

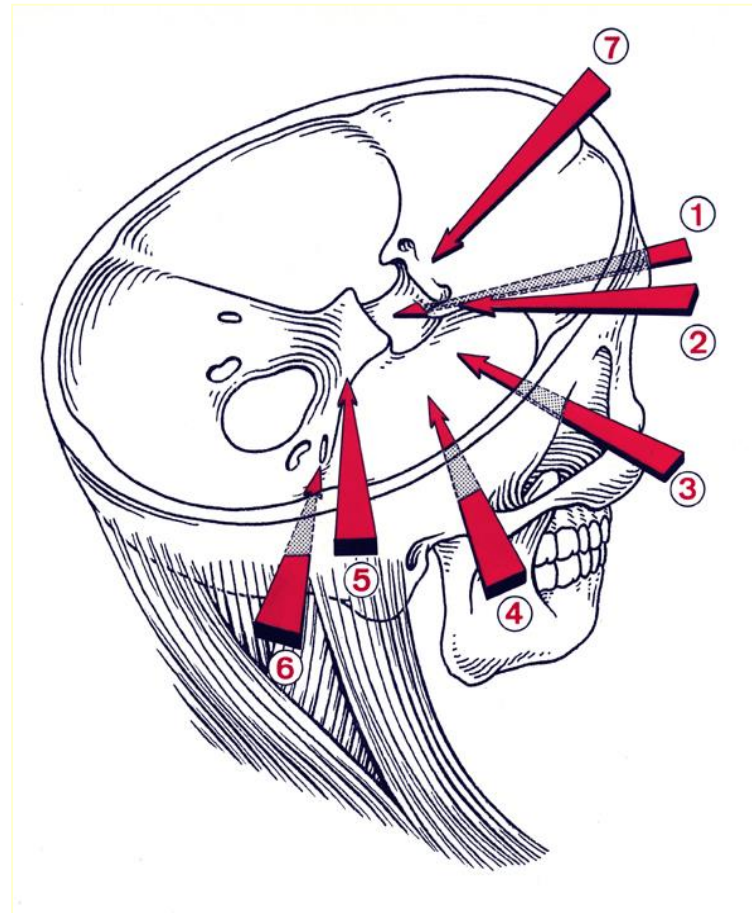


UKS
Universitätsklinikum
des Saarlandes

**Supraorbital keyhole approach or endoscopic endonasal approach
in case of tuberculum sellae meningioma: which surgical route
should be favoured?**

Stefan Linsler, Gerrit Fischer, Axel Stadie, Joachim Oertel

Approaches to anterior and middle skull base



Transsphenoidal endonasal

Advantages

- No visible scar!
- Direct access to the target region!
- Straight forward procedure!

Disadvantages

- Risk of CSF fistula!
- More difficult manipulation!
- Access limited!
- Nasal complaints!



Supraorbital keyhole

Advantages

- Good cosmetic result (with eyebrow incision!)
- Good manipulation!
- Straight access to the target region!
- No nasal complaints!

Disadvantages

- Access limited!
- Sometimes risk of manipulation of optic nerves and carotid artery!
- No straight access into the sella! -> Need for endoscopic assistance?
- Numbness

Methods

- January 2011 and December 2016: 22 patients with tuberculum sellae meningiomas
 - > 16 via supraorbital keyhole procedure
 - > 6 via endoscopic endonasal procedure
- Approach selected by neurosurgeon
- Follow up : mean 18.2 ± 14.1 months
- Comparison of technical steps, results, surgical outcome

