest esophageal symptoms or involvement; LPR reflux typically occurs during the day while standing, while GERD reflux typically occurs nocturnally while supine. Traditional therapies for GERD often do not improve LPR. Others, however, dispute these distinctions and consider LPR a protean manifestation of GERD.[3,12] While further study is necessary to define the true relationship of LPR and GERD, the clinical fact is reflux patients experiencing GERD symptoms are likely to seek or be referred for care by a gastroenterologist, while reflux patients experiencing LPR symptoms are likely to seek or be referred for care by an otolaryngologist.[1]

Oral Cavity Features of Reflux Disorders

Potential oral cavity manifestations of reflux include a burning or itching sensation affecting the oral mucosa, mouth ulcers, erosion of tooth structure, halitosis, altered salivary flow, and bad taste.[4,7,10,14–17] Aside from tooth erosion, none of

Division of Oral Medicine, Department of Dental Diagnostic Science, University of Texas Health Science Center, Mail Code 7919, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900, USA
E-mail address: huberm@uthscsa.edu

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these findings are specific for reflux. The tooth erosion observed in reflux is characterized as affecting the palatal surfaces of the maxillary teeth first, then the occlusal surfaces of the posterior teeth of both arches, and lastly the lingual surfaces of the mandibular anterior teeth.[18] The teeth typically exhibit a smooth, glazed, dished out appearance of the dentin.[15,16] Affected teeth may become sensitive to thermal insult and prone to fracture. Eventually, the progressive loss in vertical dimension of occlusion may lead to pulp exposure, impaired chewing function, and phonetic disturbances.

Diagnosis of Reflux Disorders

Aside from typical heartburn, most of the presenting signs and symptoms of reflux are nonspecific. In most cases, the diagnosis is established by using a therapeutic trial of a gastric acid inhibitor.[9] Cases responsive to therapy are considered positive for reflux. Various tests, such as endoscopy, laryngoscopy, radiologic studies, and various GI studies may be necessary to diagnose equivocal cases. Conditions to consider in the differential diagnosis for reflux disorders include cardiac disease, biliary tract disease, obstruction, esophageal or gastric cancer, gastroparesis, infectious esophagitis, nonsteroidal anti-inflammatory drug-related gastritis, and peptic ulcer disease.[19]

The presence of the characteristic tooth erosion associated with reflux often is recognized easily by the dental practitioner and warrants referral for medical evaluation. Other conditions to consider as causing tooth erosion include chronic vomiting, eating disorders (bulimia and anorexia), chronic gastritis, and dietary habits.[16] These conditions also warrant a referral for further medical assessment.

Management of Reflux Disorders

Reflux management is usually multifaceted and tailored to address the signs and symptoms of the individual patient. Patients may be advised to:

- Avoid alcohol, caffeine, chocolate, peppermint, fatty foods
- Avoid acidic foods such as citrus, pineapple, and tomatoes
- Avoid spicy foods such as hot sauce, curry, barbecue sauce, hot mustards
- Eat smaller meals throughout the day
- Avoid lying down within 3 hours of eating
- Avoid exercise, bending over, or heavy lifting for several hours after eating
- Take prescribed medications as directed

Products that reduce esophageal sphincter tone or irritate damaged mucosal tissues should be avoided.[9] Although both H2 receptor antagonists (H2RAs) and proton pump inhibitors (PPIs) are superior to placebo, PPIs are more effective than H2RAs.[20] Reflux patients refractory to medical therapy may benefit from surgical interventions to control their disease.[9]

There are no specific limitations on providing dental care for the reflux patient. Both PPIs and H2RAs are associated with numerous drug interactions, and PPIs may cause dry mouth. The reflux patient should be advised to avoid eating a large meal before undergoing dental care and may not tolerate being placed in a fully supine position. The restorative management of reflux-induced tooth erosion should be attempted only after the underlying reflux condition is controlled.[15,16,18]

INHERITED GASTROINTESTINAL POLYPOSIS SYNDROMES

Inherited GI polyposis syndromes represent a diverse group of inherited syndromes often associated with an increased risk for developing colorectal cancer (CRC), in addition to various extraintestinal cancers.[21] Collectively, these syndromes are estimated to account for 1% to 5% of all cases of CRC.[21,22] They traditionally have been classified according to the predominant type of polyp involved (adenomatous or hamartomatous) and their characteristic clinical stigmata, summarized in **Table 1**.[21–24] Adenomatous syndromes occur at 10 times the rate of hamartomatous syndromes.[24] As four of these conditions—Gardner syndrome (GS), tuberous sclerosis (TS), Peutz-Jeghers syndrome (PJS), and Cowden syndrome (CS)—have characteristic orofacial features, they will be discussed in greater detail.

Gardner Syndrome

GS is a well-recognized variant of familial adenomatous polyposis (FAP) and is characterized by the presence of colonic polyposis, osteomas, and numerous soft tissue tumors.[25–28] FAP and its variants predominantly are caused by mutations to the adenomatous polyposis coli (APC) tumor suppressor gene, located on chromosome 5q21. FAP is a highly penetrant autosomal dominant disorder, occurring in an estimated 1 out of 8000 to 1 out of 18,000 live births.[22,29] The occurrence of classical GS is far less frequent and estimated at about 1 in 1,000,000 live births.[25,26]

In addition to the obligatory polyposis, patients who have GS manifest various extraintestinal lesions such as osteomas, epidermoid cysts,