

Supplementary On-line Table 1: Craniopharyngiomas with a basal duct-shaped recess on preoperative MRI studies reported in medical literature. Summary of epidemiological, clinical, pathological and neuroradiological data.

No.	Author/ Year	Age/ Sex	Main Clinical Syndrome	Shape/ Size	CP consistency	Recess type (length/width in mm)	3V floor structures visible	Tumor MRI Signal T1/T2WI/Gd	Histology	Topography
1	Fukushima 1990 ¹	28 M	HICP, Ch	Round/ 3 cm	Solid	Long (15/3)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
2	Yasargil 1994 ^{2,3}	48 M	HICP, IT	Round/ 3,5 cm	Solid	Long (10/2)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
3	Prasad, 1995 ⁴	34 M	Ch	Round/ 1,5 cm	Solid	Short (5/1)	Intact *	Iso / NA/ h.e.	Gross pap [†]	Strict 3V
4	Reul, 1995 ⁵	A—	NA	Round/ 3 cm	Solid	Long (15/2)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
5	Shibuya 1996 ⁶	51 M	Ch	Round/ 3,5 cm	Solid	Long (10/1)	Not visible	Iso / NA/ h.e.	Papillary	Strict 3V
6	Urbach 1998 ⁷	54 M	Ch, Hyp	Round/ 3,5 cm	Solid	Long (15/3)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
7	Honneger 1999 ⁸	55 M	HICP, Hyp	Elliptic 4 cm	Solid	Long (8/1)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
8	Perneczky 1999 ⁹	48 F	Ch, Hyp	Elliptic 3 cm	Solid	Long (10/1)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
9	Maira 2000 ¹⁰	51 F	Hyp	Round 3,5 cm	Solid	Long (15/2)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
10	Barlas 2000 ¹¹	47 M	Hyp, Ch	Elliptic 4 cm	Solid	Long (10/2)	NA	Iso / NA/ h.e.	Papillary	3V
11	Chung, 2000 ¹²	56 M	HICP	Round/ 3 cm	Cystic/BS	Long (10/2)	NA	Iso / NA/ h.e.	Papillary	3V
12	Saeki 2002 ¹³	30 F	NA	Round/ 3,5 cm	Solid	Short (5/3)	Intact	NA/Hypo/NA	Gross pap	Strict 3V
13	Madhavan 2005 ¹⁴	56 M	HICP, Hyp	Round/ 3,5 cm	Solid	Long (12/2)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
14	Durmaz 2007 ¹⁵	34 M	HICP	Round/ 3 cm	Solid	Long (8/2)	Intact	Hypo/ Iso/h.e.	Papillary	Strict 3V
15	Burger 2007 ¹⁶	51 F	Hyp	Round/ 2,5 cm	Cystic/BS	Short (5/2)	Intact	Iso /NA/het.e.	Papillary	Strict 3V
16	Prieto-G 2007 ¹⁷	57 F	Hyp	Elliptic 3 cm	Cystic/BS	Short (5/1)	Intact	Hypo/NA/p.e	Papillary	Strict 3V
17	Nishizawa 2007 ¹⁸	62 F	NA	Round/ 3 cm	Solid	Long (12/2)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
18	Stanislavsky 2010 ¹⁹	50 M	NA	Elliptic 3 cm	Solid	Long (7/2)	Intact	Iso /Iso/ het.e.	Papillary	Strict 3V
19	Sawamura 2010 ²⁰	A—	NA	Round/ 3 cm	Solid	Short (5/3)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
20	Pan, 2011 ²¹	46 M	Hyp	Round/ 3,5 cm	Solid	Long (10/2)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
21	Kononov 2011 ²²	A—	HICP, Hyp	Round/ 4 cm	Solid	Long (15/3)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
22	Kenning 2012 ²³	50 M	HICP, Ch	Round/ 3,5 cm	Solid	Long (12/2)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
23	Terada 2012 ²⁴	56 M	HICP, Hyp	Round/ 3,5 cm	Solid	Short (3/2)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
24	Patel 2013 ²⁵	20 M	NA	Round/ 4 cm	Solid	Short (3/1)	Not visible	Iso / NA/ h.e.	Papillary	Strict 3V
25	Chamoun 2013 ²⁶	64 M	HICP	Round/ 2 cm	Solid	Short (5/2)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
26	Lee, 2014 ²⁷	21 F	IT	Round/ 2,5 cm	Solid	Long (8/2)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
27	Zygourakis 2014 ²⁸	NA	NA	Round/ 3 cm	Solid	Long (10/1)	Intact	Iso/hyper/ h.e	Gross pap	Strict 3V
28	Yang 2015 ²⁹	46 M	Hyp	Round/ 4,5 cm	Solid	Short (5/2)	Not visible	Iso / NA/ h.e.	Papillary	Strict 3V

