# SYNOPSIS OF
# ORAL PATHOLOGY

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SIXTH EDITION

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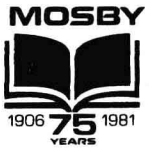


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# Preface

Oral pathology teaches the student about the cause, development, gross and microscopic alterations, natural history, and final outcome of disease. It forms the basis for correct diagnosis and therapy. No other subject in dental education imparts greater confidence to the student or assures better treatment for the patient.

The first edition of this book was written to provide the student and the practicing dentist with all necessary information about oral pathology without the burden of minutiae and superfluous detail. The response from dentists and dental students around the world would indicate that all five editions of the book have accomplished this goal.

In this sixth edition, the initial purpose of the book has not changed. The subject matter has been brought up to date, and new figures have been added.

As a dentist engaged in clinical practice, I deeply appreciate the needs and the concerns of the patients, as well as the challenges and the responsibilities that constantly face all clinicians. It is my fervent hope, therefore, that this subject and especially this book will make it easier for the clinician to diagnose oral diseases quickly and to treat them with confidence.

**S. N. Bhaskar**

## Acknowledgment

Regardless of how old a man is and what his accomplishments are, he always owes a deep debt of gratitude to his parents and to some of his teachers. To his parents, he is indebted for their teaching of all the worthwhile values of human life; and to a select group of teachers, he is indebted for their encouragement and nurturing of these values. I am deeply grateful, therefore, to my mother and father, who taught me with affection; and I dedicate this book to them and to their memory. Of my many outstanding teachers, now a part of the legend of dentistry, I will always remember Drs. Isaac Schour, Balint Orban, Harry Sicher, and Joseph P. Weinmann. It is especially to Professor Weinmann, a teacher, a dear friend, and a scientist of outstanding talent and deep humility, who taught with patience and who was willing to share all his knowledge, that I am in deepest debt.

Innumerable dentists in the United States, teachers, practitioners and students alike, have told me, through letters and spoken words, about the assistance the past editions of this book have provided them in their professional lives. Without such encouragement and support, the very purpose of this book would be lost. I express, therefore, my deep gratitude to all my professional colleagues in the United States and abroad.

A number of my students, now prominent oral pathologists in their own right, offered criticism and advice for the last edition. I wish to express my thanks to all of them and especially to Drs. Peter Tsaknis, James C. Adrian, John Nelson, Duane Cutright, and Thomas Payne for helpful advice and assistance.

No man can accomplish much without the help, support, and understanding of his family. The patience and support of my wife, Norma, and sons, William, Philip, and Thomas, are therefore acknowledged with the deepest of affection.

# Contents

PART I

# ORAL DIAGNOSIS

One of the most important purposes of oral pathology is to give the student the ability to correctly diagnose oral lesions. There are more than 200 different types of diseases that afflict the oral cavity, and many of these can only be diagnosed through microscopic examination. The clinical appearance and history of oral lesions, however, can often give the clinician a reliable provisional diagnosis on which to plan further management of the patient. Oral diagnosis is based on a sound knowledge of oral pathology and is essential for good clinical practice.

The purpose of this part of the book, therefore, is to present oral pathology in a manner that is meaningful to the clinician. The lesions of the oral cavity are classified according to their clinical appearance, and such information that will aid the clinician in making a rational assessment of a given lesion is furnished. Details about microscopic features and theories about histogenesis of lesions have been omitted.

The pathology of the oral regions is presented in tabular form under the following headings:

**Surface lesions of oral mucosa**

1. White lesions
2. Vesicular lesions
3. Ulcerations
4. Pigmented lesions

**Soft tissue growths of oral cavity**

1. Firm, nonhemorrhagic growths
2. Hemorrhagic or easily bleeding growths
3. Compressible growths
4. Papillary or cauliflower-like growths

**Lesions of jaws**

1. Radiolucent lesions
2. Radiopaque lesions
3. Partly radiolucent and partly radiopaque lesions

**Lesions of salivary glands**

1. Swellings

## WHITE LESIONS OF ORAL MUCOSA

The following conditions appear as white surface lesions of the oral mucosa (Table 1, pp. 8 to 13):

Desquamative gingivitis
Benign hyperkeratosis (pachyderma oris; pachyderma oralis; focal keratosis)
Leukoplakia with dyskeratosis (and verrucous leukoplakia)
Carcinoma in situ
Squamous cell carcinoma
White sponge nevus (naevus spongiosis albus mucosae; white folded gingivostomatitis; congenital leukokeratosis mucosae oris)
Hereditary benign intraepithelial dyskeratosis (red eye)
Lichen planus
Stomatitis nicotina
White hairy tongue (lingua villosa alba)
Candidiasis (moniliasis; thrush)
Fordyce's disease
Chemical burn
Geographic tongue
Epstein's pearl (Bohn's nodule)
Allergic reactions

