The history of skull base surgery

Introduction

Neurosurgery is of great interest to historians of medicine and technology because it is relatively young, because it developed in an era of journals and publications, because lines and traditions of training and mentorship are relatively clear, and because the technologies that enabled the evolution of the profession and acted as inflection points in the emergence of certain surgical approaches and procedures are at once well documented and remarkably unambiguous. To the extent that is the case for neurosurgery as a whole, it is even more so for surgery of the skull base.

To trace the history of skull base surgery along its full expanse is to begin with Horsley and pituitary tumors (unless one wants to start even earlier with the treatment of trigeminal neuralgia); to move to Cushing’s work in the same arena (but also that of many others as well); to emphasize the impact of microsurgical techniques and new imaging modalities; to outline once radically innovative, but now widely practiced anatomical approaches to the skull base; to emphasize the importance of team approaches; to discuss emerging therapeutic strategy as well as instrumentation and techniques; to acknowledge the importance of advances in neuroanesthesia and the medical and perioperative care of the neurosurgical patient; and to recognize the contributions of the many individuals who, over the past 25 years, have added to and furthered the field in these and other ways.

It is not hard to point to leading individuals and important techniques. It is perhaps more difficult to frame them in a meaningful historical perspective because the work has occurred relatively recently, in the time frame historians call “near history.” Difficulties arise from both an evaluative and a nosological standpoint. For example, from an evaluative standpoint, how does one stratify the relative importance of corticosteroids, osmotic diuretics, and CSF drainage techniques and technologies in the control of intracranial pressure and the facilitation of exposure for base of skull surgery? How does one think about the idea of hybrid surgery and stereotactic radiation? What will be the long-term view of anatomical approaches to giant basilar aneurysms in the light of endovascular surgery? Have we reached a tipping point in the management of vestibular schwannomas, given the availability of and the outcomes associated with stereotactic radiosurgery?

From a nosological standpoint, should we think about base of skull surgery in terms of anatomical approaches? One textbook that does just that starts with subfrontal approaches and then moves around the calvaria and down to the petrous and temporal region in a Cook’s tour of exposure, in the tradition of Henry’s Extensive Exposure and comparable surgical classics. Other publications have explored a set of technologies. Another focuses on the contribution of great men. Many surgeons have written about specific particular pathologies at the skull base. It is likely that the next generation of essays on this subject will reflect the results of molecular diagnostics, genomics, and sophisticated outcome studies as well as currently emerging technologies (such as robotics and heavy particle radiation), and continued innovation in surgical techniques.

This issue of Neurosurgical Focus contains a series of essays that discuss various elements of the history of skull base surgery. López-Serna, Elhadi, and Thakur and...
their colleagues write about the premodern period. El-
hadi and colleagues also comment on the introduction
of radiography in early neurosurgery. Gross and Grossi
and their colleagues concentrate on petrosal approaches;
Schmitt and Jane on third ventriculostomy; and Chitti-
boina and colleagues on the history of a very simple but
ubiquitous instrument, the Freer elevator, and its inventor.
In contrast to the more comprehensive overviews written
by Goodrich, Donald, and others, these essays concen-
trate on selected details. While it is important not to miss
the forest for the trees, sometimes the trees are worth
studying no less than the forest.3,4

Disclosure

The authors report no conflict of interest.

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