# Chapter 2
# Variants of Normal and Common Benign Conditions

**Summary** Fundamental to diagnosing oral pathologic conditions is the ability to recognize the spectrum of clinical findings that represents variation of normal within the population. The range of such variation is wide and findings can be very subtle or notably prominent. Some are purely developmental, while others have a clear inflammatory or traumatic etiology. This chapter describes the most commonly encountered variations of normal and benign conditions encountered in the oral cavity, with specific guidelines for diagnosis and management, when clinically indicated.

**Keywords** Melanocytes • Melanin • Physiologic pigmentation • Melanotic macule • Melanoma • Fordyce granule • Sebaceous gland • Gingival graft • Free gingival graft • Lingual tonsil • Tonsil • Fissured tongue • Geographic tongue • Benign migratory glossitis • Stomatitis erythema migrans • Erythema migrans • Median rhomboid glossitis • Fibroma • Irritation fibroma • Traumatic fibroma • Inflammatory papillary hyperplasia • Epulis fissuratum • Torus • Mandibular torus, • Maxillary torus • Exostosis • Ankyloglossia • Frenula

## 2.1 Introduction

Fundamental to diagnosing oral pathologic conditions is the ability to recognize the spectrum of clinical findings that represents variation of normal within the population. The range of such variation is wide and findings can be very subtle or notably prominent. Some are purely developmental, while others have a clear inflammatory or traumatic etiology. These conditions, in large part, do not require therapy unless specifically noted in the text.

## 2.2 Physiologic Pigmentation

Melanocytes are a normal component of the basal cell layer of the oral epithelium. They cause varying degrees of mucosal pigmentation, ranging from light brown to black, due to the production of melanin. *Physiologic pigmentation* is observed much more frequently in darker skinned individuals, however, even those with very fair complexions may demonstrate characteristic findings. Focal, freckle-like *melanotic macules* are very common (Fig. 2.1; see Chap. 6). The keratinized mucosa, in particular the gingiva, is most commonly affected (Fig. 2.2). Pigmentation is due to deposition of melanin into the connective tissue without an increase in the number or size of melanocytes, and lesions are therefore flat. This may become more pronounced in areas of chronic trauma or inflammation, such as along the occlusal bite line of the buccal mucosa (Fig. 2.3).

In most cases, the diagnosis can be made clinically but occasionally a biopsy is warranted to rule out melanoma; particularly if any changes are noted in size, shape, or degree of pigmentation, or if a flat lesion becomes raised. Intraoral melanoma, however, is exceedingly rare, representing less than 1% of all melanomas. Other causes of pigmentation, including both intrinsic and extrinsic etiologies, are discussed in Chap. 6.

**Diagnostic tests**: None.
**Biopsy**: No, with rare exception.
**Treatment**: None.
**Follow-up**: Annual.

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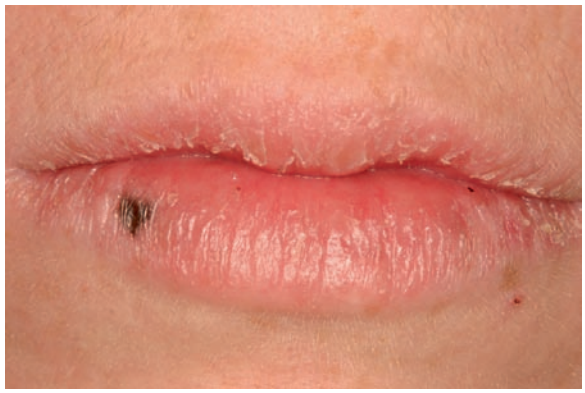

**Fig. 2.1** Melanotic macule of the lower lip with dark brown pigmentation and sharply defined borders. The lips are slightly chapped.

## 2.3 Fordyce Granules

Sebaceous glands, which are a normal feature of facial skin, can often be identified within the buccal mucosa due to the proximity of skin to the oral mucosa in this area. These are less commonly noted on the lip or the labial mucosa (Figs. 2.4 and 2.5). Fordyce granules appear white to yellow in color, are generally present in clusters, may be slightly raised, and are asymptomatic. Sebaceous glands in the oral mucosa are nonfunctional. Occasionally patients become aware of

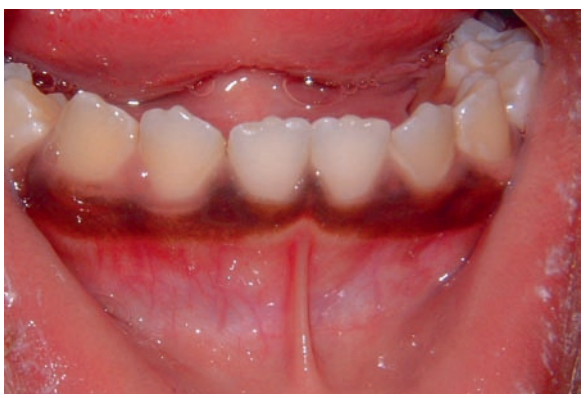

**Fig. 2.2** Physiologic pigmentation in an African-American child. The interdental papillae are affected to a variable degree; the nonkeratinized mucosa is entirely unaffected.

