and distant metastasis-free rates were 86%, 67%, and 38% at 1 year and 86%, 38%, and 16% at 3 years, respectively. Thirteen patients died; the cause of death was tumor progression in 10 patients, infectious pneumonia in two, and old age in one. The overall and cause-specific survival rates were both 73% at 1 year and 23% and 44% at 3 years, respectively. The median survival time was 16 months. Although all 17 patients developed grade 1-2 radiation dermatitis, there were no therapy-related toxicities of grade ≥3.

Conclusion: Total scalp irradiation with X-rays and electrons is safe and effective for local tumor control of angiosarcoma of the scalp, but a prophylactic dose ≥60 Gy in conventional fractions may be insufficient to eradicate microscopic disease. For gross tumors, a total dose of 70 Gy, and >70 Gy for tumors with deep invasion, is recommended.

PO-0762
Dose-volume predictors of radio-induced effects after SRS for uveal melanoma
C.R. Gigliotti1, M. Di Nicola2, L.A. Perna1, C. Fiorino1, G. Modorati1, P. Martini1, A. Franzin1, A. Bolognesi1, A. Del Vecchio1, R. Calandrino1
1IRCCS San Raffaele Scientific Institute, Medical Physics, Milano, Italy
2IRCCS San Raffaele Scientific Institute, Ophthalmology, Milano, Italy
3IRCCS SAN Raffaele Scientific Institute, Neurosurgery, Milano, Italy
4IRCCS SAN Raffaele Scientific Institute, Radiotherapy, Milano, Italy

Purpose or Objective: Uveal melanoma (UM) is a life threatening intraocular malignant tumor in adults. Gamma Knife Stereotactic Radiosurgery (GKSRS) is a well assessed strategy for conservative treatment of UM providing satisfactory results in terms of survival, local control and eye preservation. Despite severe side effects following GKSRS have been reported, literature studies designed to investigate dose effect relationship of critical structures are rather poor. The aim of this work is to develop predictive models for radio induced effects in UM patients (pts) treated with GKSRS.

Material and Methods: In our institute 149 pts were treated with exclusive GKSRS for UM between 1994 and 2014. Prospectively collected clinical data are available. For 66/149 pts, 3D dosimetry data of involved critical structures could be recovered: optic nerve (ON), eyeball and posterior part of bulb. For this cohort of pts the median follow up of 2years (6 months-6 years) is available.

Results: The 2 years incidences from our data were: cataract 39%, RV 10%, RP 12%, NVG 14%, VA20% 59% and VA100% 27%. Age and sex did not result significant. Concerning cataract the volume of whole bulb receiving more than 30Gy (p=0.004) and tumor thickness (p=0.002) resulted highly predictive; best cut off were respectively 82.2mm3 and 6.6mm. A clear relationship with maximum dose (Dmax) to ON was found for RP (p=0.009 cut off: 14.9Gy) and RV (p=0.009 cut off: 23.8Gy). For RV, also tumor in the anterior to equator position was predictive (p=0.008). The volume of the posterior bulb receiving more than 20Gy (p=0.0003, cut off: 413.7mm3) and tumor thickness (p=0.0009 cut off: 8.7mm) were predictive for NVG. Multivariate analyses resulted in two variables predictive model both for VA20% (AUC=0.79) and for VA100% (AUC=0.83), including the tumor longest basal diameter and Dmax to the ON. The best cut off values for Dmax to the ON were 7.8Gy (p=0.045) for VA20% and 13.2Gy (p=0.002) for VA100%. A summary of the main results are reported in Figure.

Conclusion: We found clinical and dosimetric variables to clearly predict the risk of the main side effects after GKSRS for UM. These results may provide new dose constraints to critical structures, that once implemented during treatment planning, could reduce radiation toxicities. Further investigation to create bulb dose surface maps highlighting any specific regions more radiosensitive are now under implementation.

PO-0763
Ruthenium-106 brachytherapy for choroidal melanoma: high efficacy with improved visual outcome.
F.P. Peters1, M. Marinkovic2, N. Horeweg1, L. Sommers3, M. Flocco2, J.C. Bleecker1, M. Ketelaars1, G.P.M. Luyten2, C.L. Creutzberg1
1Leiden University Medical Center, Department of Radiation Oncology, Leiden, The Netherlands
2Leiden University Medical Center, Department of Ophthalmology and Melanoma Center, Leiden, The Netherlands
3Leiden University Medical Center, Department of Biostatistics, Leiden, The Netherlands

Purpose or Objective: Choroidal melanoma is the most frequent malignant tumour of the eye. Eye-conserving treatment with Ruthenium-106 brachytherapy (RuBT) is a standard treatment for patients with small to intermediate size melanomas. The present study was done to evaluate