

Medial wall resection of the cavernous sinus in the Endoscopic Endonasal Skull Base Surgery

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Background

The selective medial wall resection of the cavernous sinus invaded by pituitary tumor is anatomically based and well described in the recent papers. Nowadays this technique becomes highly demanded especially in pituitary surgery.

Objective

To assay efficacy of the resection of the middle wall of the cavernous sinus in surgical treatment of the patients with pituitary and non-pituitary skull base tumors via endoscopic endonasal approaches.

Material and methods

A retrospective review of the consecutive series of patients with pituitary and non-pituitary skull base tumors treated with endoscopic endonasal approaches between 2020 and 2025 was conducted. Patient's age and gender, type of tumors, pathology findings, extend of resection (EOR), complications and outcomes were analyzed.

Patient's Data (n=35)

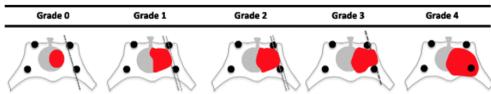
- Males – 12(37,5%) Females – 23(62,5%)
- Patient's age was between 19 and 72 years old
- Medium age was 48,6 years
- All surgeries were purely endoscopic
- Period of surgeries between 2020 and 2025 years

Pathologies

Pathology	N	%
ACTH-secreting adenoma	4	11,4%
GH-secreting adenoma	15	42,8%
PRL-secreting adenoma	2	5,7%
FSH&LH-secreting adenoma	1	2,85%
NF-secreting adenoma	9	25,7%
Chordoma	2	5,7%
Chordrosarcoma	1	2,85%
SNUC	1	2,85%

Knosp Grading in Pituitary Patients (n=31)

Knosp Grade	N	%
Knosp G - 0	5	16,1%
Knosp G - I	10	32,25%
Knosp G - II	6	19,35%
Knosp G - III	5	16,1%
Knosp G - IV	5	16,1%



Extent of resection (n=35)

Extent of resection	N	%
GTR	26	74,2 %
STR	6	17,2 %
Partial	3	8,6 %

A total remission rate in series regarding the functional activity of adenomas was 88%.

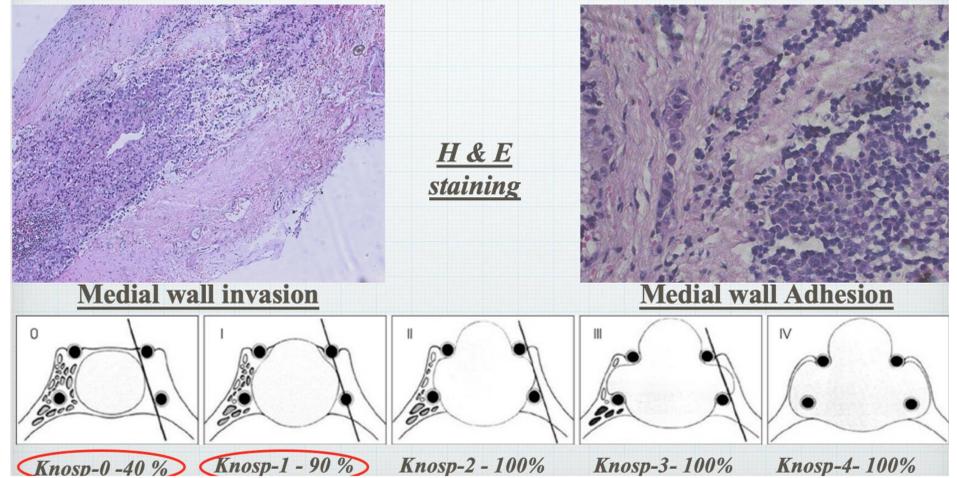
Five patients were operated for the second time due to the tumor progression or absence of the disease control after initial surgery 4, 5, 8 and 13 years prior.

Complications (n=35)

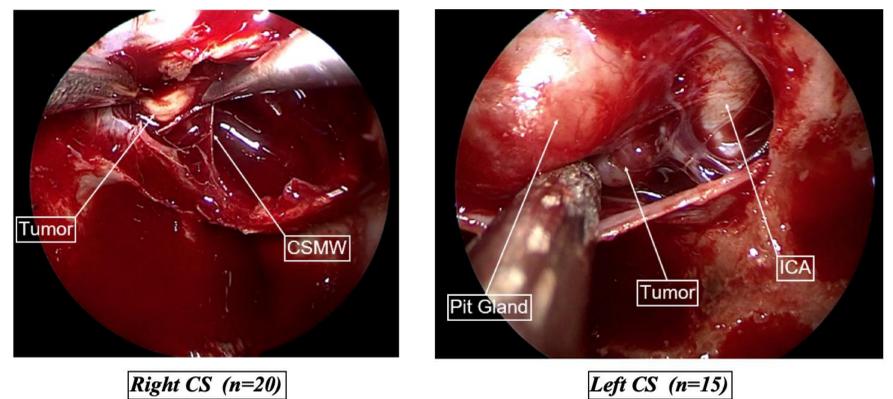
Complications	N	%
CSF-leak	1	18,75 %
DI	2	6,25 %
VI CN palsy (transient)	2	3,1 %

- Average intraoperative blood-loss was 238ml (range 50-700).
- There were no internal carotid artery injury and mortality rate was zero.

Pathology findings



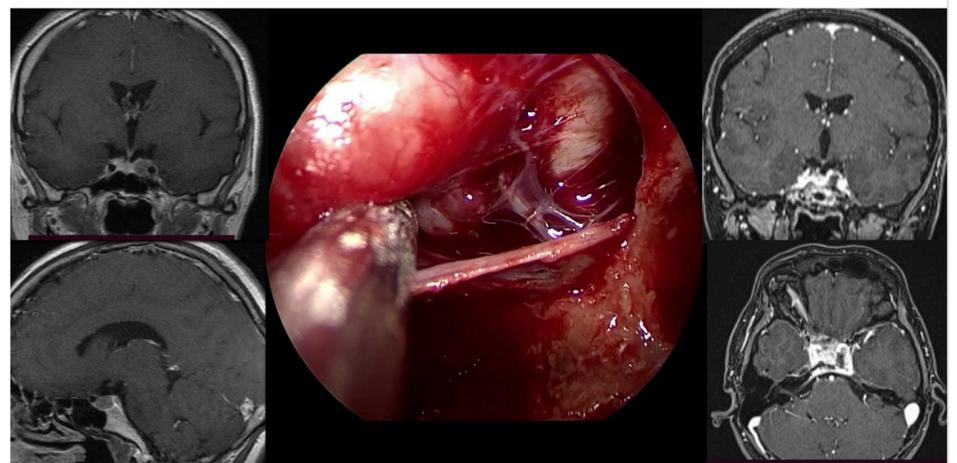
Cavernous Sinus Medial Wall Invasion



Right CS (n=20)

Left CS (n=15)

Cavernous Sinus Medial Wall Resection



Follow-up (n=31)

- A follow-up range was between 3 and 59 months (mean 26,7 months).
- The biochemical remission in patients with acromegaly was observed in 11(74%) cases in the period of 7 days to 6 months postoperatively.
- Patients with Cushing disease developed a biochemical remission on the day 5 postoperatively.
- Patient with gonadotropin secreting adenoma developed a hypogonadotropic hypogonadism postoperatively. Prolactin-level came to the base-line postoperatively in one patient with prolactinoma.

Conclusions

- Resection of the medial wall of the cavernous sinus is a useful and safe technique mostly applicable in pituitary surgery.
- In case of non-pituitary tumor this technique provides higher resection rate with low risk of complications.

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