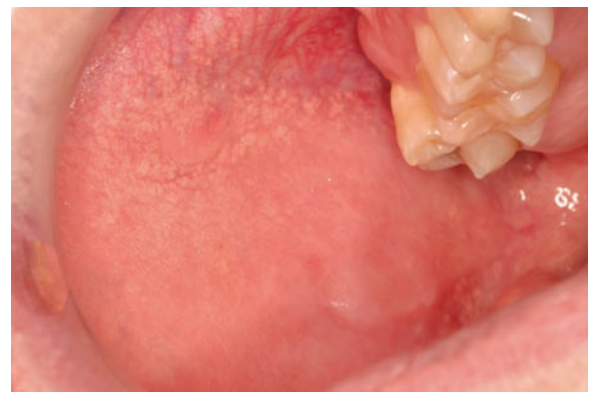

**Fig. 2.4** Prominent Fordyce granules in the right buccal mucosa.

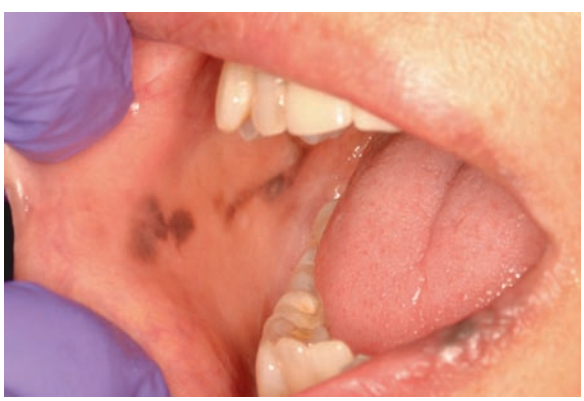

**Fig. 2.3** Postinflammatory pigmentation of the right buccal mucosa secondary to chronic cheek biting.

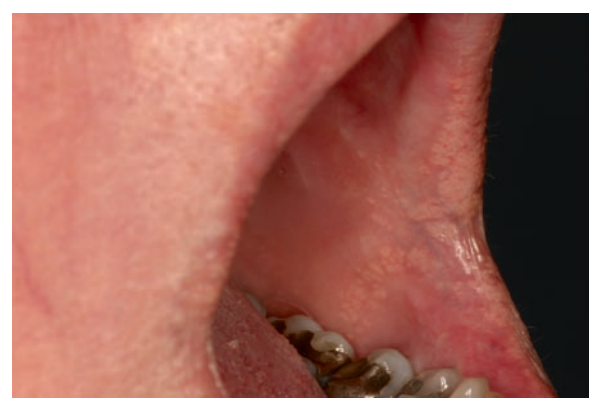

**Fig. 2.5** Dense concentration of Fordyce granules in the left buccal mucosa.

their presence by detecting the raised surfaces with their tongue, or during self-examination with a mirror.

**Diagnostic tests**: None; clinical appearance is usually classic and sufficient for diagnosis.
**Biopsy**: No.
**Treatment**: None.
**Follow-up**: None.

## 2.4 Gingival Grafts

In cases of severe gingival recession, gingival grafting is performed as a periodontal surgical procedure to restore the attached soft tissue, reduce root-surface sensitivity, and prevent further tissue loss. The donor tissue, which is harvested from the patient's palate as an autograft, has a distinct appearance that is typically raised and more pale than the adjacent gingiva. Grafts are generally easily recognized, very sharply defined, and should not be mistaken for pathology (Fig. 2.6). If there is any doubt, the patient should be able to provide suitable history regarding whether such a procedure was performed.

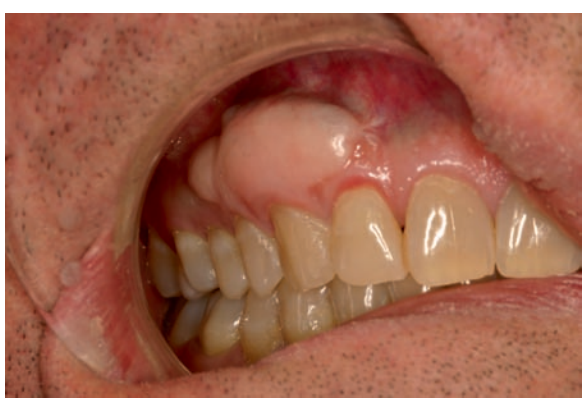

**Fig. 2.6** Free gingival graft covering a prominent exostosis in an area of previous gingival recession. Note the thicker, more clearly defined keratinized mucosa compared to the adjacent nonkeratinized tissue.

**Diagnostic tests**: None.
**Biopsy**: No.
**Treatment**: None.
**Follow-up**: None.

## 2.5 Lingual Tonsil

Lymphoid tissue is often found along the posterior lateral tongue, forming part of *Waldeyer ring*. The clinical presentation ranges from imperceptible to strikingly prominent. Lingual tonsils appear as exophytic mucosal colored masses that may exhibit folds and crypts as seen in the palatine tonsils. As with any lymphoid tissue, these can become enlarged and tender secondary to inflammation. It is generally under these circumstances that patients or physicians become aware of their presence. Unilateral or asymmetrically enlarged tissue should be considered for biopsy to rule out other pathology such as lymphoma or squamous cell carcinoma.

**Diagnostic tests**: None.
**Biopsy**: No, unless unilateral or otherwise suspicious.
**Treatment**: None.
**Follow-up**: None.

