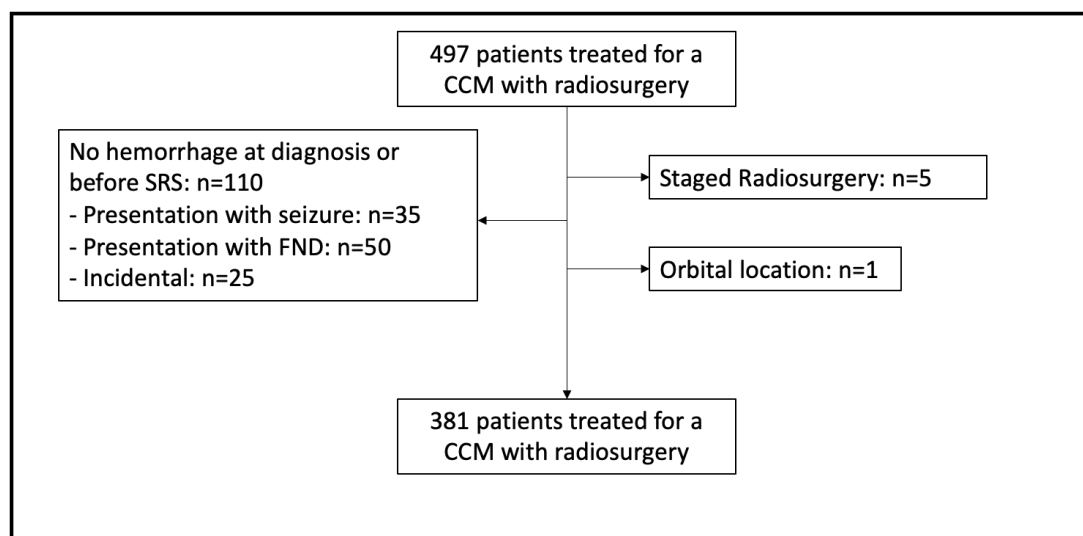


Supplemental Figure 1: Flow-chart of the study

CCM: Cerebral cavernous malformation

Supplemental Table 1: Outcomes after SRS in 414 CCM

Outcomes per 414 CCM	
Adverse radiation effect	46 (11.1%)
New hemorrhage after SRS	41 (9.90%)
1	34 (8.21%)
2	5 (1.2%)
3	2 (0.5%)
CCM volume at last FU	
Decreased	171 (41.5%)
Stable	232 (56.3%)
Increased	9 (2.2%)
Unknown	2
Zabramski post SRS	
1	30 (7.9%)
2	271 (71.5%)
3	63 (16.6%)
4	15 (4.0%)
Unknown	35
Zabramski evolution before and after SRS	
Unchanged	288 (76.2)
PreSRS=1 to post SRS 2	26 (6.9%)
PreSRS=1 to post SRS 3	7 (1.9%)
PreSRS=1 to post SRS 4	7 (1.9%)
PreSRS=2 to post SRS 1	6 (1.6%)
PreSRS=2 to post SRS 3	36 (15.9%)
PreSRS=2 to post SRS 4	7 (1.9%)
PreSRS=3 to post SRS 2	1 (0.3%)
Unknown	36

Outcomes for 381 patients	
New patient with seizure post SRS	3 (0.8%)
Seizure control at last FU	
Seizure free (Engel I)	46 (57.5%)
Rare seizure (Engel II)	11 (13.75%)
Significant improvement (Engel III)	8 (10%)
No improvement (Engel IV A+B)	12 (15%)
Worse (Engel IV C)	3 (3.75%)
Discontinuation of seizure medication	14 (17.5%)
Symptom evolution among patient	
Neurologic improvement	119 (32.1%)
Neurologic stability	83 (22.4%)
Neurological worsening	20 (5.4%)
No symptom prior SRS and no new symptom	149 (40.3%)
Missing data	10
New neurological deficit after SRS*	
Transient	40 (10.5%)
Permanent	20 (5.2%)
Deficit due to ARE	19 (5.0%)
Deficit due to a new hemorrhage of treated CCM	22 (5.8%)
New neurological deficit from other reason	19 (5.0%)
Death	(1.6%)

*Headaches and seizures were not taken into account for this classification

ARE: Adverse radiation effect, CCM: cerebral cavernous malformations, FU: Follow-up, SRS: Stereotactic radiosurgery

Supplemental Table 2: Logistic regression for the risk factor associated with an adverse radiation effect occurrence (413 CCM).

Factor	Univariate analysis		Multivariate analysis	
	p	OR (95%CI)	p	OR (95%CI)
Gender female	0.52	0.82(0.44-1.51)		
DVA	0.25	1.63 (0.67-3.57)		
Age >65	0.42	0.43 (0.02-2.17)		
Volume >0.7cc	<0.001	6.72 (3.20-15.9)	<0.001	5.19 (2.41-12.5)
Margin dose >13Gy	<0.001	6.39 (3.23-13.6)	<0.001	5.17 (2.55-11.2)
Location brainstem vs others	0.005	0.32 (0.13-0.67)	0.050	0.43 (0.18-0.96)
Multiple hemorrhages pre SRS	0.71	1.15 (0.53-2.29)		

CI: Confidence Interval, DVA: Developmental venous anomaly, OR: Odd-ratio, SRS: Stereotactic radiosurgery

