Systemic Disease in Dental Treatment

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Foreword

The last decade has produced a surprising number of changes in the health care system in the United States. An improved geographic distribution of dentists, programs targeted for special groups of patients, and a dramatic increase in coverage through third party payment, have all improved access to health care including the treatment of dental problems. As the average age of the population increases, the special health care problems of the elderly have been brought into focus. Almost 15 percent of the total population has a chronic health problem which limits activity, and almost half of the population over 65 years of age is so affected. When interviewed, over 12 percent of the population estimates their health as fair or poor. Almost one fourth of the population over 45 years of age describes their health in this manner. Life expectancy and the number of years of life with disability can be expected to increase for the immediate future.

The combination of an improved access to dental health care and the changes in health status of the population pose unique problems for the dentist. Sophisticated dental procedures must be carried out with a full knowledge of an individual patient's health status and an understanding of existing disease entities which dental treatment may impact. In simple terms the dentist must determine whether an individual patient seeking treatment is sick or well. Help is usually available from physician colleagues when the patient is deemed not well, but the dentist has the responsibility of communicating effectively with the physician and delineating the effects of dental treatment

on an existing medical condition. The authors of this text have focused on the problems of a dental patient with a compromising medical condition and in so doing have made a major contribution to the delivery of dental health care.

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Preface

"Necessity is the mother of collaboration" could well serve as the motivating force behind this text. The editors and contributors are all health-care providers, but maintain an awareness that the dentist's expertise lies in dentistry and that the physician's expertise lies in medicine.

Personal experience in graduate training, clinical practice, and teaching has proven to the editors that informed communication between dentist and physician is necessary for proper treatment of dental patients with significant medical histories. A physician cannot be expected to fully appreciate the nuances of all of the various dental treatment modalities available without the interpretation of a dentist. The dentist cannot be routinely expected to totally evaluate the presence of systemic disease without physician input. Each however can be expected to recognize his or her own limitations in the other's field.

Too often a dentist requests that a physician say which dental treatment can be performed on their mutual patient. Too often when consulted, a physician responds with information pertaining to dental management that does not accurately reflect the many unique aspects of dental care. Collaboration should allow practical application of the expertise of each in the clinical setting. The dentist must be able to interpret medical opinion or directives in terms of dental management of the patient. The physician must credit the dentist with the ability to apply medical guidelines as is best suited for dental care.

We hope that this text will enhance the collaborative effort between dentist and physician.

The editors spent many anxious moments during the recruitment phase in identifying the collaborating authors. Producing a text addressing the den-

tist's needs for understanding principles of medicine required contributors who recognized the existence of such needs. The physician contributors were completely agreeable to discussing chapter outlines and to submitting their medical sections to review by the dentist-editors in order to maintain a clinical dentistry perspective on the basic medicine presented. In so doing, these physicians took the definite risk of being criticized by their colleagues for not addressing their subject matter in the proper medical depth. However, this text is written from a dental perspective, and the editors shoulder full responsibility for any criticism related to completeness of medical material presented. The attempt has been to include medical information which will allow the dentist to understand the specific disease process, and to be knowledgeable of the physician's application of the diagnostic process.

As dentists engaged in teaching and clinical practice, we cannot avoid admitting a somewhat less than altruistic purpose in engaging in this text project, namely the "necessity" of making our lives a little easier. We hope that the efforts of all those involved have led to a text which supplies information that a teacher can use for teaching, that a student can use for learning, and that a dentist can use in practice. If not, the editors take full responsibility; if so, the success goes to those whose names are listed on the contributors' page. In conclusion, the editors and contributors wish to acknowledge the following: The Dental Service of the Peter Brent Brigham Hospital for their assistance in the preparation of sections of Chapter 5, Hematologic Disease; Mr. John Glover for editorial assistance in preparing the manuscript; and Mrs. Judith Street for her help in preparing the manuscript for Chapter 2, Musculoskeletal and Connective Tissue Disease.

Contents

Introduction

Michael J. Tullman, D.D.S.
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Life expectancy for a child born in 1900 was 48 years, and the two leading causes of death at that time were of an infectious nature—influenza and pneumonia, and tuberculosis. Currently, a newborn child can expect to live to age 73, and the modern leading causes of death are diseases of the heart and malignant neoplasms (Table 1). Advances in their treatment are continuing at a significant pace. Since 1968, death from heart disease has fallen 23% and death from stroke has declined by 38%. For persons younger than 45, the death rate from cancer is continuing to decline, and for those between 45 and 49 the cancer death rate is beginning to improve.