## 2.6 Fissured Tongue

There is remarkable variation in the appearance of the tongue throughout the population. One common finding is the presence of fissures and grooves along the dorsal surface. These can range from shallow-appearing cracks to deep, penetrating fissures (Fig. 2.7). These features may be associated with geographic tongue (see below) and may rarely predispose to recurrent candidiasis (see Chap. 7). Most patients are universally asymptomatic; it is not uncommon for a patient to examine his or her tongue and become aware of fissuring following the onset of otherwise unrelated symptoms, such as burning mouth syndrome (see Chap. 10).

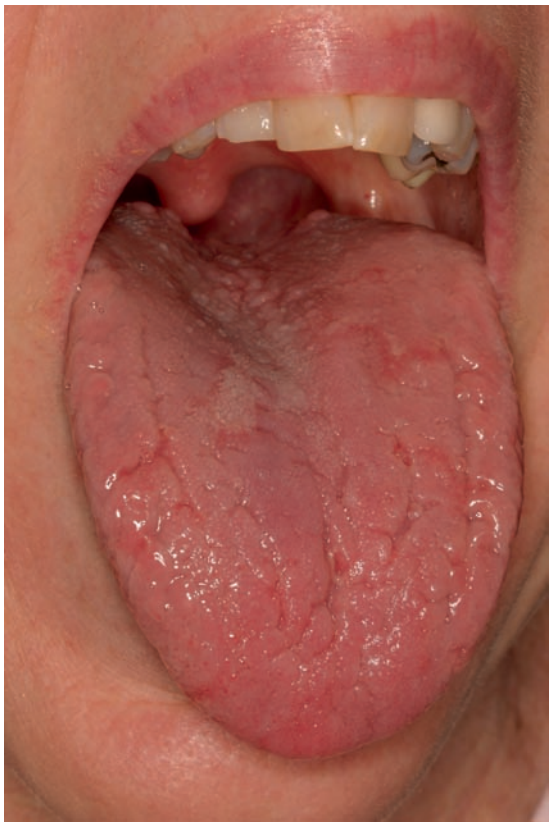

**Fig. 2.7** Fissured tongue with extensive grooves and fissures over the entire dorsal surface.

**Diagnostic tests**: None.
**Biopsy**: No.
**Treatment**: None.
**Follow-up**: None.

## 2.7 Geographic Tongue

Also referred to as *benign migratory glossitis*, geographic tongue is a common inflammatory condition of the tongue. Other oral mucosal sites can be affected less frequently, in which case the condition is called *stomatitis erythema migrans* or *ectopic geographic tongue*. Geographic tongue is usually evident in early childhood and rarely causes symptoms. The lesions demonstrate a wide variety of clinical patterns, ranging from irregularly shaped erythematous macules with surrounding elevated white borders to patchy areas of depapillation and smooth glossy mucosa (Figs. 2.8–2.11). These fea-

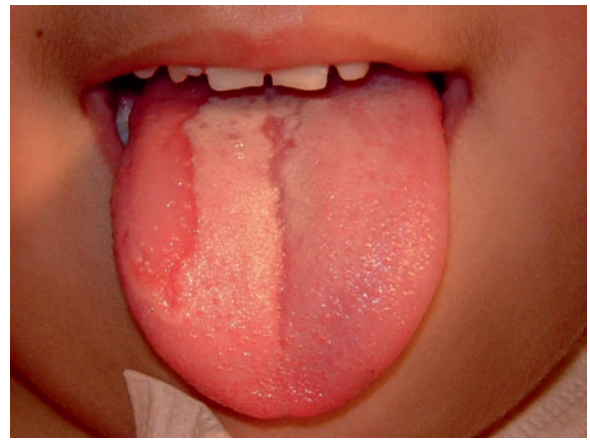

**Fig. 2.8** Benign migratory glossitis in a child. There is a very well-defined area of depapillation on the right side of the tongue dorsum, while the rest of the surface is unaffected.

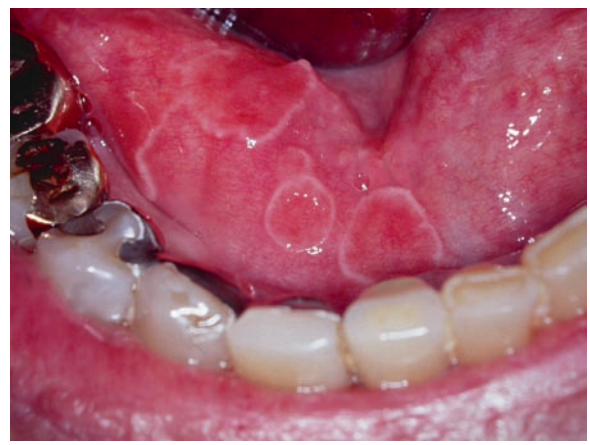

**Fig. 2.9** Benign migratory glossitis of the ventral tongue and floor of mouth. As this region of the tongue does not normally contain papillae, only the white rimmed borders are noted.

