Technical Variations and Refinements in

Head and Neck Surgery

Technical Variations and Refinements in

Head and Neck Surgery

Luc GT Morris MD MSc
Catherine and Frederick R Adler Chair for Junior Faculty
Assistant Attending Surgeon
Head and Neck Service
Memorial Sloan-Kettering Cancer Center
Assistant Professor of Otolaryngology
Weill Medical College of Cornell University
New York, NY, USA

Jatin P Shah MD PhD(Hon) FACS FRCS(Hon)
FDSRCS(Hon) FRACS(Hon)
Chief, Head and Neck Service
EW Strong Chair in Head and Neck Oncology
Memorial Sloan-Kettering Cancer Center
Professor of Surgery
Weill Medical College of Cornell University
New York, NY, USA



JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD

Philadelphia • New Delhi • London • Panama

Jaypee Brothers Medical Publishers (P) Ltd

Headquarters

Jaypee Brothers Medical Publishers (P) Ltd
4838/24, Ansari Road, Daryaganj
New Delhi 110 002, India
Phone: +91-11-43574357
Fax: +91-11-43574314
Email: jaypee@jaypeebrothers.com

Overseas Offices

J.P. Medical Ltd
83, Victoria Street, London
SW1H 0HW (UK)
Phone: +44-2031708910
Fax: +02-03-0086180
Email: info@jpmedpub.com

Jaypee-Highlights.
Medical Publishers Inc
City of Knowledge, Bld. 237
Clayton, Panama City, Panama
Phone: +1 507-301-0496
Fax: +1 507-301-0499
Email: cservice@jphmedical.com

Jaypee Medical Inc.
The Bourse
111 South Independence Mall East
Suite 835, Philadelphia,
PA 19106, USA
Phone: +1 267-519-9789
Email: jpmed.us@gmail.com

Jaypee Brothers
Medical Publishers (P) Ltd
17/1-B Babar Road, Block-B
Shaymali, Mohammadpur
Dhaka-1207, Bangladesh
Mobile: +08801912003485
Email: jaypeedhaka@gmail.com

Jaypee Brothers
Medical Publishers (P) Ltd
Shorakhute, Kathmandu
Nepal
Phone: +00977-9841528578
Email: jaypee.nepal@gmail.com

Website: www.jaypeebrothers.com
Website: www.jaypeedigital.com

© 2014, Jaypee Brothers Medical Publishers

The views and opinions expressed in this book are solely those of the original contributor(s)/author(s) and do not necessarily represent those of editor(s) of the book.

All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission in writing of the publishers.

All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book.

Medical knowledge and practice change constantly. This book is designed to provide accurate, authoritative information about the subject matter in question. However, readers are advised to check the most current information available on procedures included and check information from the manufacturer of each product to be administered, to verify the recommended dose, formula, method and duration of administration, adverse effects and contraindications. It is the responsibility of the practitioner to take all appropriate safety precautions. Neither the publisher nor the author(s)/editor(s) assume any liability for any injury and/or damage to persons or property arising from or related to use of material in this book.

This book is sold on the understanding that the publisher is not engaged in providing professional medical services. If such advice or services are required, the services of a competent medical professional should be sought.

Every effort has been made where necessary to contact holders of copyright to obtain permission to reproduce copyright material. If any have been inadvertently overlooked, the publisher will be pleased to make the necessary arrangements at the first opportunity.

Inquiries for bulk sales may be solicited at: jaypee@jaypeebrothers.com

Technical Variations and Refinements in Head and Neck Surgery

First Edition: **2014**

ISBN 978-93-5152-317-8

Printed at:

Dedicated to

Jack and Kaia
and all the aspiring
Head and Neck Surgeons
around the globe

Preface

"A large part of abdominal work is recreation as compared with the work of what might be called the heavy surgery of the neck".

Charles H Mayo, 1905

Unique among the specialties that make up the field of cancer care, surgical oncology is both a science and an art. The outcome of patients with head and neck cancer depends not only on the surgeon's decision-making and knowledge base, but also on his technical ability to accomplish a surgically safe and complete cancer operation. No two operations are the same, no surgery is ever routine, and even "minor" technical aspects of the procedure can affect the patient's quality, and length of life. This is a perennial aspect of high-quality cancer care that is difficult to convey in a textbook or journal article. Over the past 30 years, training programs for the increasingly complex specialty of Head and Neck Surgical Oncology have evolved to train the next generation in high quality surgical care for diseases of the head and neck.

