SINGLE FRACTION STEREOTACTIC RADIOSURGERY AS A TREATMENT OF CHOICE FOR DIFFUSE CHOROIDAL HEMANGIOMA IN PATIENTS WITH STURGE-WEBER SYNDROME

Yarovoy A[1], Golanov A[2,3], Loginov R[1], Yarovaya V[1], Kostjuchenko V[2], Galbatsova A,[1] Lestrovaya A[2].

1- S.Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia
2 - Gamma Knife Center,
3 -Burdenko Neurosurgical Institute, Moscow, Russia

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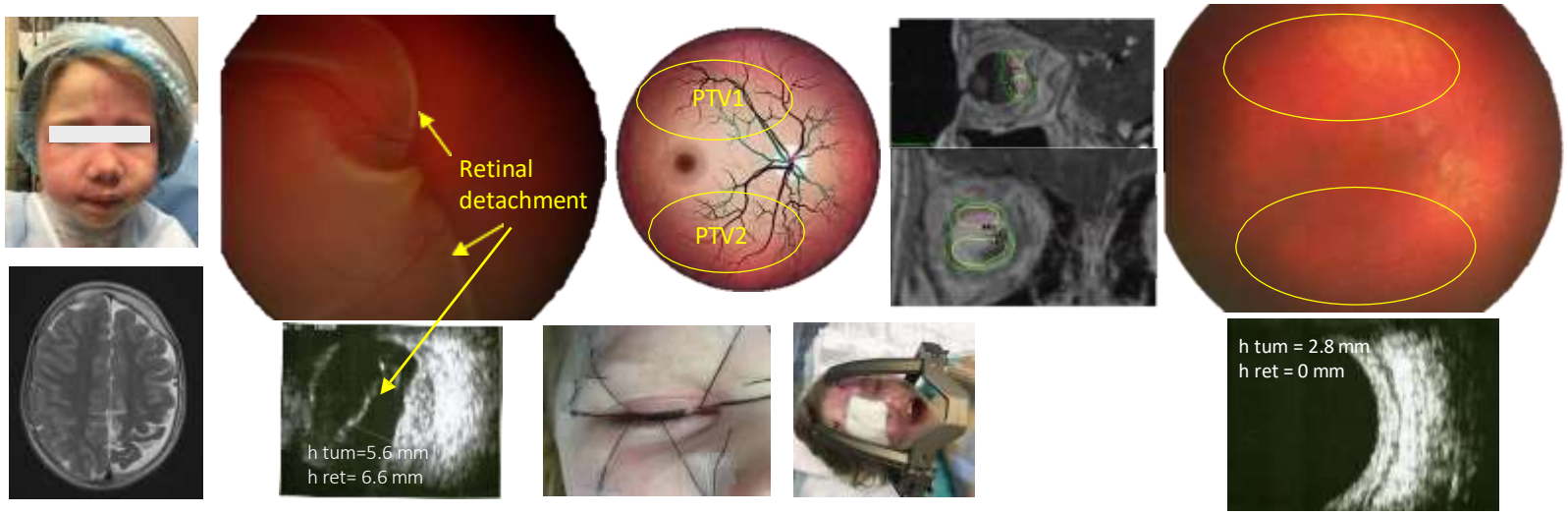
Diffuse choroidal hemangioma (DCH) complicated with retinal detachment is a challenging condition. In many published single cases or limited case series, various treatment options such as laser, brachytherapy, photodynamic therapy, external beam radiotherapy, proton beam therapy, intraocular medication, oral Sirolimus, or Propranolol, had been attempted and did not show satisfactory results.

Methods: Twelve patients with DCH aged from 7 to 32 years (mean 14), 11 of them at the age under 18 years, were referred to our clinic. All patients had facial port-wine stains, 2 of them had leptomeningeal angiomas, 2 bilateral DCH.
DCH were of 6.8 mm in thickness (range, 3.9-7.3 mm), retinal detachment (mean thickness 3.6 mm, maximum 6.6 mm), and poor vision. One 4-year girl had the only seeing eye after unsuccessful treatment of the fellow eye. Six patients were treated with Gamma-Knife (GK-SRS), 6 with CyberKnife stereotactic radiosurgery (CK-SRS). Dosimetric plans included macula-sparing target volumes of 18 Gy@50% on marginal isodose.

Girl, 4.5 y.o.

Bilateral diffuse choroidal hemangioma, Sturge-Weber syndrome

63 months after



Localization	Planning target volume (PTV), cm^3	Prescribed dose (D), Gy	Prescribed isodose, D_{max}, Gy	Target volume, irradiated with PD, cm^3	Fovea D_{max}, Gy	Ciliary body D_{max}, Gy
PTV1	0.042	18.00	57.00	0.040	12.25	31&60
PTV2	0.163	18.00	50.00	0.163	12.35	36.00

Treatment aims achieved:
The single eye saved,
no retinal detachment,
macula intact,
Visual acuity 0.5

Results: In all cases, tumor thickness decreased to mean thickness of 2.5 mm (range, 1.0- 3.3 mm), subretinal fluid gradually decreased and ultimately resolved with retina flattening. Irradiation "tracks" of very mild chorio-retinal atrophy according to the planning were seen on the eye fundus examination without radiation damage to macula. No retinal detachment recurrences, no complications were revealed within the mean follow-up of 28 months (range, 8-83) after RS. Results after GK-SRS and CK-SRS are similar.

Conclusion: Our experience in treating patients DCH in Sturge-Weber syndrome using different approaches showed SRS to be the treatment of choice. SRS allowed to irradiate intraocular vascular tumors precisely and save the eye with vision improvement.

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