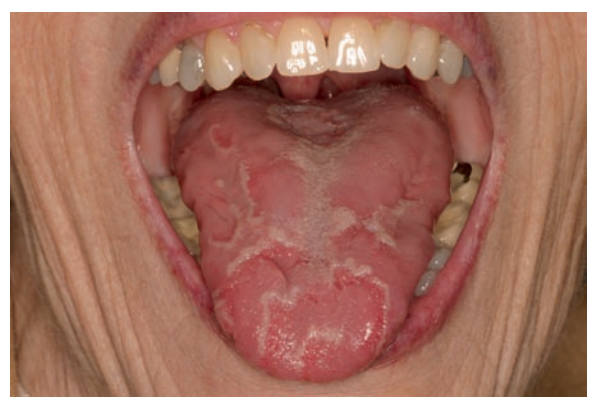

**Fig. 2.10** Extensive benign migratory glossitis affecting the entire tongue dorsum with prominent areas of depapillation surrounded by white rimmed borders.

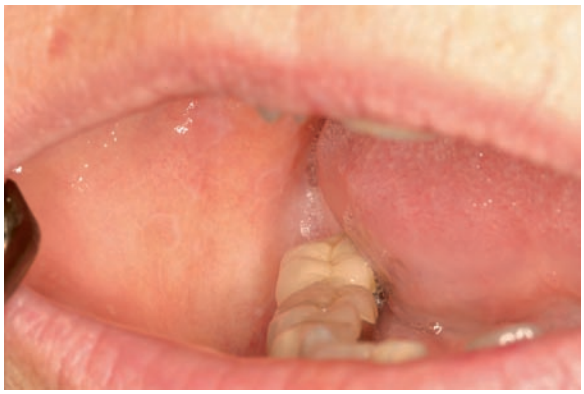

**Fig. 2.11** Stomatitis erythema migrans showing subtle circular lesions with white borders of the right buccal mucosa and concurrent changes consistent with benign migratory glossitis.

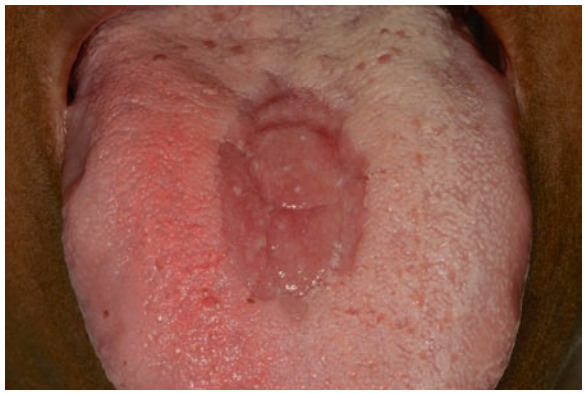

**Fig. 2.12** Median rhomboid glossitis with a well-defined depapillated patch in the posterior midline of the tongue dorsum with normal surrounding tissue.

tures can give the tongue a map-like appearance, thus the descriptive term "geographic." In an affected individual, the presentation can change on a daily basis and therefore appear "migratory." Although the clinical presentation can be striking, there are few if any other conditions that mimic geographic tongue (these include oral lichen planus, erythematous candidiasis, and leukoplakia), and with a good history and examination lesions rarely warrant biopsy.

Albeit rare, patients may describe sensitivity of the tongue to otherwise normally tolerated food and beverages. This may or may not correlate with the extent of lesions noted clinically. Management with topical therapies may be effective in such cases. Importantly, other causes of tongue sensitivity must be considered, such as candidiasis or immune-mediated conditions, especially when there is recent or abrupt onset of symptoms.

**Diagnostic tests**: None; diagnosis is based on clinical appearance.

**Biopsy**: No, except very atypical presentations.

**Treatment**: None in most cases. When symptomatic, rinses containing topical dexamethasone or diphenhydramine may be effective in reducing symptoms. Be sure to consider other causes of tongue discomfort, such as *burning mouth syndrome* (see Chap. 10).

**Follow-up**: None.

## 2.8 Median Rhomboid Glossitis

This is a poorly understood condition that affects the tongue dorsum. It is characterized by a chronic, atrophic, erythematous, depapillated patch in the posterior midline of the tongue dorsum typically measuring between 0.25 and 2.0 cm in diameter (Fig. 2.12). While there is great variation in clinical presentation among patients, the size and quality of the lesion do not tend to change significantly over time in a given individual.

While many cases are never symptomatic, mild discomfort may develop specifically in the area of atrophic change. If so, symptoms tend to come and go and rarely persist for long. Because tissue biopsy often demonstrates superficial candidal colonization and an inflammatory infiltrate in the underlying connective tissue, there is some thought that median rhomboid glossitis is mediated by chronic candidal colonization. The tissue may be particularly susceptible to recurrent fungal infection due to the reduced thickness of the epithelium. Therefore, when a patient develops symptoms of tongue discomfort in the presence of median rhomboid glossitis, first-line treatment consists of topical or systemic antifungal therapy. If symptoms persist following an appropriate course of antifungal therapy, topical corticosteroid therapy should be instituted. If this is also ineffective and all other potential etiologies have been excluded, the discomfort should be managed as a neuropathic pain disorder (see Chap. 10).

**Diagnostic tests**: None routinely. A positive fungal culture or cytological smear may or may not represent a true infection (see Chap. 3). This may be clinically useful to determine baseline status prior to initiating antifungal therapy.