This textbook will cover the advanced technical aspects, variations, and refinements of head and neck surgical procedures, developed by the senior author over the past 40 years. These variations in technique are currently practiced by the surgeons on the Head and Neck Service at Memorial Sloan-Kettering Cancer Center in New York, USA. For each procedure, the refinements will be directly compared with conventional surgical techniques. These refinements were developed, keeping function and esthetics in mind, which clearly impact on the quality of life. This focused text is a companion to *Jatin P Shah's Head and Neck Surgery and Oncology, 4th edition*, and therefore does not seek to cover oncologic aspects of surgical decision-making, nor does it encompass the critical multi-disciplinary nature of head and neck cancer treatment, or the rapidly evolving science of the field. It also does not describe the step by step conduct of operations, for which the reader is referred to the main textbook. On the other hand it highlights the important components of operative procedures, concentrating on technical nuances. Thus, this book is intended to take the reader on a focused tour through some major refinements to the performance of the craft of head and neck surgery.

We hope that this work will be of value to residents and fellows in training, as well as established surgeons who may not perform a high volume of head and neck procedures.

Luc GT Morris
Jatin P Shah

Acknowledgments

We would like to thank the many courageous patients with head and neck cancer who we have had the good fortune to meet, treat and glean inspiration from. We would also like to thank Ms Raia Mohammed and Mr Benjamin Hegel of the Head and Neck Service for their superb editorial assistance, Ms Chetna Malhotra Vohra (Senior Manager—Business Development) and Ms Sheetal Arora (Development Editor) of M/s Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, India.

Contents

1. Basic Surgical Principles **1**

- Operating Room Setup and Instrumentation *1*
- Basic Surgical Techniques *8*

2. Surgery of the Scalp and the Skin of the Face and Neck **14**

- General Principles *14*
- Surgery of the Scalp *15*

3. Nose, Paranasal Sinuses, and Orbit **26**

- Facial Incision *26*
- Partial Maxillectomy *29*

4. Skull Base Surgery **35**

- Anterior Craniofacial Surgery *35*
- Endonasal Skull Base Surgery *36*
- Middle Cranial Fossa and Infratemporal Fossa *37*

5. Oral Cavity **42**

- "V" Excision of the Lip *42*
- Partial Glossectomy *42*
- Skin Grafts in the Oral Cavity *45*
- Management of the Mandible: Segmental Mandibulectomy *46*
- Management of the Mandible: Marginal Mandibulectomy *48*
- Mandibulotomy *52*
- Optimizing the Lip-splitting Incision *55*
- Palatal Fenestration for Hard Palate Tumors *57*
- Repair of the Central Palatal Defect *58*

6. Larynx, Hypopharynx and Trachea **59**

- Low-stage Tumors *59*
- Advanced Laryngeal Tumors *60*
- Total Laryngectomy or Pharyngolaryngectomy *61*
- Pharyngeal Closure *64*
- Tracheoesophageal Puncture *65*
- Tracheal Resection *66*

7. The Neck **69**

- Lymph Node Biopsy *69*
- Neck Dissection *70*
- Extent of Neck Dissection *71*
- Preservation of the Marginal Mandibular Branch of the Facial Nerve *72*
- Preservation of Skin Sensation *74*
- Preservation of Vascularity of the Accessory Nerve *74*
- Selective Neck Dissection in the Postchemoradiation Salvage Setting *75*
- Central-compartment Node Dissection *76*
- Placement of Suction Drains *77*

8. Thyroid and Parathyroid Glands **78**

- Thyroid Lobectomy or Total Thyroidectomy *78*
- Thyroidectomy and Neck Dissection *81*
- Surgery for Large Thyroid Tumors and Retrosternal Goiters *81*
- Nerve Monitoring *83*
- Parathyroid Surgery *84*
- Minimally Invasive Parathyroidectomy *84*
- Four-gland Exploration and Subtotal Parathyroidectomy *86*

9. Salivary Glands **88**

- Superficial Parotidectomy *88*
- Parotidectomy and Excision of Deep Lobe Parotid Tumor *94*
- Excision of the Submandibular Gland for Sialolithiasis *97*

10. Other Tumors **99**

- Carotid Body Tumors and Paragangliomas *99*

11. Transoral Surgery and Endoscopic Techniques **103**

- Transoral Laser Microsurgery and Transoral Robotic Surgery *103*
- Endoscopic Management of Tracheal and Subglottic Stenosis *115*
- Percutaneous Endoscopic Gastrostomy Tube Insertion *118*

Index *123*