

THE
MANAGEMENT
OF
ORAL DISEASE

JOSEPH L. BERNIER

THE MANAGEMENT OF ORAL DISEASE

THE MANAGEMENT OF ORAL DISEASE

A Treatise on the Recognition, Identification, and
Treatment of Diseases of the Oral Regions

By

JOSEPH L. BERNIER, D.D.S., M.S., F.D.S., R.C.S. (Eng.)

Colonel, Dental Corps, United States Army; Chief, Oral Pathology Branch, Armed Forces
Institute of Pathology; Pathologist to the Registry of Oral Pathology of the American
Dental Association; Professor of Oral Pathology, Georgetown University School
of Dentistry; Chairman, Dental Research Advisory Committee to the
Medical Research and Development Board, Department of the
Army; Special Lecturer in Oral Pathology, Educational
Advisor to the Dental Division, and Chief of the
Department of Oral Medicine, Army Medi-
cal Service Graduate School; Con-
sultant in Oral Pathology to
Veterans Administration
Central Office

*With 1001 Text Illustrations
and 5 Color Plates*

St. Louis

THE C. V. MOSBY COMPANY

1955

COPYRIGHT, 1955, BY THE C. V. MOSBY COMPANY
(All rights reserved)

Printed in the
United States of America

Press of
The C. V. Mosby Company
St. Louis

To

Bernice, Beverlee, and Joey

For whom any undertaking is possible

PREFACE

The stimulation for the preparation of this text to a very great extent came from the realization of the need for a guide in the teaching of oral pathology which would be in keeping with the newer definition of that specialty. It looks, therefore, beyond disturbances of the tooth and its supporting apparatus to the diseases of the soft and hard structures of the oral regions, which have now been generally accepted as a responsibility of the dental profession. At the same time, realism demanded a text which would be reasonably complete in subject matter and not overburdened with supportive detail. Such a work, it seemed, would lack cumbersome dimensions and yet provide a ready reference for student, practitioner, and pathologist. Toward this combination of completeness and readability, certain subjects no longer treated in detail as part of oral pathology have been purposefully de-emphasized. These include dental caries, which has now become a special segment of dental research and teaching, and periodontal pathology, which is discussed exhaustively in many excellent special texts.

Oral pathology cannot properly be considered as a segment of general pathology because of the applicability of the latter to diseases of both the living and the dead. Oral pathology, on the other hand, deals almost exclusively with the diseases of the living which occur in a special area and is therefore related to general surgical pathology. A work such as this, then, could properly be titled "Surgical Oral Pathology," but because of the strangeness of this phrase in dentistry, it was considered more appropriate to adopt the term "management" in this title, to indicate the emphasis which is placed on patient care.

Although defined in many ways, diagnosis may be considered to imply the reaching of a decision after careful study of signs and symptoms and other pertinent facts relating to disease. Unfortunately this decision often reaches fruition when an acceptable identification of the disease has been made. With this limited connotation, the word "diagnosis" no longer seems adequate, since to merely identify a disease process is not always sufficient.

The term "management," although also variously defined, generally has a broader application, such as that implied here, where recognition, identification, and treatment are embodied in the word. With such a definition, it may be seen that all who practice dentistry have some responsibility in the management of oral disease. Recognition of an abnormality is the problem of all who have patient contact. From this point onward management is completed or the patient is referred to another for identification and treatment. In any event, responsibility of all concerned is not discharged until therapy has been instituted. Specialization being what it is today, the cooperative effort of general practitioner and expert is becom-

ing more and more the rule. This is as it should be, since this increases the effectiveness of patient care. With such a division of responsibility, however, there is danger in thinking more of the local problem than of the patient himself. This is a serious mistake which can lead to disastrous results.

This is constantly demonstrated in the pathologist's world where it is evident that all disease processes are part of a larger panorama, the complete understanding of which is essential to proper management of the patient. Identification of a disease in a word or phrase does not necessarily indicate understanding of the reaction. This broader knowledge comes only after extensive clinical and laboratory experience involving attention to minutiae as they relate to the total organism. Without this latter appreciation, volumes of detailed data are useless.