**Biopsy**: No, except for atypical presentations.

**Treatment**: None in most cases. When symptomatic, initial therapy should consist of a 1-week course of either clotrimazole troches or fluconazole. Be sure to consider other causes of tongue discomfort, such as *geographic tongue* or *burning mouth syndrome*. If there is no improvement following 1 week of antifungal therapy, treatment with high potency topical corticosteroid gels (fluocinonide 0.05% or clobetasol 0.05%), two to three times daily, should be initiated. If this is also ineffective, consider treating as a neuropathic condition (see Chap. 10).

**Follow-up**: None if asymptomatic, otherwise patients should be re-evaluated after 1 week of antifungal therapy.

## 2.9 Fibroma

Fibromas are probably the most commonly encountered oral soft tissue lesions. Frequently used terms include *irritation fibroma* and *traumatic fibroma*, indicating the underlying reactive etiology. These are initiated by trauma, typically a bite injury (that the patient may not recall) or secondary to friction from the sharp edge of a tooth or dental restoration. Fibromas present clinically as round or ovoid, firm, exophytic, smooth-surfaced masses that are the same color as, or slightly lighter than, the surrounding mucosa (Fig. 2.13). Lesions range in size from several millimeters to 1.0 cm in diameter (Fig. 2.14). Larger lesions are exceedingly rare and biopsy should be considered in such cases to rule out a neoplasm. As these are often caused by bite trauma, the most commonly involved areas are along the bite plane of the buccal mucosa and lateral tongue, although the lower labial mucosa and tongue dorsum can also be affected. There are no specific risk factors other than a history of minor trauma.

Fibromas are generally asymptomatic and do not require treatment unless they are particularly bothersome to the patient. Depending on the size and location, lesions may simply be an annoyance, or they may become quite uncomfortable due to repetitive trauma. Lesions may progressively enlarge with recurrent injury, thereby compounding the clinical situation. In such cases the surface mucosa often becomes ulcerated, characterized by a yellowish white pseudomembrane (Fig. 2.15).

Treatment is surgical excision, after which lesions rarely recur. Histopathological examination demonstrates a dense collection of fibrous tissue with normal surface epithelium. Fibromas have no malignant potential; however, they should be excised and submitted for histopathological analysis if the clinical diagnosis is uncertain.

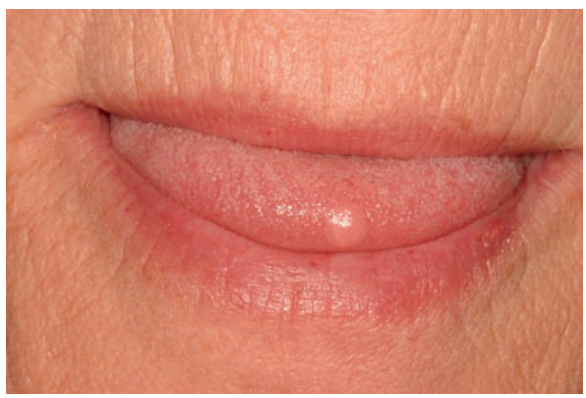

**Fig. 2.13** Fibroma of the anterior tongue tip secondary to bite trauma. The lesion is well-defined and has a smooth, raised surface in comparison to the adjacent tissue; it is firm and nontender.

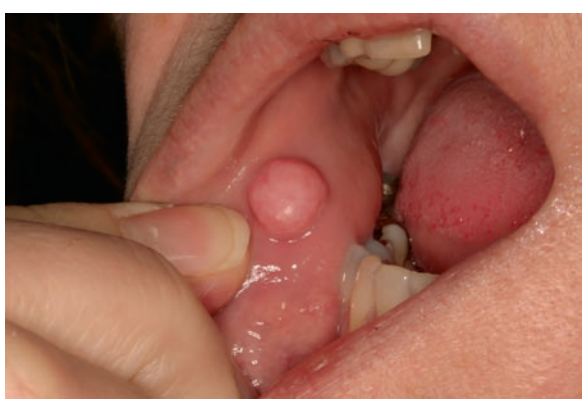

**Fig. 2.14** Large fibroma of the right buccal mucosa. The surface mucosa is thicker in appearance than the surrounding tissue.

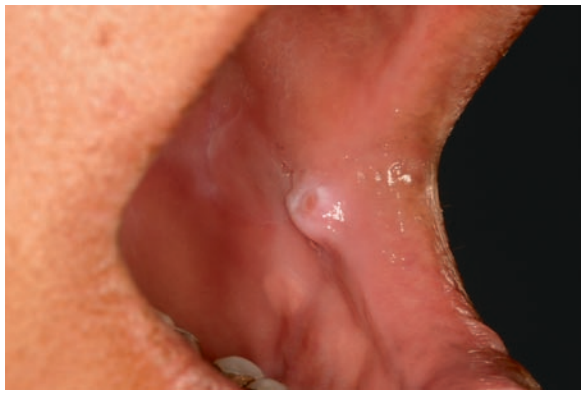

**Fig. 2.15** Fibroma of the left buccal mucosa with focal ulceration secondary to repetitive bite injury.

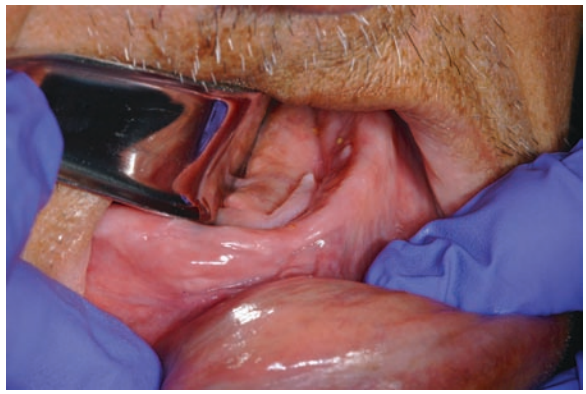

**Fig. 2.16** Fibrous hyperplasia of the mandibular mucosa secondary to a poorly fitting denture. Note the folds of dense fibrous tissue in the anterior floor of mouth (*epulis fissuratum*).

