
Volume two

Symposium on cancer
of
the head and neck

Total treatment and reconstructive rehabilitation

Editor

JOHN C. GAISFORD, M.D.

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Proceedings of the Second Annual Symposium of the Educational
Foundation of the American Society of Plastic and
Reconstructive Surgeons, Inc., held at Pittsburgh, Pennsylvania,
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of

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Preface

This is the second annual symposium to be sponsored by the Educational Foundation of the American Society of Plastic and Reconstructive Surgeons, Inc. The Foundation is dedicated to teaching and is expending every effort in presenting subjects of common interest to various specialty groups. The goal of the Foundation is to elevate the caliber of patient care, irrespective of the specialty called upon to perform this service. The Foundation, through its members, desires the best available care for patients but will not tolerate care by those poorly or inadequately trained. Shortcuts in surgical training are not acceptable, so the Foundation will continue to strive for what it believes to be proper standards in medical management.

The choice of cancer of the head and neck as the subject for a symposium was made for several reasons. First, cancer in this anatomic area is common and is being diagnosed with greater frequency all over the world. Second, the proper overall management of cancer of the head and neck leaves a lot to be desired in most areas of the United States. Many disciplines dabble in head and neck cancer work, but unfortunately too few perform an acceptably complete management.

A complete plan entails prompt diagnosis and adequate removal of the cancer or tumor, followed by modern reconstructive rehabilitation. In addition, a patient should not be released from care, after his neoplasm is judged to be cured, until surgical defects are reconstructed to improve the appearance and function of the part, where possible.

Efforts were made to organize a program that would involve diagnosis of cancer of the

head and neck, modern advances for the cure of these tumors, and practical, direct methods for prompt surgical reconstruction of damaged parts. As can be seen by the papers presented at the symposium and published in this volume, assistance was requested from authorities in specialties other than plastic surgery. It would be most presumptuous to state that one group—for example, plastic surgeons—should manage all head and neck cancers. Rather, each specialty group might profit by absorbing the most useful information from related specialties.

Plastic surgeons have become deeply involved in head and neck tumor management because of their basic training in reconstruction. From this it seemed natural that many would become genuinely interested in performing the curative as well as reconstructive surgery, but we claim no corner on the market. However, we would like to go on record as demanding that, regardless of specialty, this work be undertaken only by those properly trained. No specialty has the right to claim sole responsibility for a specific segment of medical care, but there can be no substitute for adequate basic training in general surgery, surgical pathology, plastic surgery, and radiation for those who accept head and neck cancer patients for treatment.

This symposium, then, will present what we believe to be modern, acceptable, overall care for these patients. We hope that the papers presented and the accompanying discussions will stimulate the interest and increase the knowledge of those who are in training programs as well as those engaged in active practice.

John C. Gaisford, M.D.

Contents

Part I

General consideration of head and neck tumors Moderator, Clifford L. Kiehn

1. Epidemiologic aspects of oral cancer, 3
Donald P. Shedd and Carl F. von Essen
2. Surgical pathology and the surgeon, 8
Robert S. Totten
3. Preoperative and postoperative care of head and neck cancer patients, 11
Calvin T. Klopp and Frank R. Vernelli
4. Medical evaluation of the head and neck cancer patient, 19
Ruben Snyderman
5. Management of anesthesia in the head and neck cancer patient, 23
Otto C. Phillips and Leonard S. Capizzi

Part II

Radical neck dissection

Moderator, Joseph E. Murray

6. Indications for radical neck dissection, 31
James H. Hendrix, Jr.
7. Technique of radical neck dissection, 34
Ray A. Elliott, Jr.
8. The composite operation, 42
Dwight C. Hanna
9. Use of pedicle flap tissues in conjunction with a neck dissection, 50
Lester M. Cramer and Norris K. Culf

Part III

Surgical reconstruction of the head and neck Moderator, Milton T. Edgerton

10. Criteria for immediate reconstruction in treatment of head and neck cancer, 65
Milton T. Edgerton
11. The temporal flap in intraoral reconstruction, 72
Ian A. McGregor
12. Free skin grafting in early malignancy, 89
Ian A. McGregor
13. Neck anatomy and pedicle flap reconstruction, 94
Ravinder N. Bindra
14. Prosthetics in reconstruction of the head and neck, 100
Luis R. Guerra and Joe B. Drane