It must also be borne in mind that, as in other texts, the data herein are generally presented in a simplified form and must, therefore, be augmented through literature review and open discussion if they are to have their fullest meaning. One should not quote, as undisputed and authoritative, statements from a book designed for student teaching, because the simplification necessary for such an objective often requires the elimination of much collaborative data.

A number of the concepts presented, such as those relating to leukoplakia and the cementifying fibroma, are somewhat original. It is hoped that this will not be looked upon as heretical, since time alone will determine how near they approach acceptability. Certainly it is not intended that these newer explanations should imply errors in past thinking. Acceptance of a new thought must be slow and deliberate and predicated upon open-minded analysis of all sides of the question.

Those who would ensure progress in biologic thinking are aware that mere weight of opinion, if unsubstantiated by factual support, need not be accepted, even when the opinion has, for example, reached such proportions as to make a clinical procedure illegal. This is so, since right or wrong in patient therapy must always be justifiable by sound biologic reasoning, and not by the popularity of a given technic. It is admittedly a formidable task to question concepts so entrenched, but timidity is no virtue under such circumstances.

Most of the illustrations are from the files of the Medical Illustration Service of the Armed Forces Institute of Pathology and the Registry of Oral Pathology of the American Registry of Pathology. Special acknowledgement is made to both, as well as to the individual contributors of cases.

A number of the illustrations are from a previous work of the author entitled "A Manual for the Differential Diagnosis of Oral Lesions." The C. V. Mosby Company has authorized their use. Others appeared in the "Atlas of Dental and Oral Pathology," and have been made available through courtesy of the American Registry of Pathology.

Special reference must be made to data prepared by residents and graduate students in this department, much of which has been incorporated in the text. Included are the studies on "Odontogenic Tumors" by Lt. Col. John P. Kane, USAF (DC); the work of Lt. Col. R. W. Tiecke, DC, USA, on "Intra-Oral Carcinoma"; "An Analysis of the Incidence of Leukoplakia" by Major Norbert C. Kephart, USAF (DC); studies on "Naso-pharyngeal Carcinoma" by Lt. H. H. Scofield (DC), USN; the assessment of "Spontaneous Resorption of Teeth" by Lt. Jack W.

Robinson (DC), USN; "The Analysis of Radicular Cysts" by Col. Winlaw W. Priebe, DC, USA, and Dr. Herman Turner; "The Reaction of Pulpal Tissue to Filling Materials" by Dr. Nelson Large; and the work of Major Leo Korchin, DC, USA, on "Healing After Extraction of Teeth."

Dr. George W. Greene, Jr., and Lt. Col. Richard W. Tiecke, DC, USA, prepared the first draft of the chapter, "Anomalies of the Teeth," and Dr. Harold Stanley, the first draft of Chapter 8, "The Pathology of Periodontal Disease." To these loyal members of my department, I am especially grateful.

The staff of the Medical Illustration Service of the Armed Forces Institute of Pathology diligently and competently prepared the illustrations and are deserving of special thanks.

Mrs. Jean Richardson had responsibility for the typing of the manuscript, a tedious and time-consuming procedure, without which this work could not have been accomplished. Her diligence, attention to detail, and loyalty to the undertaking stood out as special virtues. To her I extend my very special thanks.

Miss Helen McLain contributed to this task in ways too numerous to mention. As always, I am in her debt.

A handwritten signature in cursive script, reading "Joseph L. Bernier". The signature is written in dark ink and is positioned in the lower right quadrant of the page.

Washington, D. C.