The significance to the dentist of greater life expectancy and changing incidence of causes of death lies in the fact that people are surviving acute, life-threatening infections and are living to ages when chronic disease is the biggest threat. Where individuals suffering from tuberculosis in 1900 died, today the decreased numbers who are exposed to or contract the disease are diagnosed earlier, treated with modern antibiotics, and generally survive to present to the dentist as a patient with a significant medical history. It is not uncommon for eventual victims of fatal heart disease to have survived for years with medical management of their unstable condition. Other more fortunate individuals live out their average life expectancy as a result of coronary artery surgery or stabilization of their condition through medical treatment. However, the dentist must recognize that dental patients under medical care for chronic diseases are not healthy individuals, but rather are individuals with serious conditions requiring medical attention to survive.

Certain medical treatment regimens pose as much of a potential complicating situation for the dentist as the disease itself. The immunosuppressive effects of chemotherapy, or various forms of anticoagulation therapy, are only

TABLE 1. THE 10 LEADING CAUSES OF DEATH IN THE UNITED STATES IN 1900 AND 1978

1900	1978
1. Influenza and pneumonia	1. Heart disease
2. Tuberculosis	2. Neoplasms
3. Gastroenteritis	3. Cerebrovascular
4. Heart disease	4. All accidents
5. Cerebrovascular	5. Influenza and pneumonia
6. Chronic nephritis	6. Diabetes mellitus
7. All accidents	7. Cirrhosis of liver
8. Neoplasms	8. Arteriosclerosis
9. Diseases of early infancy	9. Diseases of early infancy
10. Diphtheria	10. Suicide

two examples of many. Also to be included are those for whom administration of antibiotics and analgesics can cause detrimental effects due to drug allergy.

The basis for evaluating the general health of the dental patient is the medical history. Every dentist should routinely obtain a comprehensive medical history on each patient. A self-administrated questionnaire is easily incorporated into patient registration procedures (Fig. 1). Obtaining a history is only the beginning of the mental process involved in evaluation of the health of a patient. Interpretation of the history must be based on the dentist's fundamental understanding of medicine. Not all positive findings in a medical history have direct ramifications in dental management of the patient. Nonetheless, the dentist must have an understanding of these findings in order to apply a "knowledge of exclusion" to differentiate those disorders necessitating special dental considerations from those that do not. Without such an understanding of medicine, the dentist is forced to make decisions from an uninformed position (equivalent to guessing), or ignore the findings and assume there will be no detrimental effects on the patient as a result of dental treatment, or refuse to treat the patient, fearing that dental treatment will cause medical complications.

Once the dentist gathers and interprets the medical information, it may be necessary to contact the patient's physician for clarifying information. The dentist must know not only what additional pertinent information is needed for a final evaluation of the patient prior to commencing dental treatment, but also how to obtain it in a concise manner which does not waste the dentist's or the physician's time (Table 2). Consultation with a physician can be written or oral. In either case, appropriate notation in the patient's chart is indicated as documentation of the dentist's actions. The dentist must be prepared for the fact that many consultations do not totally resolve the concerns about dental management. Final responsibility and decision making for both the treatment and the manner in which it is provided rests with the dentist. Such decision making must be based on the dentist's understanding of the patient's medical problem.

ADULT
HEALTH QUESTIONNAIRE

DATE: _____

Name _____
Last First Middle

Address _____
Street City State Zip Code

Phone _____ Occupation: _____
Home Office

Single _____ Married _____ Spouse: _____

If you are completing this form for another person, what is your relationship to that person? _____ _____

Referring Source _____ _____

In case of emergency, please notify Name _____
Address: _____ Phone: _____
Relation: _____

Medical Doctor's Name: _____
Address: _____
Phone: _____

My last physical examination was on (date) _____

Age _____ Birth Date _____ Place of Birth _____ Sex _____

Race _____ Height _____ Weight _____

Circle Yes or No, which ever applies. Your answers are for our records only and will be considered confidential.

Medical History

1 Are you being treated by a medical doctor now? Yes No

1 If yes, for what reason? _____

2 Are you taking, or should you be taking, any medicine at the present time? (If Yes, please list) Yes No

2 a For:

2 b For:

2 c. For:

3. Are you sensitive or allergic to any medicine? (If Yes, list medicine below) Yes No

3. a. _____

4. Have you ever been hospitalized or had any surgical operations? (If Yes, give reasons and dates) Yes No

4 a

4. b.