## VESICULAR LESIONS OF ORAL MUCOSA

Vesicular lesions of the oral mucosa are short-lived. They rupture soon after formation and leave superficial ulcers. The following lesions appear either as vesicles that soon form ulcers or as ulcers that may be erroneously thought to have had a vesicular beginning (Table 2, pp. 14 to 19):

Primary herpetic gingivostomatitis
Secondary herpetic lesion
Aphthous ulcer
Periadenitis mucosa necrotica recurrens (Sutton's disease; Mikulicz's ulcer)
Herpes zoster (shingles)
Erythema multiforme (Stevens-Johnson syndrome; ectodermosis erosiva pluriorificialis)
Behçet's syndrome
Reiter's syndrome
Pemphigus vulgaris
Benign mucous membrane pemphigus (pemphigoid)
Smallpox and chickenpox
Herpangina
Hand-foot-and-mouth disease
Epidermolysis bullosa
Allergic reactions (stomatitis medicamentosa; stomatitis venenata)
Mucocele

## ULCERATIONS OF ORAL MUCOSA

In the presence of an ulcer, a number of possibilities should be considered. It will be noted that all vesicular lesions of the oral mucosa terminate in ulcers and are included among the following (Table 3, pp. 20 to 29):

Traumatic ulcer
Desquamative gingivitis
Vincent's stomatitis (necrotizing ulcerative gingivitis)
Eosinophilic granuloma
Erosive lichen planus
Candidiasis (moniliasis; thrush)
Primary herpetic gingivostomatitis
Secondary herpetic lesion
Aphthous ulcer
Periadenitis mucosa necrotica recurrens (Sutton's disease; Mikulicz's ulcer)
Herpes zoster (shingles)
Erythema multiforme (Stevens-Johnson syndrome; ectodermosis erosiva pluriorificialis)
Behçet's syndrome
Reiter's syndrome
Pemphigus vulgaris
Benign mucous membrane pemphigus (pemphigoid)
Smallpox and chickenpox
Herpangina
Hand-foot-and-mouth disease
Stomatitis venenata
Stomatitis medicamentosa
Squamous cell carcinoma and other malignant epithelial tumors
Lymphomas and leukemias
Chancre (syphilis)
Mucous patch (syphilis)
Tuberculosis
Histoplasmosis
Infectious mononucleosis
Riga-Fede disease
Pterygoid ulcer (Bednar's aphtha)

## PIGMENTED LESIONS OF ORAL MUCOSA

Pigmentation of the oral mucosa is produced by any one of the following conditions (Table 4, pp. 30 to 33):

Black hairy tongue
Amalgam tattoo
Addison's disease
Normal pigmented patches
Jeghers' (Peutz-Jeghers) syndrome
Melanotic macule
Nevus
Melanoma
Heavy metal poisoning (bismuth, mercury, lead, silver)
Postmenopausal state
Drug ingestion (tranquilizers, oral contraceptives)
Varicosity
Malnutrition

## FIRM, NONHEMORRHAGIC SOFT TISSUE GROWTHS OF ORAL CAVITY

A firm, nonbleeding growth of oral soft tissue usually indicates one of the following lesions (Table 5, pp. 34 to 37):

Fibromatosis
Torus (exostosis; peripheral osteoma) and related lesions
Irritation fibroma
Peripheral fibroma and peripheral fibroma with calcification
Myxoma (fibroma with myxomatous degeneration)
Neurofibroma and schwannoma (neurilemoma)
Lipoma
Granular cell myoblastoma
Sialadenitis
Tumor of salivary gland

## HEMORRHAGIC OR EASILY BLEEDING SOFT TISSUE GROWTHS OF ORAL CAVITY

Soft tissue growth of the oral tissues that bleed easily could represent any one of the following lesions (Table 6, pp. 38 to 41):

Parulis (periodontal abscess; gumboil)
Eosinophilic granuloma
Epulis fissuratum
Peripheral giant cell granuloma
Pyogenic granuloma
Pregnancy tumor (granuloma gravidarum)
Squamous cell carcinoma and other malignant tumors
Lymphomas (lymphosarcoma; reticulum cell sarcoma) and leukemias

## COMPRESSIBLE SOFT TISSUE GROWTHS OF ORAL CAVITY

The following lesions present as compressible growths of the oral soft tissues (Table 7, pp. 42 to 45):

