

	All 69 patients	Intracranial pathology excluded, 66 patients
Age difference between the sexes	p = 0.65	p = 0.73
Median age and age range	58 (34–82)	56 (34–82)
Meningioma grade males vs. females	p = 0.046	p = 0.073
Maximum tumor diameter males vs. females	p = 0.035	p = 0.040
Surrounding edema males vs. females	p = 0.040	p = 0.017
largest meningioma diameter (in mm)	39 ± 2	39 ± 2
Size distribution (n; < 3 cm, [3–6[cm, ≥ 6 cm)	17, 42, 10	17, 39, 10
Lobe distribution (frontal, temporal, parietal occipital)	36, 5, 16, 12	34, 5, 15, 12
Edema diameter (Median, interquartile range, in mm)	10 (0–35)	9 (0–34)
Edema diameter and max. tumor diameter	R = 0.51, p < 0.001	R = 0.52, p < 0.001
Edema diameter and tumor volume	R = 0.40, p < 0.001	R = 0.43, p < 0.001
Edema diameter occipital vs. all meningiomas	p = 0.003	p = 0.005
Edema diameter C1-C3 vs all meningiomas	p = 0.036	p = 0.044
Substance P in meningioma (Median, interquartile range)	29 (19–55) pg/ml	30 (20–55)
Substance P and tumor volume	R = 0.31, p = 0.035	R = 0.31, p = 0.042
Substance P frontal vs. all meningiomas	p = 0.047	p = 0.047
CGRP in meningioma (Median, interquartile range, pg/ml)	6 (2–10)	6 (2–10)
Glucocorticoid administration (n / all patients)	30 / 69	28 / 66
Glucocorticoid administration vs WHO grading	p < 0.001	p < 0.001
Glucocorticoid administration vs meningioma diameter	p < 0.001	p < 0.001
Glucocorticoid administration vs. sex	p = 0.021	p = 0.029
Preoperative headache (n, %)	38 / 63 (60%)	37 / 60 (62%)
Preoperative headache of meningioma in V1 (n, %)	27 / 38 (71%)	26 / 37 (70%)
Preoperative headache of meningioma in V2/3 (n, %)	11 / 25 (44%)	11 / 23 (48%)
Preoperative headache meningioma in V1 vs. V2/3	p = 0.032	p = 0.082
Preoperative headache incidence and tumor size	R _s = 0.004, p = 0.98	R _s = 0.005, p = 0.97
Preoperative headache intensity and tumor size	R _s = -0.076, p = 0.57	R _s = -0.079, p = 0.56
Side of headache vs. side of meningioma	p = 0.61	p = 1
Preoperative headache intensity for edema ≤ 10 mm vs. edema >10 mm	p = 0.044	p = 0.045
Preoperative headache intensity vs. edema diameter	R = -0.28, p = 0.048	R = -0.307, p = 0.03
MIB-1 in patients with vs. without preoperative headache	p = 0.020	p = 0.016
Preoperative headache intensity and MIB-1	R = -0.51, p = 0.015	R = -0.54, p = 0.0003
PGE ₂ levels in meningioma (median, interquartile range, pg/ml)	354 (158–581)	342 (157–573)
Preoperative headache intensity and PGE ₂	R = 0.34, p = 0.019	R = 0.32, p = 0.031
Preoperative headache intensity and Substance P	R = 0.29, p = 0.061	R = 0.30, p = 0.059
No postoperative headache vs. T-staging	R = 0.25, p = 0.043	R = -0.25, p = 0.050
Headache remission vs. T-staging	R = 0.34 p = 0.042	R = 0.34 p = 0.046
Meningioma fully excised (n)	57 of 69	56 of 66
Postoperative headache vs. meningioma removal	p = 0.86	p = 0.96
Postoperative headache incidence for edema ≤ 10 mm vs. edema >10 mm	p = 0.028	p = 0.046

	Firth logistic regression					Linear regression					Overall	
	95% CI for Odds Ratio					95% CI for b					χ^2 (df)	p
	Lower	Odds Ratio	Upper	χ^2 (df)	p	Lower	b	Upper	χ^2 (df)	p		
Model 1				12.2 (2)	0.002				4.54 (2)	0.10		
Pain medication (yes/no)	3.12	16.8	175	12.1 (1)	0.001	-2.73	8.55	19.8	2.29 (1)	0.13	14.4 (2)	< 0.001
Maximal tumor diameter (cm)	0.60	1.07	1.94	0.06 (1)	0.81	-5.88	-2.56	0.76	2.37 (1)	0.12	2.43 (2)	0.30
Model 2				11.8 (5)	0.038				15.4 (5)	0.009		
Pain medication (yes/no)	2.30	11.7	116	9.46 (1)	0.002	0.53	9.40	18.3	4.27 (1)	0.039	13.7 (2)	0.001
Maximal tumor diameter (cm)	0.63	1.12	2.08	0.15 (1)	0.70	-6.99	-4.00	-1.01	6.45 (1)	0.011	6.60 (2)	0.037
CGRP (log2 pg/ml)	0.41	0.80	1.50	0.50 (1)	0.48	-1.88	1.15	4.17	0.60 (1)	0.44	1.10 (2)	0.58
Substance P (log2 pg/ml)	0.57	1.10	2.27	0.09 (1)	0.77	1.35	4.68	8.00	7.01 (1)	0.008	7.09 (2)	0.028
Prostaglandin E ₂ (log2 pg/ml)	0.69	1.13	1.75	0.34 (1)	0.77	0.45	2.44	4.43	5.55 (1)	0.019	5.88 (2)	0.053
Comparison of Model 1 and 2				0.44 (3)	0.93				10.8 (3)	0.013		

Multivariable analysis for 66 patients, excluding intracranial pathologies