

Table S1 Characteristics of participants in pituitary adenoma cases.

Gender	Age (years)	Tumor size (mm)	Classification (based on tumor size)	Types of adenomas	Smoking History	History of Hormonal Contraceptive Use	Menopause	Body weight (kg)	Body height (m)	BMI	BMI Classification (Asia-Pacific)	Family History	Clinical Indication	Management
Male	31	47	Giant adenomas	Non-functional	Yes			72	1.67	25.82	Obese	None	Tension type headache, vision loss	EETH
Female	32	5	Microadenomas	Non-functional	No	No	No	56.3	1.6	21.99	Normal	None	Migraine, nausea	Conservative
Female	48	25	Macroadenomas	Functional (Prolactin-secreting)	No	Yes	Yes	65	1.55	27.06	Obese	None	Bilateral hemianopsia	EETH
Female	51	35	Macroadenomas (recurrent)	Functional (Prolactin-secreting)	No	No	Yes (post histerektomi)	68	1.49	30.63	Obese	None	Bilateral hemianopsia, cephalgia	EETH
Male	65	30	Macroadenomas	-	Yes			64	1.61	24.69	Overweight	None	Visus reduction	EETH
Male	53	32	Macroadenomas	Functional (TSH-secreting)	Yes			76	1.7	26.30	Obese	None	Cephalgia, Palpitations (clinical signs of hyperthyroidism)	EETH
Female	37	19	Macroadenomas	Functional (Prolactin-secreting)	No	No	No	72	1.6	28.13	Obese	None	Bilateral hemianopsia, Tension-type headache	EETH
Male	38	50	Giant adenomas	-	No			84	1.6	32.81	Obese	None	Bilateral hemianopsia	EETH

Female	45	12	Macroadenomas (recurrent)	-	No	No	No	67	1.5	29.78	Obese	None	Vision loss, cephalgia	EETH
Female	33	16	Macroadenomas (apoplexy)	Functional (Prolactin-secreting)	No	No	No	58.5	1.59	23.14	Overweight	None	Menstrual disorders, Infertility	EETH
Male	43	35	Macroadenomas	Non-functional	Yes			79	1.68	27.99	Obese	None	Nasal obstruction	EETH
Male	49	35	Macroadenomas	Functional (GH-secreting)	Yes			95	1.75	31.02	Obese	None	Acromegaly, tension-type headache	EETH
Male	16	12	Macroadenomas (apoplexy)	Non-functional	No			37	1.3	21.89	Normal	None	Cephalgia	EETH
Male	59	10	Macroadenomas (recurrent)	-	Yes			85	1.6	33.20	Obese	None	Diplopia, epistaxis	EETH
Male	28	43	Giant adenomas	Non-functional	No			60	1.7	20.76	Normal	None	Bilateral hemianopsia	EETH
Female	30	7	Microadenomas	Functional (Prolactin-secreting)	No	No	No	51.3	1.55	21.35	Normal	None	Infertility	Conservative
Female	62	15	Macroadenomas	-	No	Yes	Yes (post histerektomi)	69	1.65	25.34	Obese	None	Cephalgia	Conservative
Female	51	38	Macroadenomas (residive)	Non-functional	No	Yes	No	51	1.65	18.73	Normal	None	Bilateral hemianopsia, cold intolerance	EETH
Male	45	32	Macroadenomas	Functional (Prolactin-secreting)	Yes			60	1.67	21.51	Normal	None	Asymptomatic	EETH