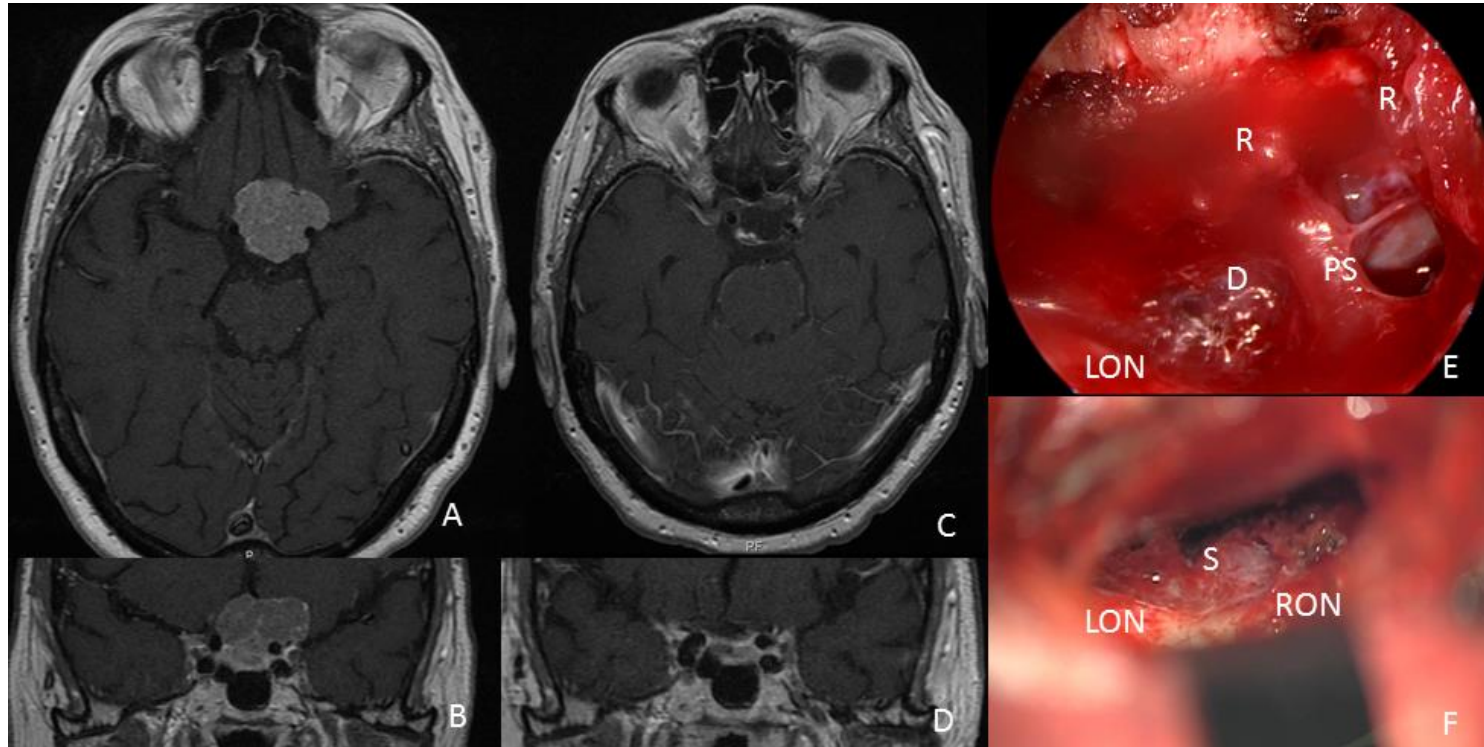


[Endoscopic Assisted Supraorbital Keyhole Approach or Endoscopic Endonasal Approach in Cases of Tuberculum Sellae Meningioma: Which Surgical Route Should Be Favored?](#)

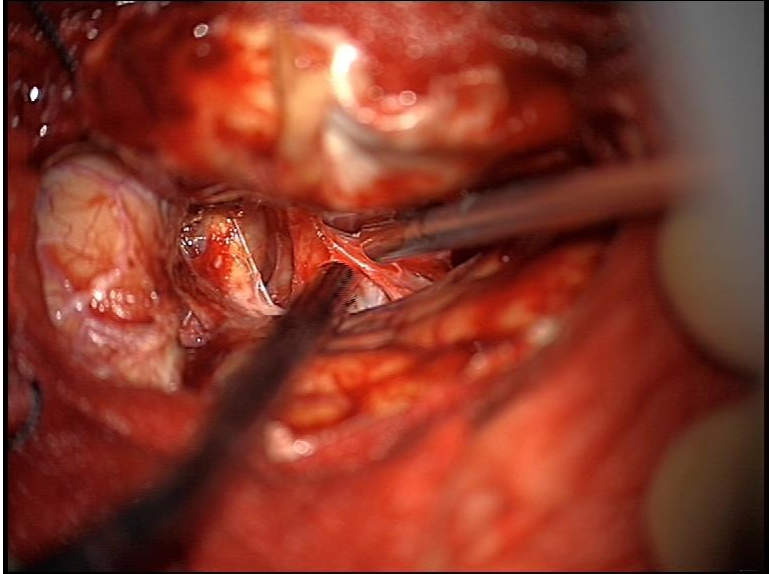
Linsler S, Fischer G, Skliarenko V, Stadie A, Oertel J.