**Diagnostic tests**: None.
**Biopsy**: Only if the appearance is suspicious.
**Treatment**: None if asymptomatic; otherwise complete surgical excision.
**Follow-up**: None.

## 2.10 Inflammatory Papillary Hyperplasia

This is a benign reactive condition that develops on denture-bearing mucosa. This includes the maxillary and mandibular alveolar mucosa, the hard palate, and the vestibular mucosa. It only affects denture wearers and not patients who wear other removable oral appliances. Inflammatory papillary hyperplasia can affect a very limited area of mucosa or be quite extensive, in some cases involving the entire hard palate. A focal lesion with a distinct wrinkled or folded appearance is often termed *epulis fissuratum*, and is most commonly encountered in the anterior buccal vestibule at the edge of a denture flange (Fig. 2.16). Lesions are characterized by pebbly, papillary changes that are variably associated with tissue hyperplasia, and verrucous-like changes that can be quite notable (Fig. 2.17). This condition is rarely symptomatic, however, patients are typically aware of its presence. Depending on the location and extent of tissue hyperplasia, lesions may be susceptible to secondary trauma or interfere with prosthesis fit and function (Fig. 2.18).

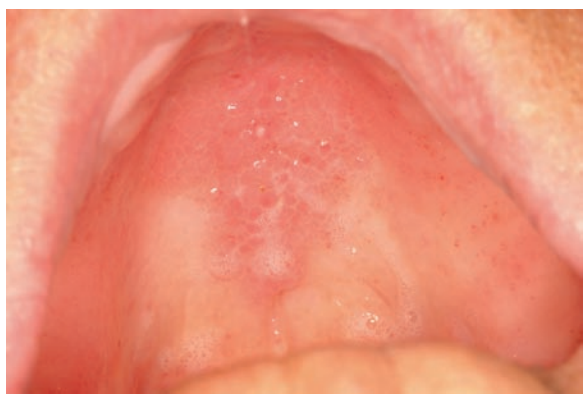

**Fig. 2.17** Inflammatory papillary hyperplasia in a patient with a full upper denture. A punch biopsy was obtained to rule out malignancy. As the lesion was asymptomatic and the denture was otherwise comfortable, no further treatment was necessary.

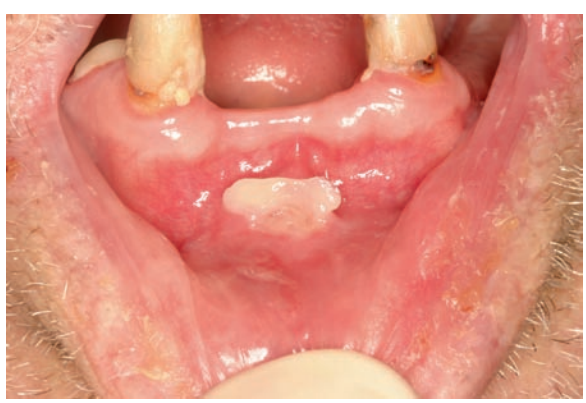

**Fig. 2.18** Ulcerated epulis fissuratum due to a poorly fitting removable partial denture.

The etiology of inflammatory papillary hyperplasia is poorly understood. It is thought that chronic irritation due to a loose or poorly fitting denture, or inadequate denture hygiene (with candida colonizing the denture material), contributes to localized inflammatory-mediated reactive changes in the mucosa. As lesions may mimic other pathologic conditions, including *proliferative verrucous leukoplakia* and *squamous cell carcinoma* (see Chap. 9), biopsy may be necessary to rule out dysplasia or malignancy. Histopathological findings include benign papillary acanthosis (increased epithelial thickness) that is commonly associated with a chronic inflammatory infiltrate in the underlying connective tissue.

The first step in treatment is careful evaluation of the prosthesis. The extension of the denture borders into the vestibule as well as overall stability should be examined closely by an appropriate specialist. Recommendation should be made to soak the prosthesis overnight in an over the counter denture disinfectant solution or prescription chlorhexidine gluconate 0.12%. Another simple and inexpensive option for nonmetal containing prostheses is use of a 1:10 dilution of sodium hypochlorite, or common household bleach. Even in the absence of obvious oral fungal infection, a 1–2-week course of fluconazole 100 mg once daily, in addition to daily denture hygiene, is reasonable empiric therapy. During this time, the prosthesis should be left out of the mouth as much as possible to avoid exacerbation of the lesion. Surgical excision is indicated for lesions that fail to respond to conservative therapy and are bothersome or interfere with function (Fig. 2.19).

