

**Table S1.** Excluded studies.

Cause for exclusion	Author and date of publication	
Combined result without segregation of outcomes	Babu 2013	Pollack 1996
	Faulkner 2021	Strauss 2013
	Kazunari 1999	Ueoka 2009
	Mohme 2018	Xu 1997
Case reports	Dono 2020	
	Ferrolì 2015	
No surgery	Dudoit 2021	Reithmeier 2014
	Kandregula 2022	Salmaggi 2008
	Leibtseder 2021	
Hazard Ratio not reported	Guillamo 2001	Rigamonti 2021
	Hundsberger 2014	Salvapadian 1999
	Landolfi 1998	Tasic 2016
	Lapras 1994	Theeler 2015
	Majchrzak 2018	Wang 2000
	Meyronet 2017	Waquar 2014
Reviews	Eisele 2016	

**Table S2.** Main demographical and clinical characteristics m =months.

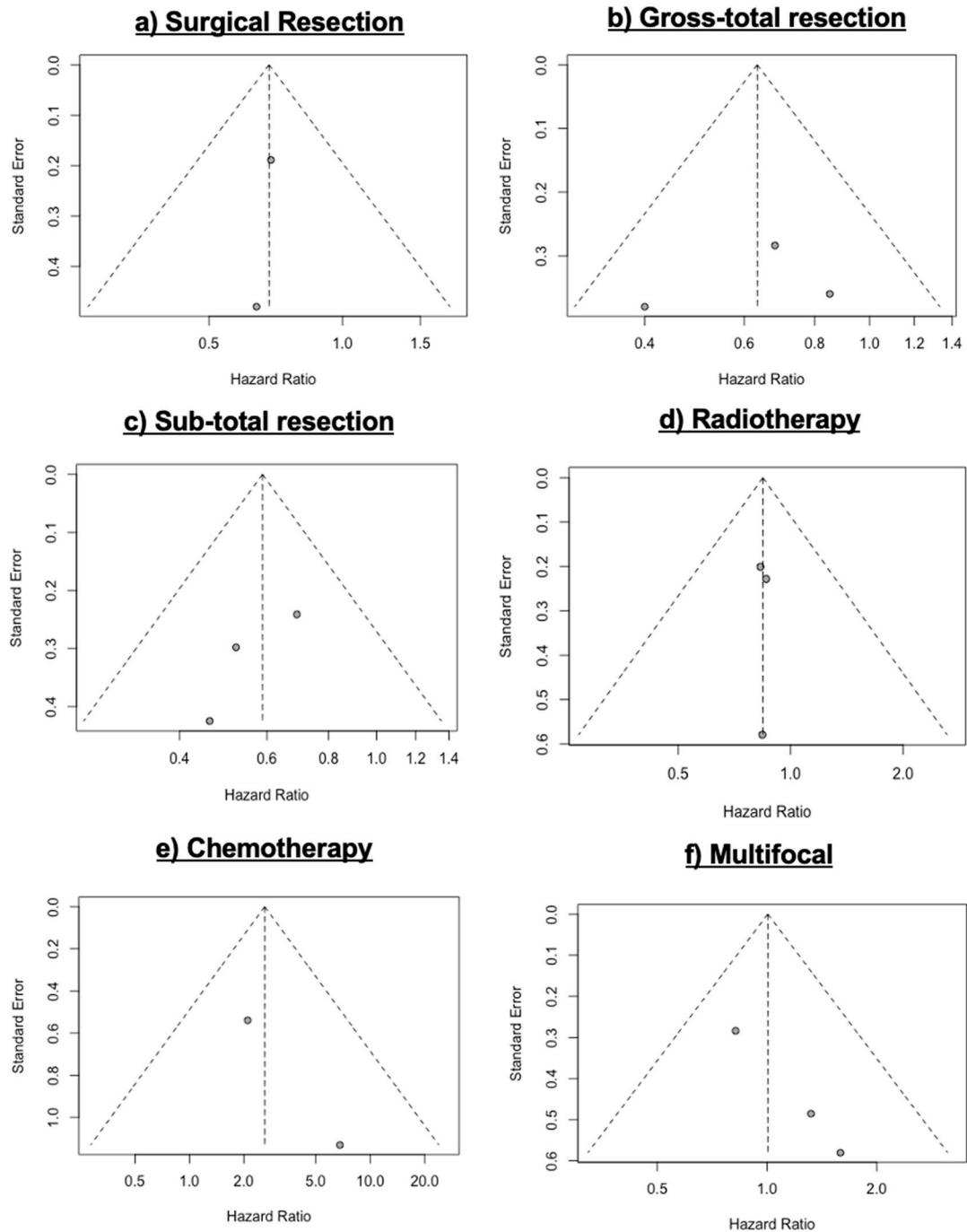
Total Sample.	Mursch et al., 2005 [16]	Liu et al., 2021 [15]	Kesari et al., 2008 [17]	Doyle et al., 2019 [14]	Dey et al., 2014 [13]	Babu et al., 2014 [7]	Article
1973-2015	1986-1997	2006-2015	1998-2005	1973-2015	1973-2008	1998-2011	Sample Date
748	14	256	101	103	240	34	Number of patients
44.19	30	NA	36	NA	48,7	42,5	Age median (m)
17-79	17-66	NA	18-79	NA	NA	18-71	Age range (m)
48.98%	11	NA	50	59	102	19	Gender (M)
12.08	12	NA	4	NA	NA	2	Time before presentation (m)
14.3%	2	NA	NA	NA	NA	NA	CN III
14.3%	2	NA	NA	NA	NA	NA	CN IV
35.7%	5	NA	NA	NA	NA	NA	CN VI
22.1%	6	NA	22	NA	NA	5	CN V
26.8%	7	NA	25	NA	NA	8	CN VII
16.1%	4	NA	12	NA	NA	8	CN VIII
28.7%	10	NA	23	NA	NA	NA	CN IX,X,XI
10.9 %	NA	NA	11	NA	NA	NA	CN XII
38.9%	10	NA	42	NA	NA	6	Pyramidal Symptoms
31.1%	NA	NA	40	NA	NA	2	Sensory loss
39.6%	7	NA	38	NA	NA	14	Cerebellar
18.8%	NA	NA	19	NA	NA	NA	Dysphagia