29	Yano 2015 ³⁰	52 M	Hyp	Round/ 4 cm	Solid	Short (5/1)	Only MBs	Iso/hyper/ h.e	Papillary	Strict 3V
30	Lee, 2015 ³¹	38 M	HICP	Round/ 2,5 cm	Solid	Long (10/1)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
31	Gu, 2015 ³²	41 M	Ch	Round/ 3 cm	Solid	Long (7/1)	Only MBs	Iso/ hypo/ h.e.	Papillary	Strict 3V
32	Friedman 2015 ³³	52 M	NA	Elliptic 3 cm	Solid	Short (3/2)	Intact	Hypo/hypo/ h.e	Papillary	Strict 3V
33	Tosaka 2015 ³⁴	69 M	HICP, Ch	Round/ 2 cm	Solid	Long (6/1)	Intact	Iso/ hypo/ h.e.	Papillary	Strict 3V
34	Rambarki 2016 ³⁵	27 M	HICP	Round/ 4 cm	Solid	Short (5/3)	Intact	Iso/hyper/ h.e	Papillary	Strict 3V
35	Nishioka 2016 ³⁶	65 F	HICP, Ch	Round/ 2 cm	Solid	Short (4/1)	Intact	Iso / NA/ h.e.	Papillary	Strict 3V
36	Stoffey 2016 ³⁷	35 M	Hyp	Elliptic 5 cm	Solid	Short (5/2)	Intact	Hypo/hyper/ h.e	Papillary	Strict 3V
37	Lin 2016 ³⁸	58 M	NA	Elliptic 3 cm	Solid	Long (8/1)	Not visible	Iso/Iso/h.e.	Papillary	3V
38	Yi Kan 2017 ³⁹	54 M	NA	Round/ 2,5 cm	Solid	Long (12/3)	Only MBs	Iso / Iso/ h.e.	Papillary	Infundib-tub
39	Prieto 2017 ⁴⁰	68 F	Hyp	Elliptic 4 cm	Cystic/BS	Short (4/2)	Intact	Iso/hypo/p.e.	Papillary	Strict 3V
40	Qi 2017 ⁴¹ c.1	46 M	Ch	Round/ 2,5 cm	Solid	Short (5/1)	Only MBs	Iso/hypo/h.e.	Papillary	Strict 3V
41	Qi 2017 ⁴¹ c.2	35 M	Hyp	Round/ 3,5 cm	Cystic/BS	Short (5/2)	Not visible	Hypo/NA/p.e	Papillary	Infundib-tub
42	Yue 2018 ⁴²	NA	NA	Round/ 3,5 cm	Solid	Short (5/1)	Only MBs	Iso / NA/ h.e.	Papillary	Strict 3V
43	Conger 2018 ⁴³	56 M	Ch	Elliptic 2,5 cm	Solid	Long (10/2)	Only MBs	Iso/hypo/h.e.	Papillary	Strict 3V
44	Tang 2018 ⁴⁴	A—	NA	Elliptic 2,5 cm	Solid	Long (10/2)	Only MBs	Iso/hypo/h.e.	Papillary	Strict 3V
45	Diniz 2018 ⁴⁵	36 F	HICP	Round/ 2,5 cm	Solid	Short (4/1)	Intact	Iso/Iso/h.e.	Papillary	Strict 3V
46	Oh 2018 ⁴⁶	50 M	H, B	Round/ 2,5 cm	Solid	Long (8/1)	Intact	Iso/hyper/h.e.	Papillary	Strict 3V
47	Chakravarti 2019 ⁴⁷	67 M	Ch, Hyp	Elliptic 2,5 cm	Solid	Long (15/2)	Intact	Iso/hypo/h.e.	Papillary	Strict 3V
48	Pan 2019 ⁴⁸	49 M	Ch, Hyp	Round/ 4,5 cm	Solid	Long (15/3)	Not visible	Iso / NA/ h.e.	Papillary	3V
49	Lei 2020 ⁴⁹	A—	NA	Round/ 3,5 cm	Solid	Long (8/2)	Intact	Iso/hypo/h.e.	Papillary	Strict 3V
50	Authors' Case 1	34 F	IT, Hyp	Round/ 3 cm	Solid	Long (18/2)	Only MBs	Iso/ Iso/ h.e.	Papillary	Strict 3V
51	Authors' Case 2	32 F	Ch, Hyp	Round/ 2,5 cm	Solid	Long (10/2)	Only MBs	Iso /hyper/ b.e.	Papillary	Strict 3V
52	Authors' Case 3	39 M	Ch, HICP	Round/ 3 cm	Solid	Long (10/2)	Only MBs	Iso/ Iso/ h.e.	Papillary	Strict 3V