4 c.

5. Have you ever had a blood transfusion? Yes No

6. Have you had

a.	Asthma	Yes	No	q.	Rheumatism	Yes	No
b.	Hayfever	Yes	No	r.	Venereal Disease (Syphilis, Gonorrhea)	Yes	No
c.	Tuberculosis	Yes	No	s.	Kidney or Bladder Disease	Yes	No
d.	Rheumatic Fever	Yes	No	t.	*Hepatitis*	Yes	No
e.	Scarlet Fever	Yes	No	u.	Gall Bladder Disease	Yes	No
f.	Heart Murmur	Yes	No	v.	Diabetes (Sugar Disease)	Yes	No
g.	Heart Disease or Heart Attack	Yes	No	w	Nervousness	Yes	No
h.	Angina Pectoris	Yes	No	x.	Epilepsy or Seizures	Yes	No
i.	Stroke	Yes	No	y	Fainting or Dizzy Spells	Yes	No
j.	High Blood Pressure	Yes	No	z	Glaucoma	Yes	No
k.	Low Blood Pressure	Yes	No	aa.	*Thyroid Disease (Goiter)*	Yes	No
l.	Anemia	Yes	No	bb.	X-ray or Cobalt Treatment	Yes	No
m	Allergies or Hives	Yes	No	cc	Psychiatric Treatment	Yes	No
n.	Ulcers (Stomach or Intestinal)	Yes	No	dd.	Chemotherapy (Cancer, Leukemia)	Yes	No
o.	Arthritis	Yes	No	ee.	Heart Pacemaker	Yes	No
p.	Prosthetic (Artificial) joint	Yes	No	ff.	Prosthetic (Artificial) Heart Valve	Yes	No

Figure 1. Adult health questionnaire. *(continued on page 4)*

7	Do you have pain in the chest upon exertion?	Yes No
8	Do you have shortness of breath after mild exercise?	Yes No
9	Do you require more than 2 pillows to sleep?	Yes No
10	Do your ankles swell?	Yes No
11	Have you ever had yellow jaundice?	Yes No
12	Have you lost or gained weight (more than 10 pounds) in the past year?	Yes No
13	Are you following a special diet?	Yes No
14	Do you have difficulty in swallowing?	Yes No
15	Do you have frequent colds?	Yes No
16	Has a doctor ever said you have a cancer or tumor?	Yes No
17	Do you have any disease, condition, or problem not listed above?	Yes No

If yes, explain _____

FEMALES Only!

18.	Do you menstruate?	Yes No
19.	Have you experienced any unexplained vaginal bleeding?	Yes No
20.	Did you have any complications during pregnancy (if you have never been pregnant, answer no)	Yes No
21	Are you pregnant? (date of delivery)	Yes No

TO THE BEST OF MY KNOWLEDGE ALL OF THE ABOVE ANSWERS ARE TRUE AND CORRECT. IF I HAVE ANY CHANGE IN MY HEALTH, I WILL INFORM MY DOCTOR AT THE NEXT APPOINTMENT.

_____

SIGNATURE OF PATIENT, PARENT OR GUARDIAN

SUMMARY NOTE (Significant Data from medical and dental histories)

_____

SIGNATURE OF DENTIST

DO NOT WRITE BELOW THIS LINE

Medical History Review:

Date	Addition	Signature

Vital Signs: B.P. _____ P. _____

Regional Examination

Initial Exam	Review Date _____	Review Date _____	Review Date _____	Review Date _____	Review Date _____
Carotids					
Jugular Veins					
Lymph Nodes					

Oral Examination

Initial Exam	Review Date _____	Review Date _____	Review Date _____	Review Date _____	Review Date _____
Lips					
Buccal Mucosa					
Gingiva					
Floor of Mouth					
Tongue					
Hard Palate					
Soft Palate					
Pharynx					
Other					

Additional Comments/Precautions

TABLE 2. MEDICAL CONSULTATION FORMAT

1. Identify yourself.
2. Identify patient.
3. State pertinent findings in patient's medical history.
4. State summary of patient's dental needs.
5. State specific questions you have about patient's health.
6. Discuss your plans for dental management of the patient.

If the general dentist is to be a true provider of primary dental care, medically compromised patients must be included in his practice. The dental profession recognizes the existence of a gap between medicine and dentistry in terms of one profession's methods not being fully understood by the other. Dentists have taken the initiative to close the gap by increasing their knowledge of medicine. The need is not for dentists to become medical diagnosticians, but rather to be responsible and competent in interpreting and applying medical information about their dental patients. Better dental care for all patients will result, which is the continuing goal of every dentist.