Female	58	30	Macroadenomas	Functional (Prolactin-secreting)	No	Yes	Yes	95	1.6	37.11	Obese	None	Bilateral hemianopsia, diplopia, vertigo	EETH
Female	59	22	Macroadenomas	Functional (Prolactin-secreting)	No	Yes	Yes	68,4	1.55	28.47	Obese	None	Seizures, Visus reduction	EETH
Female	58	40	Macroadenomas	Functional (Prolactin-secreting)	No	Yes	Yes	61	1.55	25.39	Obese	None	Bilateral hemianopsia	EETH
Male	67	40	Macroadenomas	Non-functional	Yes			72	1.71	24.62	Overweight	None	Cephalgia, Infertility	EETH
Female	64	20	Macroadenomas	Functional (ACTH-secreting)	No	No	Yes	64	1.57	25.96	Obese	None	Bilateral hemianopsia	EETH
Male	57	29	Macroadenomas	Non-functional	Yes			625	1.7	21.63	Normal	None	Asymptomatic	Conservative
Female	51	31	Macroadenomas	Non-functional	No	Yes	Yes	60	1.5	26.67	Obese	None	Bilateral hemianopsia	EETH
Male	48	32	Macroadenomas	Functional (ACTH-secreting)	Yes			73,5	1.65	27.00	Obese	None	Bilateral hemianopsia, nasal obstruction	EETH
Male	65	8	Microadenomas	Functional (ACTH-secreting)	Yes			90	1.72	30.42	Obese	None	Asymptomatic	Conservative
Male	20	7	Microadenomas	Non-functional	No			81	1.81	24.72	Overweight	None	Asymptomatic	Conservative

Male	57	29	Macroadenomas	Functional (Prolactin-secreting)	Yes			79	1.64	29.37	Obese	None	Diplopia, vertigo	EETH
Male	78	17	Macroadenomas	Non-functional	Yes			75	1.68	26.57	Obese	None	Asymptomatic	Conservative
Female	39	45	Giant adenomas	Non-functional	No	Yes	No	75	1.6	29.30	Obese	None	Tension type headache, vision loss	EETH
Male	57	35	Macroadenomas	Functional (GH-secreting)	Yes			110	1.6	42.97	Obese	None	Visus reduction	EETH
Female	47	31	Macroadenomas	Functional (GH-secreting)	No	Yes	No	71	1.65	26.08	Obese	None	Visus reduction, cephalgia	EETH
Female	37	30	Macroadenomas	Non-functional	No	Yes	No	83,3	1.6	32.54	Obese	None	Visus reduction, Menstrual disorders	EETH
Male	60	25	Macroadenomas	Non-functional	Yes			70	1.6	27.34	Obese	None	Visus reduction	EETH

Table S2 Distribution of Risk Factors by Gender.

Risk factor	Gender	
	Male (n)	Female (n)
Age (years)		
10-19	1	0
20-29	2	0
30-39	2	6
40-49	4	3
50-59	5	6
60-69	4	2
70-79	1	0
Tumor size (mm)		
0-9	2	2
10-19	3	4
20-29	3	3
30-39	7	6
40-49	3	2
50-59	1	0
Obesity status		
Obese	12	13
Not obese	7	4

Note: Age and tumor size are presented as categorical variables. Obesity was defined as body mass index (BMI) ≥ 30 kg/m².

Table S3 Distribution of Tumor Size by Obesity Status.

Tumor size (mm)	Obesity status	
	Obese (n)	Not obese (n)
0-9	1	3
10-19	5	2
20-29	5	1
30-39	10	3
40-49	3	2
50-59	1	0

Table S4 Risk Factor Association Based on Gender.

Risk factor	Gender				p-value
	Male		Female		
	Mean	SD	Mean	SD	
Age	49.26	16.623	47.18	10.973	0.651
Tumor size	28.84	12.807	24.76	11.616	0.326
Obesity status	1.58	0.507	1.82	0.393	0.118

Table S5 Association Between Tumor Size and Obesity Status.

Risk factor	Obesity status				Mean difference	p-value
	Obese		Not Obese			
	Mean	SD	Mean	SD		
Tumor size	28.40	11.177	23.55	14.432	4.855	0.280

Table S6 Correlation of Age and Tumor Size.

Risk factor	Mean	SD	N	p-value
Age	48.28	14.081	36	0.697
Tumor size	26.92	12.260		

Table S7 Correlation of BMI and Tumor Size.

Risk factor	Mean	SD	N	p-value
BMI	27.17	4.820	36	0.408
Tumor size	26.92	12.260		