



Preface



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Related Materials

The physician must be able to tell the antecedents, know the present, and foretell the future—must mediate these things, and have two special objects in view with regard to disease, namely, to do good or to do no harm.

Of the Epidemics (400 B.C.), Hippocrates

Battle is the most magnificent competition in which a human being can indulge. It brings out all that is best; it removes all that is base. All men are afraid in battle. The coward is the one who lets his fear overcome his sense of duty. Duty is the essence of manhood.

General George S. Patton

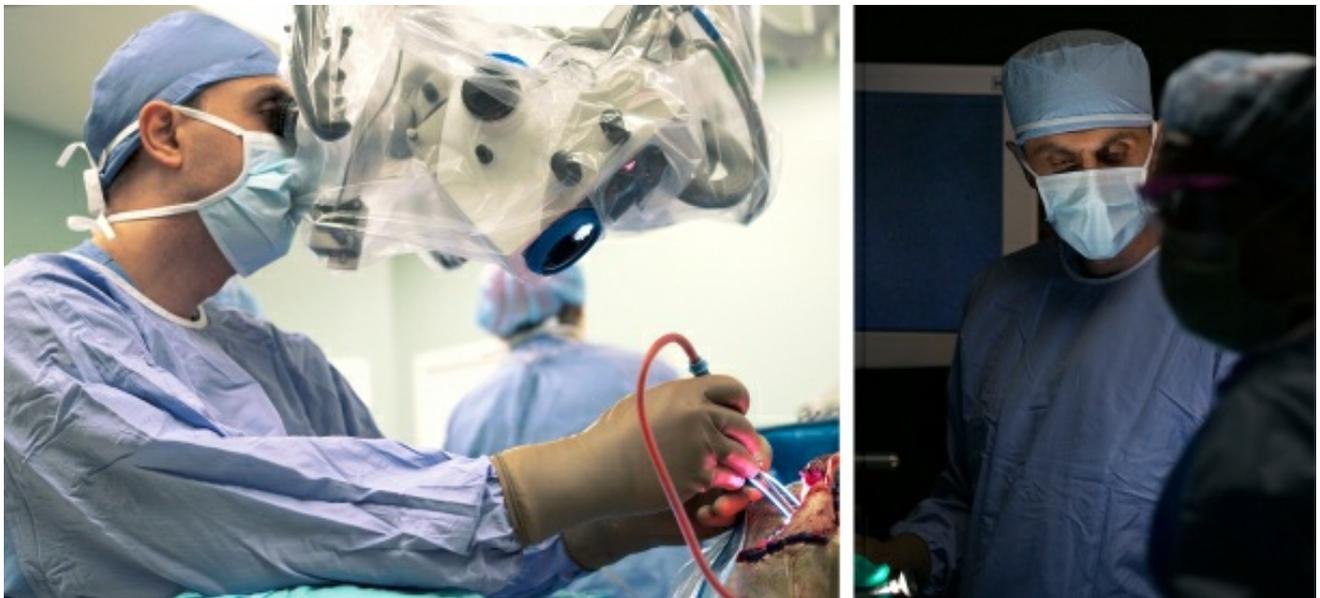


Figure 1: Using the microscope (left) and endoscope (right).

Led by my lifelong quest for technical proficiency and excellence, I conceived the idea of this Atlas during my early years as a staff neurosurgeon. As a medical student, I persevered on a career in neurosurgery because I believed in operative neurosurgery as a

dynamic art. *This Atlas defines my journey for reaching technical excellence in the art of microneurosurgery. My fundamental philosophy has always been: "Failure is not an option."*

Certain principles have been my consistent theme and doctrine. Technical fluency and efficiency has been the hallmark of my operative philosophy. All nondeliberate movements are strictly prevented and operative time is kept to a minimum, even for very complex AVMs and skull base tumors. No movement is performed under time pressure and no surgery conducted hurried, impatiently, or rushed. **The time saved is based on the execution of gentle, deliberate, decisive, aesthetically pleasing, and planned maneuvers while avoiding hesitant exploratory movements.** This operative efficacy has led to improved outcomes for all of my cases, including the complex ones.

Sincere devotion to technical learning and an ongoing review of recorded operative videos have played pivotal roles in enhancing my operative efficiency. Fluent, active, smooth, transitional movements have replaced passive, lethargic, exploratory actions. The experience gained from a critical review of these videos has essentially eliminated “wondering what to do next” during complex operations.