CONTENTS

CHAPTER 1	PAGE
THE INTERPRETATION OF SIGNS AND SYMPTOMS—BIOPSY - - - - -	17
General, 17; The Analysis and Interpretation of Symptoms, 19; The General Adaptation Syndrome, 20; Pain, 22; Psychological Reactions to Pain, 22; Hyperalgesia and Pain Function, 23; Laboratory Procedures, 23; Urinalysis, 24; Roentgenograms, 24; Organ Function Tests, 24; Bacteriologic Examinations, 30; Blood Count, 31; Blood Level Determinations, 32; Study Models, 33; Biopsy, 33; Methods, 34; Dangers and Contraindications, 35; Indications, 36; Technic, 38; Summary, 43	
CHAPTER 2	
HISTOLOGY OF THE SKIN AND ORAL MUCOUS MEMBRANE - - - - -	45
General, 45; The Epidermis, 46; Stratum Germinativum, 47; Stratum Malpighii, 47; Stratum Granulosum, 47; Stratum Lucidum, 48; Stratum Corneum, 48; Corium (Dermis), 48; Hair, 49; Sebaceous Glands, 49; Sweat Glands, 49; Apocrine Glands, 50; Mucous Membrane, 50; Pathologic Changes Involving the Epithelium, 55; Hyperkeratosis, 55; Parakeratosis, 55; Acanthosis, 56; Spongiosis, 56; Dyskeratosis, 56	
CHAPTER 3	
ANOMALIES OF THE TEETH - - - - -	63
General, 63; Ectodermal Dysplasia, 64; Anodontia, 64; Hypoplasia, 68; Hyperplasia, 75; Hereditary Amelogenesis Imperfecta, 78; Mesodermal Dysplasia, 78; Hereditary Dentinogenesis Imperfecta, 79; Composite Dysplasias, 83; Odontogenesis Imperfecta, 83	
CHAPTER 4	
THE PATHOLOGY OF DENTAL CARIES - - - - -	92
Introduction, 92; Historical, 92; Etiology, 93; Definition, 94; Morphology of the Tooth in Relation to Dental Caries, 95; Pathology, 96; Caries of the Enamel, 97; Caries of the Dentin, 99; Caries of the Cementum, 104; Arrested Caries, 104; Clinico-Pathologic Correlations, 104; Treatment, 106	
CHAPTER 5	
INFLAMMATION AND REPAIR - - - - -	126
General, 126; Historical, 126; Vascular Changes, 127; Exudative Changes, 130; Cellular Response, 130; Leukocytosis, 137; Repair (General), 137; Repair of an Open Wound, 139; Repair of a Fractured Bone, 143; Repair Following Gingivectomy, 147; Repair Following Tooth Extraction, 150; Treatment of the "Clinical Socket," 151; Treatment of the "Dry Socket," 152	
CHAPTER 6	
DISEASES OF THE PULP AND PERIAPICAL TISSUES - - - - -	154
Introduction, 154; Degenerations of the Pulp, 155; Hyaline Degeneration, 156; Calcific Degeneration, 156; Pulp Stones, 156; Fibrosis (Reticular Atrophy), 156; Acute Pulpitis, 158; Pulp Abscess, 159; Chronic Pulpitis, 160; Pulpitis Aperta (Hyperplastic Pulpitis), 161; Acute Periapical Inflammation, 161; The Dental Granuloma, 161; Acute Periapical Abscess, 165; Osteomyelitis, 165; Ludwig's Angina, 171	

