

## Foreword

I am honored to have been asked to write a Foreword for this book on ear surgery. I have known Mario Sanna since the mid 1970s when he first visited the Otologic Medical Group, now known as the House Ear Clinic.

He showed great interest in all aspects of otology but showed an unusual interest (compared to others) in the technique of teaching: preparing and using slides, preparing handouts, and emphasizing that judgment comes from experience—and experience comes from using bad judgment!

This became more apparent over the course of years when he returned on a number of occasions. In the late 1970s I was invited to be a featured speaker at a major course he put on with Professor Zini in Parma.

As a result of all our contacts, you will read many comments in this book:

- Judgment comes from experience, and experience comes from bad judgment.
- Make things (teaching) simple and clear.
- Refer difficult cases and then watch the operation being done.
- Visit others around the world to observe their technique.
- Define (closely) what the objectives and possible complications are when explaining things to a patient.

I could go on, and on, and on, but will just list some of the subjects you will find at the end of each chapter:

- Hints and pitfalls (excellent);
- Rules and hints;
- Problems and evaluations;
- The decision-making process.

In regard to stapes surgery, he emphasizes that only experienced otologists should do this, and, in Hints and Pitfalls, that use of a hearing aid is a good alternative—and the patient should be so informed.

In regard to cholesteatoma surgery, there is “no simple technique”! Judgment; experience. The technique that he and his colleagues describe is excellent (although not what my associates and I usually do). They emphasize many things:

- There is no simple technique;
- Meatoplasty is tremendously important in using the canal wall down surgery (excellent comments);
- Hints and pitfalls.

And finally, the most unusual (and wonderful!) aspect of this book is the fact that colored pictures are used rather than drawings to illustrate almost all phases of the many operations!

*James L. Sheehy, M.D.*  
Los Angeles, California USA

## Preface

This book has been written to try to provide otologic surgeons with the knowledge and skills acquired during 30 years' experience in this field and demonstrates the approach to middle-ear surgery taken by the Gruppo Otologico in Piacenza and Rome, Italy. The material in this book is based on our group's experience of more than 12 000 cases. As far as possible, we have made this book practical in approach. The procedures we use in our group are described in a step-by-step manner with illustrative photographs from real surgical situations supported by schematic computer graphics. Through the self-descriptive systematic photographs, readers can gain a vivid idea of how the site of operation should be, and how they should work in it. The illustrations are used to explain how things are arranged, and to clarify concepts or procedures that are difficult to photograph.

We have paid considerable attention to describing useful techniques for executing delicate manipulations in surgery. The position of the patient, the position of the surgeon and his or her hands, the way instruments are held, and the three-dimensional relationship between all of these, results in an operation site that should be stable, wide, and comfortable. Inevitably, we will all make mistakes; instruments and drills will occasionally move in an unexpected way. Surgeons should be prepared for such situations, to minimize the resultant risk. How to move drills, how to work around fragile structures, and how to stop bleeding; all of these are very important skills in reducing surgical complications. While these details might be unnecessarily repetitious for experienced surgeons, they are indispensable in the training of young doctors.

Thousands of middle-ear surgery techniques and their various modifications have been described, making this a complex field. Special techniques performed by very experienced surgeons yield excellent results, as a rule. However, the number of "very experienced" surgeons is quite limited. Some techniques that may be easy for experienced hands are quite difficult for beginners, making results impossible to reproduce. Trials of such complicated and difficult-to-use procedures are not practical for most clinicians. Since nobody is "very experienced" from the beginning, one may accumulate a history of avoidable mistakes and failures before becoming very experienced.

