Peer Review File

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Reviewer Comments:

Comment 1: For a pituitary surgeon this paper raises interesting questions. The authors focus on the somatic, mental, and psychologic consequences of the transsphenoidal approach for pituitary surgery. They elaborated semi-structured interviews (in the abstract they call those "unstructered" - this should be adapted) of 15 patients with pituitary macroadenoma (8 NFPA, each 3 of GH- and PRL-secreting adenoma) one month after surgery.

Reply 1:We gratefully appreciate for your comment. We have changed "unstructered" to "semi-structured" and marked with yellow marker in the manuscript.(see Page 4, line 8) Thanks again for your valuable comment.

Comment 2:Although they stated some exclusion criteria, they do not state on the inclusion criteria (were all patients operated upon between 11/19 and 02/20 interviewed or only those with rhinological/olfactory disorders according to the SNOT-outcome test?) - the authors should state on that.

Reply 2:We gratefully appreciate for your comment.We state on the inclusion criteria and marked with yellow marker in the manuscript.(see Page 8, lines 6-10)Thanks again for your valuable comment.

Changes in the text:

The inclusion criteria added are as follows：

“We identified patients who fulfilled the following criteria: (I) over 18 years of age, (II) patients after transsphenoidal pituitary adenoma resection, (III) patients with olfactory disorders according to the SNOT-outcome test, (IV) patients who had informed consent and voluntarily participated in the interview and recorded.”

Comment 3:For the SNOT-22 they used (and summarized their finding s in table 1), the authors cite a paper on SNOT-20, this should be at least explained.

Reply 3: We gratefully appreciate for your comment.This scale has experienced many times of adaptation and perfect.We are very sorry for this quotation error, and have corrected it in the reference section.The literature that should be cited is :“ Hopkins C, Gillett S, Slack R, et al. Psychometric validity of the 22-item Sinonasal Outcome Test. Clin Otolaryngol. 2009;34(5):447-54.”Thanks again for your valuable comment.

Comment 4:The authors differentiate between 6 categories of (possible) dissatisfaction. Disturbance of nasal symptoms seems to be most common complaint. Concerning e.g. quality of sexual life or emotions the authors have to give data on the endocrinological status and possible substitution (e.g. hydrocortisone), otherwise their finding may falsely correlated to the surgical approach.

Reply 4: We gratefully appreciate for your comment.We presented the data of the patient's endocrinological status and possible substitution one month after surgery in the following table.The hormone levels of two participants were abnormal.First,we would like to make it clear that the theme of this study was derived from the subjective feelings of patients. Patients expressing their discomfort may not be aware that part of the cause is abnormal hormone levels,but this is what we should consider when formulating an interview outline.It is a pity that there is such a shortcoming in our study. We will improve this in the follow-up of patients in the future and formulate more rigorous interview outline and inclusion standards.Second,qualitative study is different from quantitative study. Qualitative study pays more attention to the subjective feelings of patients and unable to get a rigorous causality. Therefore, our findings should not be a false correlation but the result of the research paradigm.We add the limitation and marked with yellow marker in the manuscript.(see Page 25, lines 7-9)Thanks again for your valuable comment.

Changes in the text:

“Second, patient obsession may also be affected by abnormal hormone levels, which we need to pay attention to in future studies.”

Patients	PRL	GH	ACTH	Hydrocortisone	FT3	FT4	TT3	TT4	TSH	FSH	LH	TS	E	Hormone use
N1	274	0.03	15.6	376	5.28	10.77	1.46	125.4	3.215	—	—	—	—	—
N2	256.3	0.03	17	166	5.27	10.41	—	—	3.21	68.58	—	0.26	21.03	—
N3	267	0.08	48	—	4.21	7.18	1.75	143.2	1.769	30.75	9.57	—	—	—
N4	144.96	0.03	13.4	127	4.77	8.76	1.17	84	0.07	—	—	—	—	Levothyroxine sodium tablets
N5	484.53	3.42	14.4	—	4.24	7.31	1.77	95.4	1.09	—	—	—	—	—
N6	156.56	0.06	12.2	149	4.01	9.35	—	—	1.97	29.14	9.57	—	—	—
N7	92.2	0.32	14.3	59	3.98	7.74	1.03	72.3	0.32	—	—	—	—	Levothyroxine sodium tablets and Prednisone acetate tablets
N8	164.32	0.96	14.8	274	7.48	11.52	1.74	152	2.2	—	—	—	—	—
N9	92.86	0.1	14.8	216	3.98	7.82	1.7	117.8	2.16	42.08	—	—	—	—