CHAPTER 7	PAGE
PHYSIOLOGIC PATHOLOGY OF THE CALCIFIED DENTAL TISSUES - - -	175
Introduction, 175; Enamel, 175; Attrition and Abrasion, 175; Dentin, 176; Secondary Dentin, 178; Cementum, 178; Hypercementosis, 178; Erosion, 181; Spontaneous Intermittent Resorption (Idiopathic Resorption), 184; Pulpal Reaction to Filling Materials, 194	
CHAPTER 8	
THE PATHOLOGY OF PERIODONTAL DISEASE - - - - -	198
Introduction, 198; Classification, 199; The Clinically Normal Gingivae, 207; Etiology of Gingivitis and Periodontitis, 208; Local Factors, 210; The Role of Calculus, 212; General Factors, 220; Histopathology, 221; Gingivosis, 225; Periodontosis, 226; Atrophy, 228; Occlusal Traumatism, 228	
CHAPTER 9	
SUPERFICIAL LESIONS GENERALLY LOCAL IN CHARACTER - - - - -	233
Introduction, 233; Lesions Due to Direct Injury, 234; Lacerations, 234; Thermal Injuries, 237; Chemical Injuries, 237; Decubital Ulcers, 238; Radiation Injury (Total Body Radiation), 239; Physical Aspects, 239; Radiation Effect, 240; Changes in the Blood, 241; Histopathologic Changes, 243; Infections Essentially Local in Character, 246; Necrotizing Ulcerative Stomatitis, 246; Noma (Gangrenous Stomatitis), 251; Membranous Stomatitis, 254; Nonspecific Membranous Stomatitis, 254; Stomatitis Diphtheria, 255; Stomatitis Scarlatina, 256; Moniliasis, 256; Perlèche, 257	
CHAPTER 10	
ORAL REACTIONS IN ALLERGY AND TO DRUGS - - - - -	260
Introduction, 260; The Nature of the Allergic Response, 261; Protein Allergy, 261; Contact Allergy, 263; Cheilitis Venenata, 263; Glossitis Venenata, 264; Stomatitis Venenata, 264; Denture Sore Mouth, 264; Cheilitis Glandularis, 265; Allergy Related to Infection, 265; Drug Allergy, 266; Stomatitis Medicamentosa, 267; Dilantin Hypertrophy, 269; Metal Stomatitis, 272; Mercurial Stomatitis, 272; Bismuth Stomatitis, 272; Arsenic Stomatitis, 275; Lead Stomatitis, 275	
CHAPTER 11	
VIRAL AND VIRAL-LIKE LESIONS OF THE ORAL MUCOSA - - - - -	277
Introduction, 277; Herpes Simplex, 278; Herpetic Gingivostomatitis, 281; Primary Herpetic Gingivostomatitis, 281; Recurrent Herpetic Gingivostomatitis, 282; Herpes Zoster, 283; Erythema Multiforme, 287; Pemphigus, 289; Pemphigus Vulgaris (Acute Form), 292; Pemphigus Vulgaris (Chronic Form), 292; Pemphigus Vegetans, 293; Pemphigus Conjunctivae, 293; Stevens-Johnson Syndrome, 294; Granuloma Inguinale, 297; Acute Eruptive Disorders, 298; Chicken Pox (Varicella), 299; Smallpox (Variola), 299; Measles (Rubeola), 300; German Measles, 300; Mumps, 300; Foot and Mouth Disease (Epidemic Stomatitis), 301	
CHAPTER 12	
SPECIFIC INFLAMMATORY LESIONS, INCLUDING FUNGI - - - - -	303
Introduction, 303; Syphilis, 304; Tuberculosis, 314; Lupus Vulgaris, 320; Scrofuloderma, 321; Sarcoidosis, 321; Fungus Infections, 324; Actinomyces, 325; Blastomycosis, 328; Sporotrichosis, 330; Coccidioidomycosis, 330; Histoplasmosis, 332	
CHAPTER 13	
ORAL LESIONS IN DISEASES OF THE BLOOD - - - - -	336
Introduction, 336; Hemorrhagic States, 337; Hemorrhage, 338; Hemophilia, 340; Thrombocytopenic Purpura Hemorrhagica, 341; Anemias, 342; Aplastic Anemia (Normocytic), 342; Deficiency Anemias (Hypochromic), 343; Pernicious Anemia, 343; Leukemias, 346; Myeloid (Myelogenous) Leukemia, 346; Lymphatic Leukemia, 348; Monocytic Leukemia, 351; Infectious Mononucleosis, 351; Agranulocytosis, 353	

CHAPTER 14

	PAGE
ORAL LESIONS IN DEFICIENCY AND METABOLIC DISEASES - - - - -	357

Introduction, 357; Vitamins and Infections, 358; Hypovitaminosis, 358; Scurvy, 359; Pellagra, 360; Bald Tongue of Sandwith, 361; Beriberi, 363; Riboflavin Deficiency, 364; Sprue, 364; Rickets, 366; Clinical Features, 366; Lipoid Disturbances, 368; Hand-Schüller-Christian Disease, 368; Niemann-Pick Disease, 374; Gaucher's Disease, 374; Letterer-Siwe Disease, 374; Eosinophilic Granuloma, 378; Addison's Disease, 381; Hypothyroidism, 382; Hyperthyroidism, 384; Plummer-Vinson Syndrome, 384; Moeller's Glossitis, 385; Diabetic Stomatitis, 387