World Neurosurg. 2017 Aug;104:601-611. doi: 10.1016/j.wneu.2017.05.023. Epub 2017 May 13.

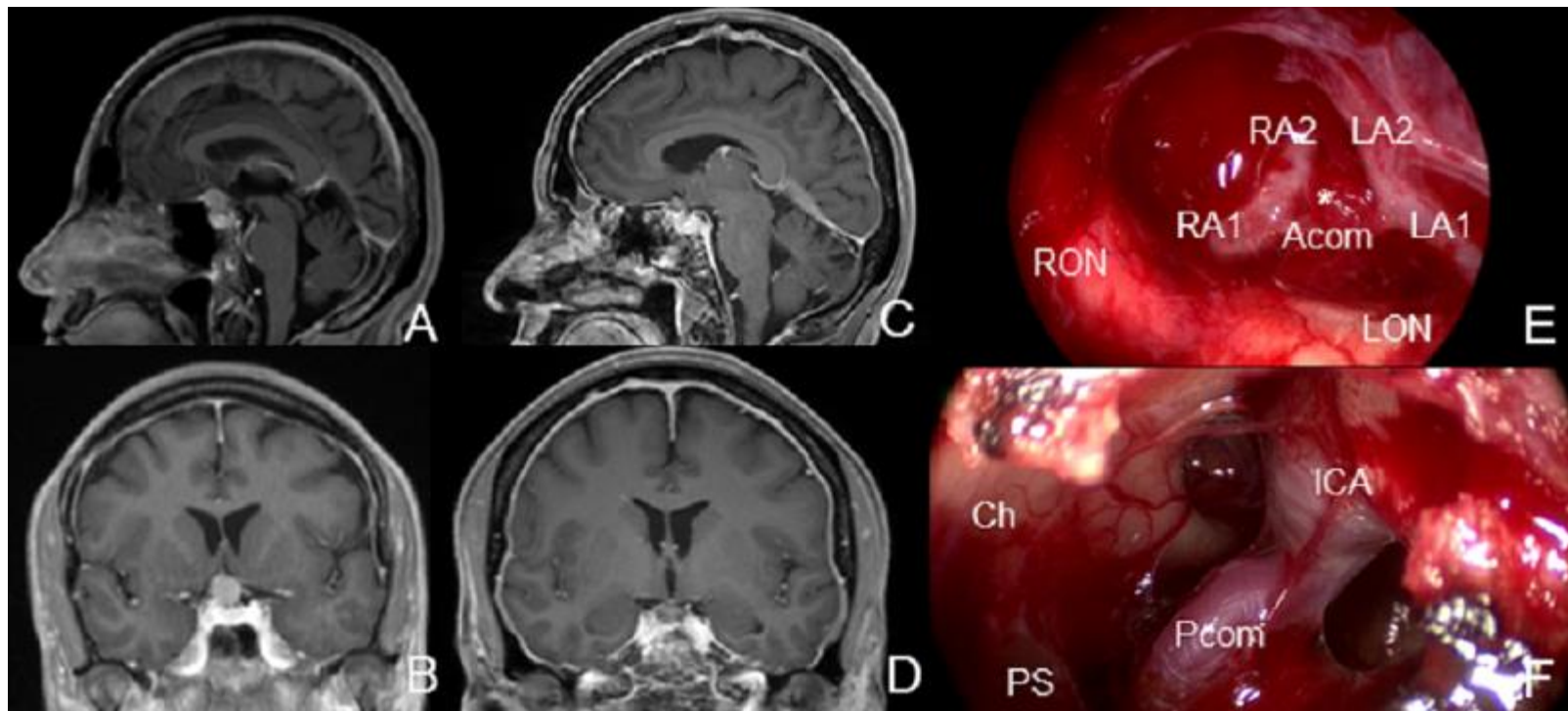