Round table discussion, 108

Part IV

Special problems of head and neck tumors

Moderator, Lester M. Cramer

15. Cancer of the lip, 113
Francis X. Paletta
16. Reconstructive surgery: an integral part of treatment of cancer of the nose, 136
John Marquis Converse and Philip R. Casson

17. Cancer of the eyelids with total reconstruction of the upper and lower lids, 156

W. Brandon Macomber

18. Tumors of the head and neck in children, 162

John C. Gaisford

Round table discussion, 173

Part V

Cancer of the tongue

Moderator, John Conley

19. The TNM clinical staging system for cancer, 177

John E. Hoopes

20. Differential diagnosis of cancer of the tongue, 181

M. J. Jurkiewicz

21. Cancer of the tongue: some comments on surgical treatment, 185

Charles C. Harrold, Jr.

Round table discussion, 191

Part VI

Cancer of the larynx and cervical esophagus

Moderator, John L. Pool

22. Reconstruction of the laryngotracheal complex, 199

John Conley

23. Reconstruction of the pharynx and cervical esophagus, 203

Vahram Y. Bakamjian

24. Role of surgery in treatment of cancer of the larynx, 217

Charles M. Norris

Round table discussion, 225

Part VII

Treatment of advanced head and neck cancer

Moderator, Robert M. McCormack

25. Protracted arterial infusion cancer chemotherapy in head and neck cancer, 231

Robert D. Sullivan

26. Chemosurgery for the microscopically controlled excision of facial skin cancer, 237

Frederic E. Mohs

27. Palliative surgery for cancer of the head and neck, 249

John C. Gaisford

28. Control of pain for patients with head and neck cancer, 255

Hubert L. Rosomoff

29. Terminal care of the patient with incurable cancer—the physician's responsibility, 259

Thomas Ray Broadbent

Round table discussion, 261

Part VIII

Cancer in the bones of the face and skull

Moderator, Robin Anderson

30. Malignant tumors of the skull and scalp, 267

George S. Richardson

31. Treatment of cancers of the temporal bone, 277

Claude C. Coleman, Jr.

32. Tumors of the maxilla and orbit, 288

Charles E. Horton, Jerome E. Adamson, Richard A. Mladick, and Alfonso Torres

Round table discussion, 304

Part IX

Surgery and radiation

Moderator, **John C. Gaisford**

- 33. Relationship between the radiation therapist and the surgeon, 309
John L. Pool
- 34. Care of the teeth before, during, and after radiotherapy of the mouth, 314
Edward C. Hinds
- 35. Surgical management of radio-osteonecrosis of the head and neck, 319
David W. Robinson, Frank W. Masters, and Lynn D. Ketchum
- 36. Combined radiotherapy and chemotherapy for cancer of the head and neck, 326
Milton Friedman

Round table discussion, 329

Part X

Problem tumors of the head and neck

Moderator, **Nicholas G. Georgiade**

- 37. Melanomas in the head and neck, 335
John Conley
- 38. Sarcomas of the head and neck, 337
Alfred S. Ketcham, Paul B. Chretien, and Yosef H. Pilch
- 39. Carotid body and vagal body tumors, 343
George S. Richardson and Harvey W. Austin
- 40. Salivary gland tumors, 352
Dwight C. Hanna

Round table discussion, 359

Part I

General consideration
of
head and neck tumors

Chapter 1

Epidemiologic aspects of oral cancer

Donald P. Shedd, M.D.

Carl F. von Essen, M.D.

In a book entitled *After Everest*, Dr. T. H. Somervell described his participation in Mt. Everest expeditions with George Mallory in the 1920's.¹¹ After this mountaineering experience in the subcontinent Dr. Somervell settled in a mission hospital in Neyyoor, near the southern tip of India. In his book he makes the following statement: "In the last six years, 2,500 operations have been performed at Neyyoor for epithelioma of the mouth. . ." This is a surprising amount of oral cancer for one small hospital. He stated further that his colleague, Dr. I. M. Orr, had discovered that the cancers were due to the chewing of tobacco with the betel nut. Orr published a study on this subject in 1933.⁶ Before that time there had been reports on the betel nut and oral cancer relationship, and since 1933 further studies have appeared, some of which are cited among the references in this chapter.