CHAPTER 15

TUMORLIKE PROLIFERATIONS - - - - -	392
------------------------------------	-----

Tumorlike Proliferations, 392; Irritation Fibroma, 394; Hypertrophic Oral Mucosa, 394; Fibromatosis Gingivae, 396; Epulis Fissuratum—Epulis Granulomatosa, 396; Dilantin Hypertrophy, 397; Hormonal Proliferations, 397; Amyloidosis, 401; Hemangioma—Lymphangioma, 404; Congenital Malformations, 406; Median Rhomboid Glossitis, 406; Fissured Tongue—Scrotal Tongue, 408; Cleft or Bifid Tongue, 411; Fordyce's Disease, 411; Congenital Abnormalities of the Lips and Cheeks, 413; Abnormal Labial Frenum, 416; Ankyloglossia, 416; Aglossia, 417; Double Lip, 418

CHAPTER 16

SUPERFICIAL KERATOSES AND DERMATOLOGIC-LIKE LESIONS OF THE ORAL MUCOSA - - - - -	421
--	-----

Introduction, 421; Verruca Vulgaris (Wart), 422; General Considerations Relating to Leukoplakia, 424; Pachyderma Oralis, 425; Leukoplakia, 428; Lichen Planus, 438; Lupus Erythematosus, 441; Stomatitis Nicotina, 443; Geographic Tongue, 449; Black Hairy Tongue, 452; Psoriasis, 454; Senile Elastosis, 457; Scleroderma, 459; Colloid Miliun (Degeneration), 461

CHAPTER 17

CYSTS OF THE ORAL REGIONS - - - - -	465
-------------------------------------	-----

Introduction, 465; Classification, 465; Simple Bone Cyst, 466; Odontogenic Cysts, 470; Follicular Cyst, 471; Radicular Cyst, 482; Nonodontogenic Cysts, 491; Median Cyst, 493; Globulomaxillary Cyst, 496; Nasoalveolar Cyst, 496; Nasopalatine Cyst, 498; Swellings of the Neck, 502; Retention Cyst (Mucocele), 503; Thyroglossal Cyst, 506; Branchial Cyst, 507; Dermoid Cyst, 513

CHAPTER 18

TUMORS OF THE ODONTOGENIC APPARATUS - - - - -	515
---	-----

Introduction, 515; Histogenesis of Odontogenic Tumors, 515; Classification, 521; Ectodermal Odontogenic Tumors, 521; Ameloblastoma, 521; Adeno-ameloblastoma, 536; Melano-ameloblastoma, 540; Acanthomatous Ameloblastoma, 548; Mesodermal Odontogenic Tumors, 548; Odontogenic Myxoma—Odontogenic Fibroma, 548; Dentinoma—Cementoma, 554; Cementifying Fibroma, 560; Odontogenic Fibrosarcoma, 562; Mixed (Ectodermal-Mesodermal) Odontogenic Tumors, 563; Ameloblastic Fibroma, 563; Ameloblastic Hemangioma, 565; Ameloblastic Neuroinoma, 565; Ameloblastic Sarcoma, 565; Ameloblastic Odontoma, 567; Odontoma—Complex, Compound, 571

CHAPTER 19

INFLAMMATION AND TUMORS OF THE SALIVARY GLANDS - - - - -	579
--	-----

Introduction, 579; Inflammation of the Salivary Glands, 580; Sialadenitis, 581; Epidemic Parotitis (Mumps), 586; Mikulicz's Disease, 588; Granulomatous Inflammations, 588; Tumors of the Salivary Glands, 589; The Gland Elements (Benign), 589; The Gland Elements (Malignant), 603; Epidermoid Carcinoma, 604; The Matrix Elements (Benign), 608; The Matrix Elements (Malignant), 608

CHAPTER 20

PAGE

DISTURBANCES OF THE MAXILLARY AND MANDIBULAR BONES - - - 614

Introduction, 614; Congenital, Developmental, and Hereditary Abnormalities, 615; Osteogenesis Imperfecta, 615; Chondrodystrophia Foetalis (Acondroplasia), 617; Cleidocranial Dysostosis, 618; Craniofacial Dysostosis, 621; Osteopetrosis, 621; Dysostosis Mandibulofacialis, 624; Leontiasis Ossea—Cherubism, 624; General Bone Disorders, 625; Paget's Disease of the Jaw (Osteitis Deformans), 625; Fibrous Dysplasia (of the Jaws), 629; Central Giant Cell Reparative Granuloma (of the Jaws), 638; Hyperparathyroidism, 642; Renal Osteodystrophy, 650; Ossifying Fibroma, 650; Benign Tumors of Bone, 651; Exostosis and Enostosis, 651; Torus, 653; Osteoma, 658; Chondroma, 660; Osteogenic Myxoma, 660; Osteogenic Fibroma, 663; Central Giant Cell Tumor of the Jaws, 663