**Table S3.** Main radiological, anatomopathological and surgical characteristics.

Total sample	Mursch et al., 2005 [16]	Liu et al., 2021 [15]	Kesari et al., 2008 [17]	Doyle et al., 2019 [14]	Dey et al., 2014 [13]	Babu et al., 2014 [7]	Article	
34.9%	4	NA	43	NA	NA	5	Mid brain	Localization
63.8%	12	NA	65	NA	NA	18	Pons	
47.0%	9	NA	52	NA	NA	9	Medulla	
36.2%	11	NA	31	NA	NA	12	Multi focal	
9.8%	1	56	16	0	0	0	WHO Grade I	WHO Classi- fication
23.0%	9	148	15	0	0	0	WHO Grade II	
20.7%	3	20	12	23	75	22	WHO Grade III	
36.5%	1	32	3	60	165	12	WHO Grade IV	
32.8%	10	204	31	0	0	0	Low Grade	
59.9%	4	52	15	103	240	34	High Grade	Treatment
46.8%	12	187	11	88	43	11	Resection	
27.9%	1	134	NA	20	16	NA	GTR	
25.6%	11	53	NA	68	27	NA	STR	
27.9%	2	69	45	15	54	23	Biopsy	
68.7%	6	128	82	64	201	33	RT	
30.9%	0	52	40	NA	NA	33	Chemo therapy	

		Risk of bias domains							Overall
		D1	D2	D3	D4	D5	D6	D7	
Study	Mursch et al 2005	+	-	+	+	-	+	+	+
	Kesari et al 2008	+	+	+	+	+	+	-	+
	Babu et al 2014	+	+	+	+	+	+	+	+
	Dey et al 2014	+	+	+	+	+	+	+	+
	Doyle et al 2019	+	+	+	+	-	+	+	+
	Liu et al 2021	+	-	+	+	+	+	+	+
Domains:									Judgement
									- Moderate
									+ Low

**Figure S1.** ROBINS-I tool was applied to evaluate the Risk of Bias (RoB) [7, 13–17]. All the included studies were retrospective single center and were rated “moderate” to “low” risk of bias.



**Figure S2. Funnel plot-hazard ratio (HR)** The distribution of HR and standard error of all included studies demonstrating level of precision among studies in investigating effectiveness of surgical resection, radiotherapy, chemotherapy and multifocal presentation for the treatment of brainstem gliomas.