Eruption cyst
Mucocele (mucous retention cyst; retention phenomenon)
Mucous cyst
Ranula
Gingival cyst
Nasoalveolar cyst
Epidermoid cyst (dermoid, epidermal, dermal)
Cavernous and capillary hemangioma
Lymphangioma
Cystic hygroma (cystic lymphangioma; hygroma cysticum colli)

## PAPILLARY OR CAULIFLOWER-LIKE SOFT TISSUE GROWTHS OF ORAL CAVITY

The following papillary or cauliflower-like lesions occur in the oral cavity (Table 8, pp. 44 to 47):

Verrucous leukoplakia
Verruca vulgaris
Condyloma acuminatum
Papilloma
Pseudoepitheliomatous hyperplasia (keratoacanthoma)
Inflammatory papillary hyperplasia
Verrucous carcinoma

## RADIOLUCENT LESIONS OF JAWS

The radiolucent lesions of the jaws can be subdivided into eight groups as follows (Table 9, pp. 48 to 61):

**Lesions at apex of tooth**

Dental granuloma
Radicular cyst
Residual cyst
Periapical (dentoalveolar) abscess
Apical scar
Cementoma (first stage)

**Lesions in midline of maxilla**

Median palatine cyst
Median alveolar cyst
Globulomaxillary cyst
Nasoalveolar cyst
Incisive canal cyst
Cyst of palatine papilla

**Lesion in place of missing tooth**

Primordial cyst

**Lesions around crown of impacted tooth**

Dentigerous cyst
Ameloblastoma
Odontogenic adenomatoid tumor (adenoameloblastoma)
Odontogenic fibroma and myxoma

**Soap bubble–like radiolucencies**

Multilocular cyst
Aneurysmal bone cyst
Ameloblastoma
Giant cell granuloma (central)
Cherubism (early stage) or familial intraosseous fibrous swelling of jaws
Myxoma (nonodontogenic)

**Multiple but separate radiolucent lesions**

Cherubism (early stage) or familial intraosseous fibrous swelling of jaws
Multiple myeloma
Eosinophilic granuloma
Hand-Schüller-Christian disease
Letterer-Siwe disease
Hyperparathyroidism (brown node, giant cell lesion)
Metastatic tumor

**Lesions that destroy cortical plate**

Metastatic tumor
Primary malignant tumor
Osteomyelitis

**Miscellaneous radiolucencies**

Lateral periodontal cyst
Traumatic cyst
Idiopathic bone cavity
Osteomyelitis
Hematopoietic marrow
Gingival cyst
Physiologic osteoporosis
Hemangioma (central)

## RADIOPAQUE LESIONS OF JAWS

A radiopaque area of the jaw may represent any one of the following lesions (Table 10, pp. 62 to 67):

Cementoma (third stage)
Compound odontoma
Complex odontoma
Ossifying fibroma (fibrous dysplasia)
Osteoma and torus
Osteogenic sarcoma
Chondrosarcoma
Metastatic tumor
Paget's disease (osteitis deformans)
Osteopetrosis (Albers-Schönberg disease; marble bone disease)
Leontiasis ossea
Caffey's disease (infantile cortical hyperostosis)
Garré's osteomyelitis
Condensing osteitis
Root fragment or foreign body
Chronic sclerosing osteomyelitis

## PARTLY RADIOPAQUE AND PARTLY RADIOLUCENT LESIONS OF JAWS

The following lesions usually present as partly radiopaque and partly radiolucent areas (Table 11, pp. 66 to 69):

Cementoma (second stage)
Ameloblastic fibro-odontoma
Cystic odontoma
Ossifying fibroma (fibrous dysplasia)
Osteogenic sarcoma
Chondrosarcoma
Metastasis from carcinoma of prostate or breast
Paget's disease (osteitis deformans)
Condensing osteitis
Chronic sclerosing osteomyelitis

## SWELLINGS OF SALIVARY GLANDS

A swelling in the area of a major or minor salivary gland may represent any one of the following lesions (Table 12, pp. 70 to 73):

Mucocele (mucous retention cyst; retention phenomenon)
Ranula
Mumps (infectious parotitis)
Cat-scratch disease
Sarcoidosis (Besnier-Boeck-Schaumann disease)
Mikulicz's disease (benign lymphoepithelial lesion)
Sjögren's syndrome (sicca syndrome [*sicca*, dry])
Fatty infiltration
Hypertrophy
Sialadenitis
Benign tumor
Malignant tumor

• • •

The information included in Tables 1 to 12 is not precise. In a sense, it is crude—but only as crude as an eye is to a microscope. There are exceptions to many points given; but when intelligently applied to a given oral lesion, this information can aid the clinician in making a reasonably accurate diagnosis.