We need to remember that nothing is easy in middle-ear surgery. We have to work around very fragile, fine structures with high-speed drills and sharp instruments. The task is made even greater if difficult surgery is performed in a complicated way. It is safer if the surgeon can arrange wide access with good visibility instead of working in a very deep and narrow area with tremendous concentration. It will be safer still if surgical steps are less complicated and easy to follow. Without re-evaluating what has been done, future progress in the right direction cannot be assured. If the surgical techniques are overly complex, it is almost impossible to evaluate validity of each procedure afterward, even by the surgeon who performed them. Because middle-ear surgery is not easy, it is our view that its techniques must be simple and clear. A considerable part of my 30-year

career in middle-ear surgery has been focused on simplifying surgical techniques. Continuous re-evaluation of a large number of surgical outcomes has improved our techniques to the level of "state-of-the-art" middle ear surgery. This book contains techniques based on such concepts and endeavors.

Surgical complications do occur even in the present era of microsurgery. Some are inevitable even in the most experienced hands. However, some are avoidable if the surgeon knows the anatomy and uses a surgical technique that is relatively simple, reliable, and reproducible. The number of complications, especially facial nerve palsy, must be reduced. Temporary facial nerve palsy could be accepted in 1 in 1000 cases in mastoid surgery. We actually achieve 1 in 5000 cases. In myringoplasty and canal stenosis, it should be reduced to zero. Blunting of the anterior tympanic membrane is practically absent when the techniques are correctly executed. Total deafness in stapes surgery should be less than 1 in 1000 cases. In our group, sustained vertigo after stapes surgery is practically absent due to the development of technique from total to partial stapedectomy, and then to stapedotomy. Unfortunately, long-term necrosis of the incus remains an unresolved problem.

Readers will fully appreciate the difficulty of middle ear surgery. It is very rare that surgery is entirely composed only of easy procedures. The great majority of intraoperative photographs in this book are taken during surgery performed in Gruppo Otologico. As a rule, any procedure performed by an expert seems fluent, making each manipulation look easy. However, this can be misleading, especially for beginners. For instance, stapedotomy is composed of very simple and consistent procedures that can be completed in less than half an hour. However, it does not allow any mistake to be made throughout the surgery. The surgeon needs to be wise enough to correctly estimate his or her current level of skill, and courageous enough to give up difficult-to-manage cases and to refer to more experienced surgeons.

Revision operations always provide valuable information concerning the validity of the techniques used in the original surgery. Our experiences are the same as others. Failed operations are commonly caused by insufficient exposure or removal of structures, or both. This means, in the great majority of failed cases, that more bone should be removed. Such skills can only be achieved safely by study of the temporal bone in the laboratory, since the more bone that is removed, the closer we can approach the important structures. We believe that attendance at temporal bone dissection courses on two or three occasions is the minimal requirement for starting middle ear surgery, and continuing commitment to attending such courses yearly helps substantially in acquiring and refining the anatomical knowledge that relates directly to surgical skill.

To become a good middle ear surgeon, vigorous self-training in a variety of aspects is required. Undoubtedly, this book cannot be expected to teach everything. The surgeon, perhaps, can keep in touch with some referral center that

performs middle-ear surgery daily. Surgeons can refine their skills by watching such operations. From time to time, consultation and referral of the surgeon's patients are possible. Visits can be made to various well-established centers around the world to learn alternative surgical techniques performed by different experienced surgeons. One may not be able to perform the same technique, but such experience serves to establish the goal one needs to reach. Occasionally, something different from what has been published may be found.

Of course, the goal of all operations, like that of this book, is to cure patients. We hope that it will become both a guide for beginners, and a favorite textbook for established otologic surgeons.

My special thanks go to the co-author of this book, Hiroshi Sunose. I have worked with him on this book for almost a year. His dedication to work, his intelligence and advice has made its completion possible. Fernando Mancini has been an active participant in this project, both in terms of writing and editing, and in preparing the computer drawings. My colleagues, Alessandra Russo and Abdel Kader Taibah have operated on a large number of patients at the Gruppo Otologico, and their advice greatly improved the quality of this book. Many thanks are paid to my co-workers, Giuseppe De Donato, Maurizio Falcioni, Enrico Piccirillo, Antonio Caruso, who participated directly and indirectly in preparing this book.