The present review covers selected aspects of the epidemiology of oral cancer that are of interest to oncologists facing this disease. For a comprehensive review of the overall epidemiology of the problem the reader is referred to a recent publication by E. J. MacDonald.³

Epidemiology is the study of incidence, distribution, and control of a disease. The study of incidence and distribution can provide clues as to etiology, the understanding of which can eventually lead to control measures. In oral and pharyngeal cancer there are interesting incidence differences in various parts of the world, and numerous publications have appeared on the geographic peculiarities. For example, the

specific instance of snuff cancer in the southern United States can be cited.⁹ This is a clinical entity, a form of oral cancer in which the percentage of females involved is higher than in other oral cancers. These tumors occur in a specific portion of the mouth, namely the gingivobuccal sulcus and adjacent areas where the snuff quid (tobacco) is held. Similarly, the studies of chewing tobacco have indicated its role as a causative factor in oral cancer.⁴ The 1967 review of the United States Public Health Service faces the issue of smoking as related to oral and pharyngeal cancer.¹² The conclusion is that there is an association involved; the causality is not proved. In the case of the larynx, however, evidence strongly supports a causative role for smoking.

Large-scale hospital record studies have provided interesting information. Keller examined combined data from a group of Veterans Administration hospitals.¹ He found in these samples a correlation between cirrhosis of the liver and cancer of the floor of the mouth.

In South Asia oral cancer is a problem of different magnitude from that in the United States. In the north of Ceylon mouth tumors account for as much as 60% of all cancer admissions to hospitals. Such figures have led various workers over the years to seek the cause for this disproportionate amount of buccal neoplasia. Attention early centered on the widespread custom of chewing the betel nut, and early workers attributed the tumor to the use of slaked lime in the quid. Later studies have involved more careful epidemiologic techniques and have indi-



Fig. 1-1. Areca palm, source of the betel nut, photographed in Neyyoor, India.



Fig. 1-2. Roadside stand in Vellore, India, with a pile of piper betel leaves in left background and other ingredients of the quid in foreground.

cated that the carcinogenic factor is probably tobacco chewed with the betel nut. A good review of this matter was presented by Muir and Kirk of Singapore in 1960.⁵

Two other variants of oral cancer in India are of some interest. One is the so-called khaini cancer seen in Bihar, in which the cancer occurs anterior to the lower incisors in the gingivolabial sulcus where a tobacco and lime mixture is habitually held. This cancer was first reported by Khanolkar and Suryabai.² The second variant of oral cancer, seen particularly in mid-eastern India, is related to reverse smoking ("adda poga"). Reddy, Reddy, and Rao described the palatal cancers seen in the women there who smoke with the lighted end of the "chutta" (cigar) inside the mouth.⁸

The most important oral cancer seen in southern Asia, however, is related to the custom of chewing the betel and tobacco mixture. A brief summary of the betel habit is of interest for those concerned with mouth cancer. A significant percentage of the inhabitants of India and Ceylon chew the betel regularly, as do people in various other Asian countries. The nut comes from the Areca palm (Fig. 1-1), is sold widely at roadside stalls (Fig. 1-2), and is served in many good homes as a social custom (Fig. 1-3). The chopped nut is placed on the piper betel leaf with other ingredients—lime, spices,

and, frequently, tobacco (Fig. 1-4). The leaf is rolled (Fig. 1-5) and chewed. Expectoration of red-stained saliva results. The chewed mixture is then held in the gingivobuccal sulcus for varying periods of time. Chronic mucosal changes eventually develop in the area of the quid, and, in a certain percentage of the users, cancers develop (Fig. 1-6). It is of interest that oral cancer

in Asia is primarily a lesion of the buccal (cheek) mucosa, whereas in the western world, tongue and floor of mouth cancers predominate. The differing sex ratio is also noteworthy: India, 2 to 1, male to female; United States, 6 to 1. Since a good number of the chewers omit tobacco, it is possible to compare groups who omit tobacco to those who employ tobacco. The fig-