Case1 Illustration



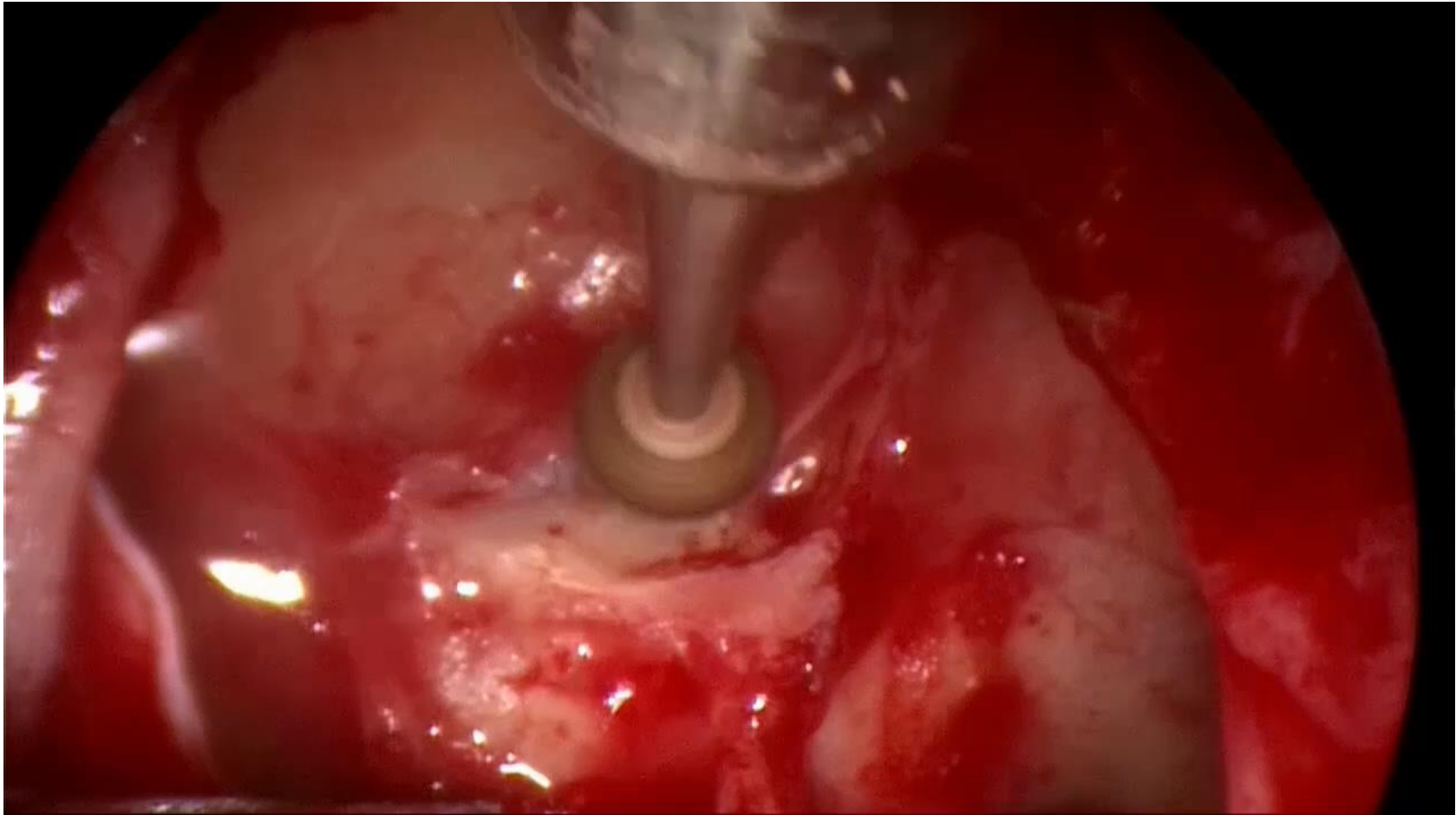
Surgery of tuberculum sellae meningiomas