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Chapter 1

Infectious Disease

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SYPHILIS

Syphilis is a chronic infection caused by a thin, delicate spirochete, *Treponema pallidum.* The disease is acquired by direct contact with an infectious lesion, usually during sexual contact. More rarely, syphilis can be transmitted by contaminated fomites, blood transfusions, or transplacental infection.

Natural Course and Pathogenesis

Spirochetes pass through intact mucous membranes and abraded skin and within hours reach the lymphatics and bloodstream and are carried to every organ in the body. The infection is systemic a few hours after exposure.

The incubation period for primary syphilis ranges between 10 and 90 days, but the primary lesion usually develops at about 21 days. The primary lesion, or chancre, appearing at the site of inoculation, begins as a painless papule which rapidly erodes. The chancre is indurated, with firm raised borders, and is painless.

Clinical Manifestations

PRIMARY SYPHILIS. The chancre is the clinical manifestation of the primary state (Table 1-1). In men, it is generally located on the external genitalia, most commonly the penis. In homosexual males, the chancre could be located in the anal canal, mouth, or external genitalia. In women, the lesions are commonly overlooked. Examination by speculum is required to detect chancres

in the vagina or on the cervix. Primary lesions are not confined to the female genitalia, as extragenital chancres may be seen on the lips, tongue, tonsils, nipple, fingers, buttocks, and anus.

Regional lymphadenopathy develops within one week of the appearance of the primary lesion. The nodes are usually bilateral, firm, and painless

TABLE 1-1. DISTINGUISHING FEATURES OF THE VARIED MANIFESTATIONS OF SYPHILIS

Condition	Time	Characteristic Findings
Primary stage	10–90 days after infection	Solitary, indurated, painless, ulceration (chancre), especially of genitalia, with painless enlargement of regional nodes May heal with scar Multiple chancres are seen
Secondary stage	50–120 days after infection, or about 6–8 weeks after chancre	Cutaneous lesions of great variety Maculopapules, or annular or pustular lesions, usually widespread, involving face, palms, soles Not vesicular, rarely pruritic Painless mucous membrane ulcers (patches), may cause sore throat Condyloma latum (nonpedunculated)
Early latent stage	Up to 2 years after infection	Clinically none
Late latent stage	More than 2 years after infection	None
Asymptomatic neurosyphilis		None
Acute syphilitic meningitis	Usually within first 2 years after infection	Headache, cranial nerve lesions, delirium, seizures, papilledema, cerebrospinal fluid lymphocytosis
Gummatous syphilis		Nodular gummatous lesions of skin, bone, liver, larynx, brain, spinal cord, breast May mimic brain or spinal cord tumor
Syphilitic aortitis	More than 10 years after infection	Dilatation of ascending aorta Aortic regurgitation Aneurysm formation

and persist for several months, unlike the chancre, which heals within 4 to 6 weeks.

The most common genital lesions to be considered in the differential diagnosis of primary syphilis are chancroid (multiple, soft, tender, painful erosions with satellite adenopathy), herpes genitalis (multiple, extremely painful vesi-

Darkfield Examination of Lesion	Serologic Test for Syphilis	Associated Findings
Positive	Negative in most cases at the onset but becomes positive in the majority by 14 days	Satellite nodes
Usually positive especially mucous membrane, ulcers, and condyloma	Almost always (95%) positive May be negative due to prozone phenomenon secondary to antibody excess	Constitutional symptoms, malaise, lassitude, fever, headache, generalized lymphadenopathy Alopecia (moth-eaten scalp) Iritis, retinitis Nephrotic syndrome Meningitis or cranial nerve palsies May be asymptomatic
	Positive	None Cerebrospinal fluid negative
	Positive	None Cerebrospinal fluid negative
	Positive in untreated cases, antibodies always found in cerebrospinal fluid	Cerebrospinal fluid cell count and protein increased in proportion to the activity of the process
	Positive on blood and cerebrospinal fluid	Other lesions of early syphilis may be present
Negative Rabbit inoculation may be positive	Usually positive	Perforation of nasal septum Tumors Nodular, irregular hepatomegaly Hoarseness
	Positive in about 85% of cases	More common in men and in blacks Often with neurosyphilis Shell-like calcification of ascending aorta Coronary ostial occlusion Erosion of surrounding structures by aneurysm, rupture of aneurysm Aortic arch syndrome

(Continued)