A: adult, without specified age; **Ch:** chiasmatic syndrome; **CP:** craniopharyngioma; **Cystic/BS:** cystic basal solid; **F:** female; **Gd:** gadolinium; ***Gross pap:** CP with unmistakable papillary type morphology on MRI but without histological verification; **HICP:** high intracranial pressure syndrome; **h.e.:** homogeneous enhancement after Gd administration; **het.e.:** heterogeneous enhancement after Gd administration; **Hyp:** hypothalamic syndrome; **hyper:** hyperintense; **hypo:** hypointense; **Infundib-tub:** infundibulo-tuberal; **Iso:** Isointense; **IT:** Infundibulo-tuberal syndrome; **M:** male; **MBs:** Mammillary bodies; **MRI:** Magnetic resonance imaging; **NA:** not available; **p.e.:** peripheral enhancement; **Strict 3V:** strictly intraventricular; **T1:** T1-weighted MRI sequence; **T2:** T2-weighted MRI sequence; **3V:** third ventricle (the tumor is wholly confined into the third ventricle but the strictly intraventricular location cannot be confirmed with the data available).* **Intact:** the layer of tissue corresponding to the tuber cinereum can be identified on preoperative MRI under the tumor.

Supplemental Table 2. Categorization of epidemiological, clinical and MRI variables analyzed in the cohort of 52 papillary craniopharyngiomas with a basal duct-like recess.

Variable	Categories	Number/ rate	Valid data	Missing data
Sex	Male/Female	33 (73%) / 12 (27%)	45	7
Age	< 20 years 20-40 years 41-59 years ≥ 60 years	0 (0 %) 14 (31 %) 25 (55.5 %) 6 (13.5 %)	45	7
Clinical Variables				
Headache	Cases present (rate)	33 (75 %)	44	8
Visual deficits	“	20 (51.3 %)	39	13
Endocrine deficits	“	15 (38.5 %)	39	13
Diabetes Insipidus	“	5 (12.8 %)	39	13
Hypothalamic disturbances	“	8 (20.5 %)	39	13
Memory defect	“	16 (43 %)	37	15
Psychiatric alterations	“	22 (58 %)	38	14
Gait disturbance	“	7 (18 %)	39	13
Somnolence	“	9 (23.7 %)	38	14
Pathological variables				
Hydrocephalus	Cases present (rate)	37 (71 %)	52	0
Tumor size	< 2 cm 2-3.5 cm > 3.5 cm	4 (8 %) 37 (71 %) 11 (21 %)	52	0
Tumor shape	Rounded Elliptical Multilobulated	39 (75 %) 13 (25 %) 0 (0 %)	52	0
Tumor consistency	Pure solid Cystic-Cauliflower Pure cystic Mixed solid-cystic	47 (90 %) 5 (10 %) 0 (0 %) 0 (0 %)	52	0
Histological type	Squamous-papillary Adamantinomatous	49 (100 %) 0 (0 %)	49	3
Calcifications	Absent Capsular (Egg shell) Nodular	49 (94 %) 3 (6 %) 0 (0 %)	52	0
MRI variables				
Pituitary gland/sella turcica	Free of tumor Partial/wholly occupied	52 (100%) 0 (0%)	52	0
Chiasmatic cistern	Free of tumor Partially occupied Wholly occupied	23 (44 %) 28 (54 %) 1 (2 %)	52	0
Pituitary stalk	Wholly visible Lower half visible	44 (84.5 %) 8 (15.5 %)	52	0
Recess type	Long recess Short recess	34 (65.5 %) 18 (34.5 %)	52	0
3V floor status on preoperative MRI	Wholly identifiable Only MBs visible Not visible	31 (61 %) 14 (27.5 %) 6 (11.5 %)	51	1

Hypothalamus level relative to the CP	At the CP's lower third	38 (74.5 %)	51	1
	At the CP's mid-third	13 (26.5 %)		
	At the CP's upper third	0 (0 %)		
Mammillary body angle	< 30°	13 (31 %)	42	10
	30-90°	28 (66.6 %)		
	> 90°	1 (2.4 %)		
	Not measurable	8		
Tumor topography	Strictly 3V	50 (96 %)	52	0
	Infundibulo-tuberal	2 (4 %)		
	Sellar/Suprasellar	0 (0 %)		

CP: craniopharyngioma; **3V:** third ventricle; **3VF:** Third ventricle floor.

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