I compare microsurgery to playing the piano. There is no place or time to plan during the final performance. The transition from one note to another defines the elegance of the song and the finesse and acumen of the operator.

Time-consuming unnecessary approaches and maneuvers are abandoned. Dogmatic overuse of extensive skull base approaches are avoided, and the focus is turned toward minimizing operative morbidity while handling the pathology at hand with minimal disruption of normal anatomy.

The operating room microscope is used only to perform microsurgery, never macrosurgery. The magnification, illumination, and stereoscopy of the scope are maximally exploited. With the use of the mouthswitch while working in exceedingly small operative corridors, dynamic retraction exposes only part of the pathology at one time and protects the patient's brain from retraction injury. I have learned to do more through less disruptive but more restrictive operative corridors. **Flexible operative angles, rather than generous operative space, have determined my limits of required exposure.**

This Atlas would have not been possible without the help of numerous fellows, medical students, and research assistants (Table 1). I want to extend my sincere appreciation of their selfless efforts to make this work possible. Jared Travnicek (the art director) and Elyssa Siegel have added special beauty and indispensable clarity to this work through their magnificent artistic illustrations. Marilyn Yurk's editorial efforts have transformed the readability of this offering to a new level. Dr. Albert Rhoton graciously agreed to the use of his magnificent anatomical dissections. His work has added a pertinent layer of knowledge to this Atlas; may God bless him in peace.

Benjamin Hendricks	Andrew Conger	Aqueel Pabaney
Jonathan Parish	Charles Kulwin	Mahdi Malekpour
Daryoush Tavanaiepour	Analiz Rodriguez	Gustavo Luzardo
Jeremiah Johnson	Roberto Rey-Dios	Richard Kim
Gina Monaco	Shaheryar Ansari	Tim Kovanda
Christopher Kellner	Jonathan Weyhenmeyer	Farhan Mirza

Table 1: Collaborators who have generously assisted with this Atlas project

Personal Philosophy

To further expand on the above sentiments, three ingredients have been critical in the evolution of my microsurgical skills:

First, objective self-reflection and respect for constructive feedback from colleagues and a devotion to learn from our colleagues' mistakes and experiences.

Second, a passionate sense of confidence that comes from the knowledge that we, as surgeons, will refine our techniques only by tackling more difficult cases that push the boundaries of our comfort. We must be intimately familiar with how to "get out of trouble" in order to protect the most important result of our work, the welfare of the patient.

Third, the key ingredient in the evolution of the surgeon's microsurgical skills is an innovative spirit to attempt new techniques and operative routes for difficult-to-reach tumors. All dogma must be abandoned. The rationale for saying "this is how we always do it" or "this is how I did it in residency" must be questioned.

Surgical intelligence is difficult to define, but it is the ability to monitor one's own operative maneuvers, to discriminate between different operative strategies for efficient handling of the lesion, and to use momentous intraoperative findings to guide the overall plan.

Rigid loyalty to the point of religious conviction to a particular operative technique will compromise the patient's care. The operator's philosophy should remain flexible, and he or she must consider contingency plans when unforeseen challenges arise.

Surgeons do not "shine" when routine cases go great. In fact, the master surgeon is recognized when he or she achieves the

best outcome under the worst intraoperative circumstances. In other words, the master captain navigates the ship to the shore under the most turbulent conditions. Surgical intelligence, patience, and appropriate temperament define the best of us.

Microsurgery is a passion, not a job and not a hobby but a journey of agony and ecstasy. It disappoints you but your successes will carry you along.

Most importantly, do “the best anyone can” rather than “the best you can” for every patient. You owe it to them. The patient’s interest is the only and the most important interest.

I am honored to dedicate this Atlas to my wife, Isabelle, whose support has been indispensable in the completion of this work. She is the light of my life. She graciously realized the importance of this Atlas while I spent many late nights and weekends of more than a decade working on the content.

This Atlas has been written in a narrative format to convey a personal experience dealing with complex and critical intraoperative decisions. One cannot overlook the basic principles/ingredients that form the essence of a surgeon: An eagle's eye, a lion's heart, and a lady's hand.