I would like to express special thanks to my great teachers. Carlo Zini introduced me to the world of middle-ear microsurgery through 10 years of collaboration at the University of Sassari and University of Parma. I also want to thank Jim Sheehy. I have learned a lot about middle-ear surgery from him. Through that experience, I realized the importance of teaching young doctors. I also want to express great thanks to William House, who taught me how valuable continuous and vigorous re-evaluation is to improving subsequent operations. André Sultan influenced me greatly through his concrete, practical and simplified approach. Without such great teachers as these, this book would certainly have been beyond our reach.

In time, I am sure that some of the contents of this book will become outdated and some of the techniques will be abandoned due to developments of materials, instruments, surgical techniques, and surgical philosophy. I will be pleased to see that happen. Hopefully, some of these changes will be brought about by some of the author's students.

I would like to credit and thank Dr. Khrais Tarek from Jordan University of Science and Technology for his help in the preparation of this book.

The authors would like to acknowledge Dr. Clifford Bergman of Georg Thieme Verlag for his collaboration and help.

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*Mario Sanna, MD*

## Acknowledgement

I want to thank my great teacher, Professor Mario Sanna. In the fall of 1999, I first stayed in Italy for six months to learn skull base surgery from him. His great surgical skill was astonishing and breathtaking for me, and I could not keep my eyes off the monitor that showed his surgery. Just in the middle of that stay, he gave me a chance to write this book with him. At that time, the project, the first middle ear book for Mario Sanna and Gruppo Otologico seemed like a skyscraper for me. On the other hand, I recognized that his surgical skill, obtained through treating a great number of patients with intelligent insight, is something we should share with other doctors all over the world, for the welfare of patients we are going to face. Such recognition motivated me to undertake this project. In the spring of 2000, I had to go back to Japan, and the project was stopped halfway, for more than a year. What surprised me was that Mario waited for my return.

As always, the work was like building a high tower with small blocks. Through writing this book, surgery is not the only thing Mario taught me. He also taught me an approach to life. Mario keeps saying that teaching is the best way to learn. Now I understand what he means. This book is a result of my intensive work, more than ten hours a day for a total of six months, at his operating table, with a slide projector, and at my desk. I am pleased with the state of the finished book.

I should like to give my warm thanks to Professor Toshimitsu Kobayashi of the Department of Otolaryngology, Tohoku University School of Medicine. Professor Kobayashi is a former student of Gruppo Otologico. In 1998, he gave me the opportunity of meeting Mario, and opened a gateway to Italy and an introduction to him with his warm recommendation. When he became the head of our department, he gave me a chance to stay in Italy again, to finish this book. Throughout both my stays, I was tremendously encouraged by his very warm words of strong support. I also thank Tomonori Takasaka, professor emeritus of Tohoku University, and my colleagues at Tohoku University for graciously accepting my absence, and the inevitable inconvenience, in spite of a serious shortage of doctors in the department. Many thanks go to Professors Daniel C Marcus and Philine Wangemann who trained me as a basic researcher in the United States. Without that experience, I would not have had the chance to write this book.

Special thanks go to my three small sons, and my wife. Tomoki, Yuki, Hiroki, and Yoriko endured their loneliness without father and husband, for about a year. I fully recognize that it was too long a period of separation, especially for small children. I hope, and believe, this book matches their sacrifice. I also want to express great thanks to my parents and parents-in-law for their special support to my family and to me.

For me, the fruit of this work is not only this book. I am very happy that, in Gruppo Otologico, I now have a great teacher and great friends.

*Hiroshi Sunose, MD*

I first met Mario Sanna in 1973 when he was a young, emerging otologist under the leadership of his great teacher, Carlo Zini, and I was a second-year resident in Turin wanting to specialize in ear surgery. We were each preparing to travel overseas for additional experience: Mario with the House Group in Los Angeles, I in Minnesota with Michael M. Paparella. Different schools influenced our training and our growth as otologists; we followed sometimes opposite philosophies but we always shared a similar enthusiasm and dedication to otology.