N10	253.38	0.93	14.7	—	4.12	9.7	1.25	82.3	0.97	5.9	9.57	—	—	—
N11	329.26	0.09	16.2	101	5.49	11.83	1.34	105.4	3.13	—	—	—	—	—
N12	357.13	0.06	16.4	75	2.79	5.68	0.85	88.9	1.49	—	—	—	—	—
N13	143.97	0.31	—	—	3.86	7.31	1.37	68.5	2.69	—	—	—	—	—
N14	254.65	0.02	13.6	—	4.05	6.23	1.12	49.3	1.77	—	—	—	—	—
N15	165.81	5.71	—	—	5.21	12.02	1.62	112.3	0.87	—	—	—	—	—

Abbreviations:PRL, prolactin; GH,Growth hormone;ACTH, Adrenocorticotropic Hormone; FT3,Free Triiodothyronine; FT4, Free Thyroid hormone;TT3,Total triiodothyronine; TT4,Total thyroid hormone;TSH,Thyroid-stimulating hormone; FSH, Follicle- stim -ulating hormone;LH,Luteinizing hormone;TS,testosterone;E,estradiol; “—”means: none.

Comment 5: Clearly, statistical analysis of surgical side effects in this series cannot be performed since the authors obviously selected patients with disfunction only. They chose a qualitative analysis which may help surgeons to understand the possible individual consequences for their patients. This may lead to better postoperative education and management after discharge from the hospital. For this the authors make some proposals. However, the single time point of the interviews one month after surgery is a limitation of the study, since it is well known, that rhinological alterations after transsphenoidal surgery recover with time (Hondronicos N et al. Exp Clin Endocrinol Diabetes 2020 doi:10.1055/a-1155-6269). The authors should state on that.

Reply 5: We gratefully appreciate for your comment.We admit that a single point in time is a limitation of the study.We have conducted a deep reflection, our thinking and explanation are as follows.First,single time point is the deficiency of our research, and also the deficiency of qualitative research compared with longitudinal quantitative research.Based on the research paradigm of qualitative research, we pay more attention to the inner experience and subjective feelings of patients one month after surgery.Second,this study focused on the symptoms in the early postoperative period, so the interview time was 1 month after surgery.We will increase the time point of interviews in future studies, so that we can dynamically observe the patient's recovery and understand the feelings of patients during follow-up.Thanks again for your valuable comment.

Comment 6: Moreover, the authors should critically consider their surgical approach (at least if they did not select their patients and all operated patients had the problems the authors described). During microsurgical direct transnasal-transsphenoidal approach (mostly in Europeans) I avoid to compromise the upper concha as well as to open the ethmoidal cells. May be, the authors could state on that.

Reply 6: We gratefully appreciate for your comment.The inclusion criteria of our study' participants were patients with olfactory disorders, but not all patients undergoing this procedure had olfactory disorders.The surgical approach experienced by the patient in this study had both advantages and disadvantages, so the olfactory disorders caused by this surgical approach does require attention.We have added the explanation and discussion of this part in the manuscript(see Page 19, lines 16-22,Page 20, lines 1-3), its main content is as follows.Thanks again for your valuable comment.

Changes in the text:
"In our study, we found that some patients had impaired olfactory function within one month after surgery. Therefore, Surgeons performing the endoscopic pituitary surgery must put in a great deal of effort to preserve the sinonasal function. Due to concerns for decreasing sinonasal QoL, modifications to Endoscopic transsphenoidal surgery have since been suggested in recent years to potentially decrease nasal morbidity. These have included use of a uninostril approach, preservation of the middle turbinates, avoidance

of maxillary antrostomies, and avoidance of raising the nasoseptal flap. Therefore, we must diligently monitor our complication rates and continue to innovate surgical techniques to improve surgical remission,reduce sinonasal morbidity and improve patients' overall QOL."