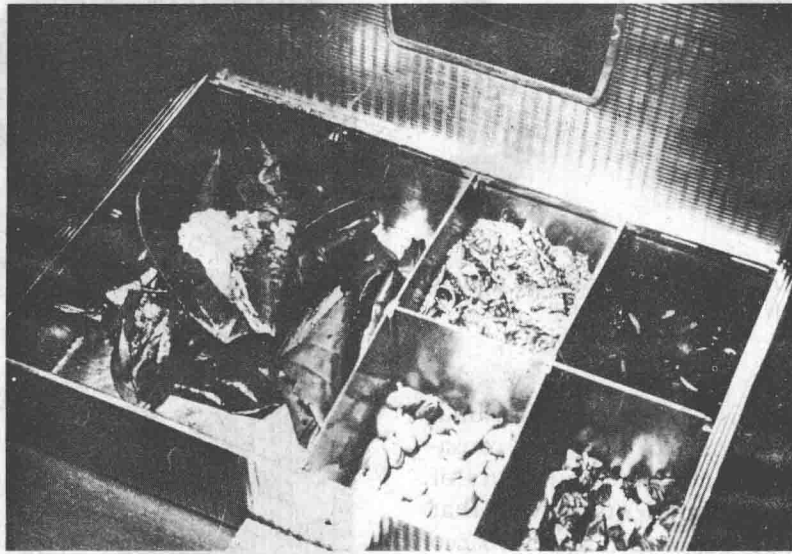


Fig. 1-3. Silver box containing the leaves, nuts, and spices as they would be served in an upper-class home. (Courtesy Dr. A. Griswold Bevin, Jr.)



Fig. 1-4. Leaf with ingredients ready to roll. (Courtesy Dr. A. Griswold Bevin, Jr.)

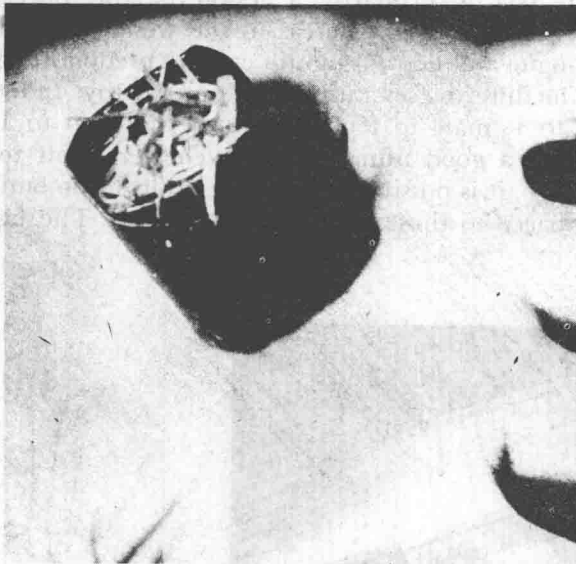


Fig. 1-5. Rolled "pan" (quid) ready to chew. (Courtesy Dr. A. Griswold Bevin, Jr.)

ures of such workers as Shanta and Krishnamurthi of Madras support strongly the causative role of tobacco.¹⁰ Data from their study of 293 buccal mucosa cancer patients showed that 83.2% were habitual betel nut and tobacco users and that only 6.4% chewed the betel nut alone. In the control group the corresponding figures were 49% and 9.2%.

Attempts to develop eventual control programs in south Asia depend not only upon an understanding of etiology but also upon a knowledge of the significance of so-called precancerous conditions. In an attempt to reach an understanding of the significance of leukoplakia, erythroplasia, and submucous fibrosis, research teams in India, Pakistan, and Ceylon are conducting studies to evaluate and categorize the chronic mucosal changes that precede actual invasive cancer. Such studies in countries having a high incidence of oral cancer will add to the overall knowledge of carcinogenesis in the human. Such investigations are being conducted in Bombay, Ahmadabad, Agra, and Madras, India and in Karachi, Pakistan. Further projects are in the planning stage in Colombo, Ceylon and in Trivandrum, India. Some of these studies, such as those of Pindborg, Srivastava, and Daya Gupta, are being collaborated upon by Asian and occidental scientists.⁷ Financial sup-



Fig. 1-6. A, A relatively early cancer by Indian standards, involving left buccal mucosa in the region where the betel-tobacco mixture is held. B, A far-advanced exophytic carcinoma originating in buccal mucosa in an Indian patient. Tumor has fungated out through the oral commissure.

port from the United States is provided for several of the projects.

As further information is acquired concerning etiologic factors and precancerous lesions, the countries involved will be able to plan programs of disease control. In Ceylon there have already been attempts to dissuade people from continuing to engage in what may be an inadvertent experiment in human carcinogenesis, the betel nut habit. The development of control programs is a major challenge in that they carry the potential for eventual eradication of

a miserable human affliction, cancer of the mouth.

SUMMARY

As one reviews the information available from various areas of the world on etiologic factors in mouth cancer, one is impressed by the instances in which tobacco in its various forms appears to be a significant factor. The details of the betel nut-tobacco usage are of particular interest because of the development of the cancers in the exact region of the mouth where the mixture is held.

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