CHAPTER 21

BENIGN TUMORS OF THE SOFT ORAL STRUCTURES - - - 670

Introduction, 670; Hyperplasia and Hypertrophy, 671; Tumors of the Covering Epithelium, 672; Papilloma, 672; Angiokeratoma, 674; Senile Keratosis, 674; Verruca Senilis (Seborrheic Keratosis), 676; Tumors of Fibrous Tissue, 678; Fibroma, 678; Myxofibroma, 679; Lipofibroma, 682; Peripheral Odontogenic Fibroma, 682; Peripheral Giant Cell Reparative Granuloma, 689; Fibromatosis Gingivae, 694; Dilantin Hypertrophy, 697; Tumors of Nerve Tissue, 697; Neurofibroma (Neurogenic Fibroma), 697; Multiple Neurofibromatosis, 702; Schwannoma, 702; Amputation Neuroma, 703; Nevi (Cellular-Vascular), 705; Tumors of Blood Vessels, 708; Hemangioma, 709; Lymphangioma, 712; Hemangio-endothelioma, 714; Granuloma Pyogenicum, 716; Tumors of Muscle, 720; Leiomyoma, 722; Rhabdomyoma, 722; Myoblastoma, 725; Miscellaneous Tumors, 729; Plasmocytoma, 729; Lipoma, 733

CHAPTER 22

MALIGNANT TUMORS OF THE ORAL REGIONS - - - 740

Introduction, 740; Tumors of Epithelium, 741; Basal Cell Carcinoma, 741; Baso-Squamous Cell Carcinoma, 747; Squamous Cell Carcinoma, 747; Adenocarcinoma, 767; Transitional Cell Carcinoma, 769; Tumors of Connective Tissue, 773; Fibrosarcoma, 774; Chondrosarcoma, 776; Osteosarcoma, 780; Rhabdomyosarcoma, 784; Malignant Lymphoma, 786; Melanoma, 790; Neurogenic Sarcoma, 795; Ewing's Tumor, 795; Myeloma, 797; Metastatic Tumors, 798

LIST OF COLOR PLATES

PLATE	PAGE
I. - - - - -	264
A. Dilantin hypertrophy. B. Fruit juice allergy, tongue. C. Protein allergy—strawberries, lip. D. Contact allergy—gold chloride, lips. E. Moniliasis—denture allergy. F. Case shown in E, with denture removed.	
II. - - - - -	304
A. Histoplasmosis. B. Primary lesion of syphilis, gingivae. C. Chancre of syphilis, lip. D. Leprosy, palate. (Courtesy Dr. Chapman Binford.) E. Granuloma inguinale, lip. F. Acute pemphigus vulgaris. (Courtesy Colonel John Helton.)	
III. - - - - -	404
A. Hormonal enlargement of pregnancy. B. Mucocoele, lip. C. Epulis fissuratum. D. Hemangioma, cheek. (Courtesy Colonel Jack Caldwell.) E. Congenital cleft of lip. F. Congenital malformation of tongue.	
IV. - - - - -	428
A. Pachyderma oralis, tongue. B. Leukoplakia, tongue. (Courtesy Colonel Jack Caldwell.) C. Leukoplakia, tongue. D. Geographic tongue. (Courtesy Lt. Colonel Henry Fitch.) E. Pachyderma oralis, cheek. F. Nicotine stomatitis.	
V. - - - - -	748
A. Chondrosarcoma, palate. B. Melanoma, palate. (Courtesy Colonel Jack Caldwell.) C. Squamous cell carcinoma, floor of mouth. (Courtesy Colonel Jack Caldwell.) D. Squamous cell carcinoma, lip. E. Squamous cell carcinoma shown in D, with lip retracted.	

