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Introduction

Our institution, located in a mid-sized city in Colombia, initiated a structured process to standardize the care of patients with brain and skull base tumors. This initiative aimed to reduce variability through an integrated clinical and surgical approach, combining investment in advanced surgical technology with the establishment of a transdisciplinary team led by a neurosurgeon formally trained in neuro-oncology and skull base surgery (Figure 1).

Objetivo

To describe the outcomes of the first year of implementation of a Center of Excellence for the management of brain and skull base tumors, including clinical, surgical, and organizational aspects.

Figure 1. Transdisciplinary Center of Excellence for Brain and Skull Base Tumors Clinia Medilaser, Neiva, Colombia: The program integrates medical oncology, radiation oncology, endocrinology, neuroradiology, bioethics, social work, psychology, rehabilitation, neurosurgery, and skull base neurosurgery.



Methods and Materials

A longitudinal observational cohort study was conducted using data from patients managed within the Skull Base Tumor Program since its implementation in August 2024. All consecutive patients discussed and treated through an interdisciplinary tumor board were included. Clinical and surgical outcomes were prospectively collected during inpatient follow-up and outpatient visits up to 6 months. One-month mortality was defined as death occurring within 30 days after surgery.

Results

Ninety-two patients were included. The most frequent tumor pathologies were meningiomas, gliomas, and pituitary adenomas. Among hospital survivors (n = 88), 90.9% attended at least one outpatient follow-up visit within 6 months. One-month mortality was 4.3% (4/92), mainly due to hemorrhage.

Table 1. Tumor Pathology (n = 92)

Tumor pathology	n	%
Pituitary adenoma	14	15.2
Craniopharyngioma	2	2.2
Meningioma	18	19.6
Gliomas	16	17.4
Germ cell tumors	4	4.3
Schwannoma	5	5.4
Metastases	6	6.5
Other tumors	27	29.3
Total	92	100

Table 2. Postoperative Complications (n = 92); non-mutually exclusive events.

Postoperative complication	n	%
CSF leak (postoperative fistula)	4	4.3
Postoperative infection	4	4.3
Postoperative bleeding	3	3.3
Postoperative hormonal deficit	3	3.3
Worsened visual acuity	2	2.2

Table 3. One-Month Mortality and Causes (n = 92 patients)

Outcome / Cause	n	%
One-Month Mortality	4	4.3
Sustained hypotension	1	25.0
Hemorrhage	3	75.0

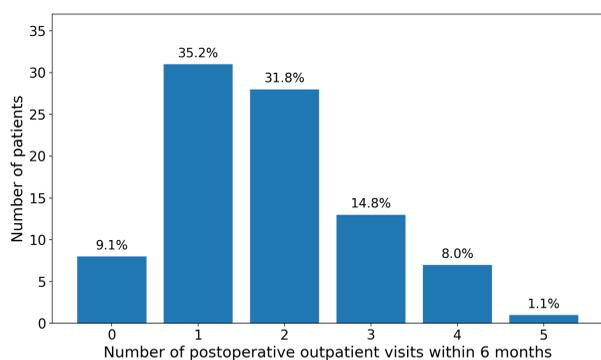


Figure 2. Postoperative Follow-up Visits Within 6 Months Among Hospital Survivors (n = 88).

Conclusions

The implementation of a multidisciplinary Center of Excellence for brain and skull base tumors was feasible and associated with acceptable early clinical outcomes. One-month mortality was low, and early outpatient follow-up among hospital survivors was high. These findings support the value of structured multidisciplinary care in complex neuro-oncological settings.



Figure 3. Endoscopic endonasal approach with neuronavigation guidance, performed jointly by otolaryngology and skull base neurosurgery using 0°, 30°, and 45° endoscopes.

Figure 4. Transcranial resection of a skull base tumor using neuronavigation and high-definition microscopic visualization.



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