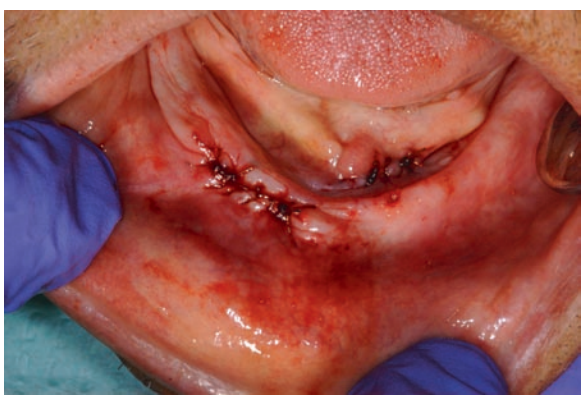

**Fig. 2.19** Areas of fibrous tissue shown in Fig. 2.16 were excised and submitted for histopathology in preparation for fabricating a new set of complete dentures.

**Diagnostic tests**: None.

**Biopsy**: Yes, to rule out malignancy if the clinical appearance is suspicious.

**Treatment**: Prosthesis should be evaluated for fit, stability, and hygiene and adjusted or otherwise managed appropriately. Hyperplastic tissue can be surgically excised or laser ablated if bothersome or otherwise symptomatic.

**Follow-up**: None. Patients should be instructed to maintain good denture hygiene and return to their dentist for regular follow-up.

## 2.11 Tori and Exostoses

These are benign, developmental bony growths that are commonly observed in the oral cavity. Tori are more common and are specific to the midline hard palate and anterolateral lingual mandible. Similar lesions involving the buccal aspect of the maxilla or mandible are called exostoses. These areas are covered by keratinized or nonkeratinized mucosa, depending on the anatomic location, and can be mistaken for mucosal growths. Changes are not typically evident until the second decade, and while highly variable, growth is generally very slow throughout life. Even when lesions become quite extensive, patients may be unaware of their presence due to the gradual incremental growth pattern over decades.

Maxillary tori occur in the midline of the hard palate and range from barely discernable dome-shaped smooth swellings to large multilobulated masses (Figs. 2.20–2.22). Mandibular tori develop most commonly along

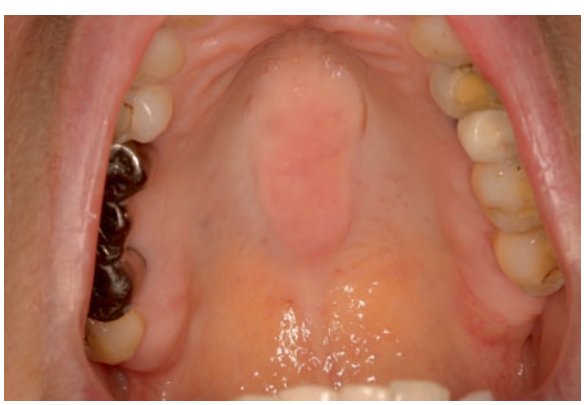

**Fig. 2.20** Maxillary torus with smooth surface and well-defined borders in the midline of the hard palate.

the lingual aspect of the mandible inferior to the premolars bilaterally. Mandibular tori also exhibit a wide range of presentations; however, lesions usually demonstrate two to three well-defined smooth lobules (Fig. 2.23). Exostoses appear clinically identical to mandibular tori on the buccal surface of the mandible or maxilla (Fig. 2.6). These can grow to be quite large yet rarely have any discernable effect on the external facial appearance. On intraoral periapical dental radiographs, the involved areas appear as dense radiopacities within the maxilla and mandible (Fig. 2.24).

Tori and exostoses generally do not require any treatment. The covering mucosa may occasionally become irritated or ulcerated secondary to trauma, which is managed symptomatically. If denture fabrication is required, tori can be surgically removed to maximize retention of the prosthesis and minimize the risk of pressure-induced trauma.