The eye of an eagle

The heart of a lion

The hands of a woman



Figure 2: The essence of a surgeon

I have benefited immensely from my exposure to the teachings of the giants in neurosurgery. Unfortunately, this offering will not do justice in recognizing the indispensable contributions of the great surgeons who have made the presented surgical knowledge and pearls possible. *We stand on the shoulders of giants.* I am indebted to those who mentored me and encouraged me to finish this project. The person that I am most indebted to is Jim Rutka. He continued to emphasize the importance of the work.

Finally, the goal of this Atlas is to reinforce complication avoidance and management. Some portions of this Atlas include materials intuitively known to many neurosurgeons. I therefore ask for forgiveness if some chapters are redundant or superfluous. This work is a compendium of my cumulative experience through management of complex cranial cases over a decade. I surely hope that this

collection will serve as a supportive reference for junior neurosurgeons and residents. This offering will be continuously updated and new chapters added weekly. Your constructive input in the comments section of each webpage is sincerely appreciated.

Aaron A. Cohen-Gadol, MD, MSc
Indianapolis, Indiana

COMMENTS:

Roberto Arturo Moya

There's a breaking point in every issue of knowledge. And I don't say human knowledge, cause, it's the only one we know, at least now. Dr Cohen-Gadol attained one of these points, and encourages us to go with him in the journey to do better with the jewel of universe: the human brain!

JUN 3, 2016 06:45 PM

Fernando Rueda-Franco

A very elegant and genuine introduction. I look forward to review the volums. Thank you very much indeed

JUN 3, 2016 08:19 PM

Aaron Cohen-Gadol

We appreciate the kind comments. Best wishes. ACG

JUN 4, 2016 11:17 AM

jamal emhemed

To patients with brain lesions,who are courageous to seek a cure,and brave to endure pain;and to those who are eager to learn,and those who are keen to teach. Thank you Dr.Aaron for such successful and splendid project,i really appreciate it; "GOD" bless you.

AUG 1, 2016 03:55 PM

jose arimateia

wonderful website! congratulation!! thank you for share with us .

AUG 19, 2016 06:58 PM

Andrea Elaine Pearson (Haas, Huston)

I feel this comprehensive case-study documentation of a decade of experience will help me save lives in the future! Thank you so much for sharing & your tireless efforts to communicate the knowledge needed in the industry as a team to learn from one another.

SEP 28, 2016 09:10 AM

Tao Xu

Dear Dr Cohen, this is really a great great atlas for young neurosurgeons, I really enjoyed that and learned a lot from your words as well as the operative videos. Thank you for sharing us so many surgical tips that help us save lives in the future! Best wishes!

OCT 9, 2016 10:30 AM

Francesco Iacoangeli

Grazie. Sinceramente.

OCT 16, 2016 03:07 PM

Stefano Maria Priola

Dear Dr. Cohen-Gadol, this is a very important resource, especially for young neurosurgeon like me. It gives us the answers we are looking for, but overall it is a great example of how important is the continuous and meticulous research of an improvement in the neurosurgical field. With this wonderful atlas you have done a great gift not only to all neurosurgeons, but especially to all our patients. We really appreciate your enthusiastic work and all the efforts to make it happen. Always grateful.

OCT 27, 2016 05:32 PM

Ahmed Al-Jradi

Very inspiring introduction , and I deeply thank you for sharing your knowledge and experince with us

JAN 8, 2017 03:40 PM

Diones Rivera

Wonderful website congratulations

FEB 8, 2017 08:43 PM

Simão Gonçalves

Congratulations

FEB 17, 2017 12:29 AM

Dmitriy Ishchenko

Dr. Aaron, thank you for this awesome resource for young neurosurgeons. First of all, it's a great deep base of knowledge, which costs a lot. And second - thank you for inspiration and the way in which I want to progress.

FEB 24, 2017 01:46 PM

Shaima Alshaibani

Sir Cohen, I applaud the effort put into this atlas. Unlike other introductions, yours affixed a set mindset. I look forward to grasping your knowledge. May God bless you and brighten your path. Alshaibani, S.

MAR 20, 2017 01:55 PM

Pranav Ghodgaonkar

Excellent.

MAR 23, 2017 05:29 AM

Jorge Palomino

Thank you for sharing the topics of neurosurgical interest

MAR 26, 2017 05:09 PM

deepak somasundar

wonderful website... thank you very much

SEP 5, 2017 10:51 AM

Davide Croci

Thanks! This Website is just Great!

SEP 18, 2017 03:43 PM

christian castillo

Thanks you very much!!! this website is wonderful, you are a great person.

SEP 22, 2017 12:38 AM

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