**Table 1.** White lesions of oral mucosa

| Lesion | Usual location | Usual age and sex | Clinical features |
|---|---|---|---|
| Desquamative gingivitis | Free and attached gingiva | Over 40 yr; female | Multiple white areas that can be rubbed off by finger pressure; red, inflamed mucous membrane |
| Benign hyperkeratosis (pachyderma oris; etc.) | Anywhere on oral mucosa, especially lip and cheek | Adulthood; male | White lesion, flat or raised, may be rough; usually single; duration, weeks to months; cannot be wiped off |
| Leukoplakia with dyskeratosis (and verrucous leukoplakia) | Anywhere on oral mucosa, usually lip, tongue, cheek, and floor of mouth | Adulthood, usually fourth decade and later; male | White lesion, flat or elevated, may be fissured, rough, or smooth; any size; asymptomatic; may be increasing in size; may present as ulcer or as mottled or red area; duration varies; cannot be wiped off |
| Carcinoma in situ | Anywhere on oral mucosa | Adulthood; male | Same as in leukoplakia |
| Squamous cell carcinoma | Lip, tongue, floor of mouth, and cheek, in that order of frequency | Adulthood; male | About 4%-6% present as white plaques; may be flat, elevated, or fissured; may be associated with lymph node enlargement in neck |
| White sponge nevus (naevus spongiosis albus mucosae; etc.) | Large area of oral mucosa or entire mucosa | Present from childhood; either | Hereditary disease; present in number of members of same family; may appear in one area and then spread; asymptomatic; mucosa appears parboiled; cannot be wiped off |

| Microscopic features | Treatment | Prognosis | Page ref. |
|---|---|---|---|
| Separation of epithelium from connective tissue at basement membrane | Symptomatic; hormones; corticoids; vitamins | Fair | 186 |
| Epithelium covering mucosa shows thick layer of keratin; epithelial cells normal | If cause removed lesion should disappear in about 3 wk; may be excised | Excellent | 374 |
| Epithelial covering shows thick layer of keratin, as seen in benign hyperkeratosis; also, epithelial cells show abnormalities called dyskeratosis (p. 379); basement membrane intact | Total excision with wide margin | Untreated lesion becomes squamous cell carcinoma; if totally excised, prognosis good; better prognosis in lesions of lip and cheek than in those of floor of mouth or base of tongue | 375 |
| Only difference between this lesion and leukoplakia is presence of dyskeratotic cells in almost all layers; basement membrane intact; carcinoma in situ differs from leukoplakia only in degree | Total, wide excision | Same as in leukoplakia; prognosis only fair in lesions of floor of mouth and base of tongue | 380 |
| Epithelial covering shows keratinization; numerous dyskeratotic cells, many of which invade underlying tissues; basement membrane violated | Wide excision | Good for lip lesion; poor for lesions of floor of mouth and base of tongue | 380 and 539 |
| Thickening of epithelial covering; superficial layers of epithelial cells swollen and fail to stain | None; lesions harmless and should not be treated | Excellent | 380 |

*Continued.*

**Table 1.** White lesions of oral mucosa—cont'd

| Lesion | Usual location | Usual age and sex | Clinical features |
|---|---|---|---|
| Hereditary benign intraepithelial dyskeratosis (red eye) | Generalized on oral mucosa | Present from childhood; either | White spongy mucosa; corners of mouth may be involved; white plaques on cornea and conjunctivitis, giving red eye appearance |
| Lichen planus | Cheek; may be on tongue or lip or elsewhere on oral mucosa | Adulthood; either | White or gray-white lacy lesion or gray-white patch; cannot be wiped off; may be associated with scaly papules on skin; oral lesion may precede skin lesion; believed to be of psychosomatic origin |
| Stomatitis nicotina | Palate | Adulthood; male | Reddening of palatal mucosa that later becomes white; surface studded with numerous nipplelike elevations, center of which shows pinpoint orifice of palatal gland duct; patients usually pipe smokers; cannot be wiped off |
| White hairy tongue (lingua villosa alba) | Dorsum of tongue | Adulthood and later; male | Long, white, hairlike elongation of filiform papillae; asymptomatic or accompanied by pain and enlargement of tongue |
| Candidiasis (moniliasis; thrush) | Anywhere on oral mucosa | Two extremes of life; also debilitated persons and those receiving antibiotics; either | Multiple white, curdlike patches on oral mucosa; can be scraped off but leave bleeding surfaces; lesions heal in one area to appear elsewhere; may appear as red, raw oral mucosa |
| Fordyce's disease | Cheek, level of occlusal plane of teeth | Adulthood; either | White or yellowish granules; may coalesce to appear as white or yellow plaque; asymptomatic; condition very common |