Mario became a leading otologist. I met him again at the end of the 1980s, attracted by his experience and skills in otoneurosurgery and skull base surgery. In 1990, Mario started his courses on otology, neurotology and skull base at the Gruppo Otologico in Piacenza and allowed me to assist by teaching young otolaryngologists and neurosurgeons the experiences drawn from years of practice. I must thank Mario for giving to me the opportunity to share with him this wonderful experience. Mario's lively intelligence, intellectual impetuosity and open-mindedness joined with an unusual critical

mind are only a few traits of his personality that have transformed our acquaintance into a sincere friendship.

I accepted Mario's invitation to participate in preparing this book with enthusiasm. I firmly hope that the great amount of time that I have stolen from my family and spent in learning computer drawing, and in discussing, revising, and writing, with all my co-authors, might at least help the rest of the world to recognize the important contributions that Mario has made in the development of ear surgery, and his dedication to teaching and sharing his knowledge, which has characterized his life.

I would also like to thank Michael M. Paparella, my first teacher and my best friend. He not only introduced me to ear surgery and temporal bone pathology and guided me during my first steps in this specialty, but he has also been my mentor in every aspect of my professional and personal life.

Finally, but by no means least, I would like to thank my wife Daniela who taught me some of her great skills in drawing, my son Roberto, a personal expert computer-trainer, and my daughter Carlotta. They have not only supported me but they also bore and accepted the long time dedicated to this book.

*Fernando Mancini, MD*

When I graduated in 1983, I did not know in which field I wished to specialize, though I was absolutely certain that I wanted to do something surgical. That same year, my father Raffaele, an ENT doctor, took me to a national ENT conference in Bologna, where I had the opportunity of meeting Dr Mario Sanna. I assisted with presentations of his works and projections of the surgical tapes of the middle ear. I was struck by his energy and enthusiasm. Middle ear microsurgery was evolving rapidly, and I was so interested in it that I decided to become an otologist. After my specialization in ENT, Mario Sanna asked me to come and work with him in Piacenza where, together with Dr Taibah, he was establishing the Gruppo Otologico. I am very happy that I arrived at that time and that I contributed to the realization and growth of the Gruppo Otologico. The activities, both clinical and surgical, grew every year; at the end of the 1980s, skull-base surgery started.

Even at that stage we started to take otoscopic images in the outpatient clinic, and slowly we started documenting images of surgical procedures. After we had collected around 1000 otoscopic images we put together an Atlas of Otoscopy.

Once we had acquired a good collection of intraoperative images, Mario wanted to make a book of middle ear surgery. We knew this would be a difficult job right from the beginning, because it is not easy to explain, step by step, all of the many varieties of operations on the middle ear, even though we used written texts, drawings, and surgical pictures. When we started to put the book together, we had insufficient numbers of images from which to choose. We had to take more pictures. So, every day, we had to prepare the cameras on the microscopes and to make sure we had a large stock of film.

Mario was very demanding and hypercritical about picture quality, especially about the ones I took—too dark, too much overprojection, not perfectly focused, too much blood. I do not know how many rolls we threw away! Finally, though, after many attempts, we had all the material we needed.

I thank Mario Sanna because he was a great teacher to me. With his extraordinary surgical talent, and his practical capabilities, he was able to simplify and shorten those surgical operations that at first sight appeared to be very complicated. Thanks to his teaching, we all learned to perform that kind of surgery and to love it. I also thank Dr Taibah and all the other colleagues with whom we built a relationship of collaboration, that permitted us to work better.

I thank Mario, my husband, and Carlo Alfonso, my son, for being so understanding about my frequent absence. And last, but not least, I want to thank my parents, because I would have had many more difficulties achieving all of my professional goals without their support.

*Alessandra Russo MD*