Case2 Illustration



Surgery of tuberculum sellae meningiomas



Results

	Endonasal approach (n=6)	Supraorbital approach (n=16)
Mean age [yrs]	63.6 ± 12.4	60.9 ± 8.1
Mean follow-up [months]	15.3 ± 5.9	19.6 ± 12.2
Mean tumor volume [cm ³]	2.1 ± 0.8	14.9 ± 8.2 *
Anatomic localization		
- Retrochiasmatic	2 (33%)	6 (37%)
- Cavernous sinus	1 (16%)	4 (25%)*
- Far lateral extension around ICA	1 (16%)	13 (81%)*
- Distance pituitary gland to chiasm <10mm	0 (0%)	7 (43%)*
- Intranasal extension	0 (0%)	0 (0%)
Preoperative visual dysfunction	3 (50%)*	5 (31%)
Preoperative hormonal dysfunction	0 (0%)	0 (0%)
Prior surgery	0 (0%)	1 (6%)
Mean surgical time [min]	114 ± 33	141 ± 50
Mean length of hospital stay [days]	8.8 ± 2.2	6.9 ± 1.5
GTR	5 (83%)	14 (87%)
NTR	1 (17%)	2 (13%)
recurrences	1 (16%)	0 (0%)
Histopathology		
- WHO I	4 (66%)	15 (93%)*
- WHO II	2 (33%)	1 (7%)*

Results

	Preoperative visual deficits	Postoperative vision		
		improved	unchanged	worsened
Endonasal approach (n=6)	3	2 (66%)	0	1 (33%)
Supraorbital approach (n=16)	5	3 (60%)	2(40%)	0

	Preoperative pituitary dysfunction	Postoperative pituitary function		
		improved	unchanged	worsened
Endonasal approach (n=6)	0	0	0	0
Supraorbital approach (n=16)	0	0	0	1

Results

Endonasal approach	Endoscopic inspection with angled scope after tumor removal (n=5)	Identification of remnant tumor tissue
Suprasellar space	5 (100%)	2/5 (40%)
Retrochiasmatic space	4 (80%)	0/4 (0%)
Lateral sinus cavernosus	5 (100%)	1/5 (20%)

Supraorbital approach	Endoscopic inspection after microscopic tumor removal (n=16)	Identification of remnant tumor tissue
Sellar space	15 (93%)	6/15 (40%)
Optocarotid window	9 (56%)	1/9 (11%)
Retrochiasmatic space	13 (81%)	3/13 (23%)
Lateral sinus cavernosus and medial sphenoid wing	5 (31%)	2/5 (13%)

Results

	Endonasal approach (n=6)	Supraorbital approach (n=16)
New postoperative hypopituitarism	0	1
Postoperative visual deterioration	1	0
Postoperative CSF leakage	0	1
Meningitis	0	0
Postoperative hemorrhage	0	1
Anosmia	1	0
Hyposmia	1	0
New ocular palsies	0	1
Vascular injury	0	0
death	0	0
Behavioral changes	0	0
Infection	0	0
Nasal complications	0	-
Subdural hygroma	-	0
Frontal hypaesthesia	-	1



Discussion

- Both approaches provide minimally invasive surgical routes accessing meningiomas of the sellar region
- The ideal approach should be tailored to the individual patient taking into account the tumor anatomy, lateral extension and the experience of the surgeon with both surgical approaches
- supraorbital approach for larger meningiomas of sellar region with far lateral extension as well as for these tumors with broad vascular encasement
- the endonasal approach should be preferred for tuberculum sellae meningiomas in the midline within both internal carotid arteries raising the optic chiasm



THANK YOU



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Sincerely yours,

Prof. Dr. Joachim Oertel



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„Wonderful course“
„Overall excellency“

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Clinical Workshop of Endoscopic Neurosurgery

September 3-6, 2018:
The 7th Homburg Neuroendoscopy Week

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ISMISS 2018

November 2018: (Exact date will be announced soon):
Clinical Workshop of Endoscopic Neurosurgery



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- Live operations
- Hands-on parts
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