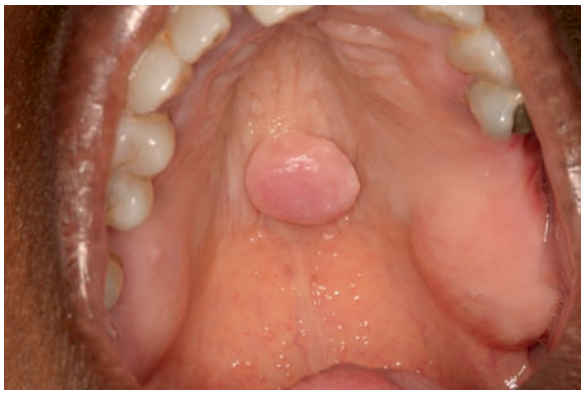

**Fig. 2.21** Maxillary torus with a stalk-like attachment to the underlying palatal bone.

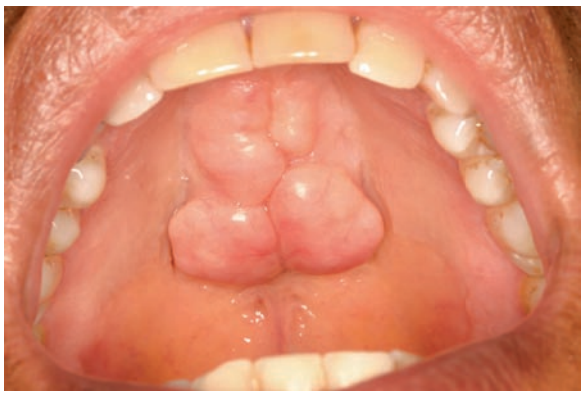

**Fig. 2.22** Multilobulated maxillary torus showing slight asymmetry.

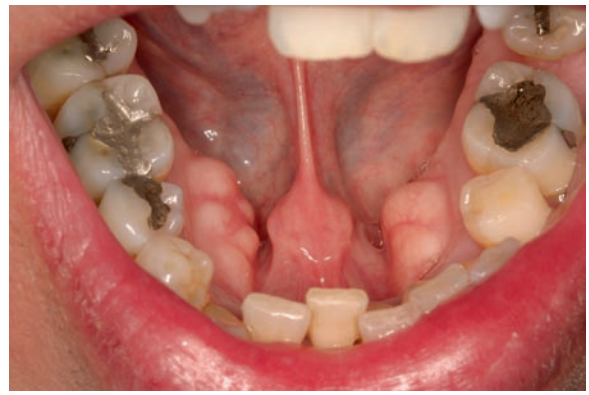

**Fig. 2.23** Mandibular tori in the premolar region with multiple lobules.

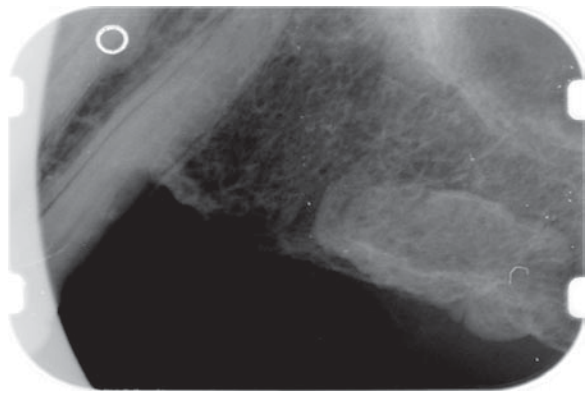

**Fig. 2.24** Radiographic appearance of a maxillary torus as a well-defined radiopacity.

**Diagnostic tests**: None.
**Biopsy**: No.
**Treatment**: None.
**Follow-up**: None.

## 2.12 Ankyloglossia and Prominent Frenula

Abnormal prominence of *frenula* (tissue attachments of the anterior tongue and labial mucosa), can result in a variety of complications. In the case of the *lingual frenulum*, this can lead to problems with speech development or infant feeding, and is referred to *ankyloglossia* or "tongue tie." Localized periodontal recession on the lingual aspect of the central incisors can also occur. A prominent *labial mandibular frenulum* can

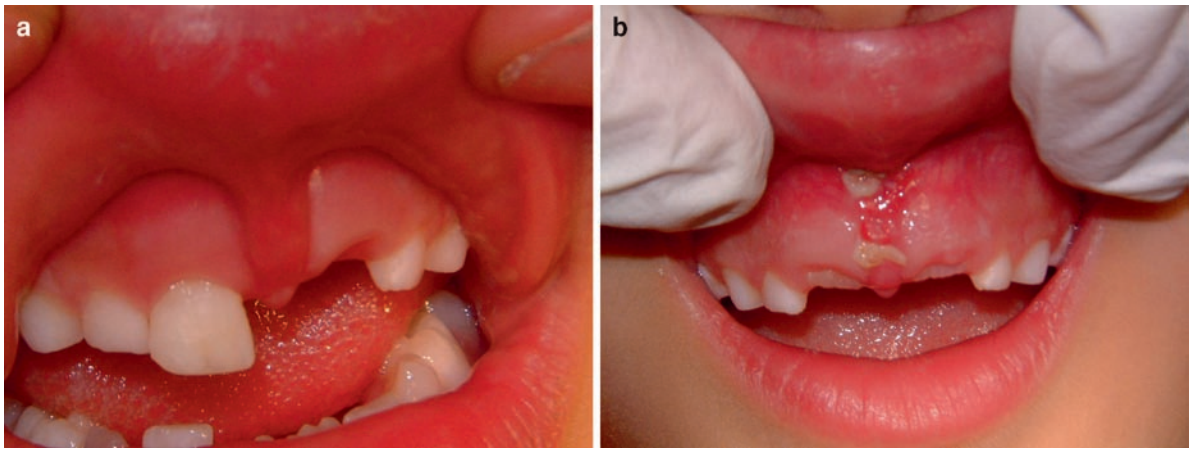


**Fig. 2.25** Thick maxillary frenulum in a 5-year-old before (**a**) and after (**b**) surgical repositioning.

similarly affect the facial aspect of the same teeth. High insertion of the *maxillary frenulum* onto the gingiva may lead to formation of a gap, or *diastema*, between the central incisors (Fig. 2.25). These conditions are typically identified in young children by their dentist or pediatrician. If indicated, treatment is simple surgical repositioning or excision.

**Diagnostic tests**: None.
**Biopsy**: No.
**Treatment**: Referral to an oral surgeon that specializes in pediatrics for surgical evaluation.
**Follow-up**: None.

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