7L with shRNA, or overexpressed either wt APOBEC3B, or a catalytically dead mutant APOBEC3B.

Results: Radioresistant breast cancer cells had increased baseline APOBEC3B mRNA levels (and not of any of the other APOBEC proteins), and irradiation induced an increase in APOBEC3B expression in both MCF7 and MDA-MB231 cells. In the breast cancer patient cohort we found a strong, statistically significant, independent interaction between APOBEC3B expression and radiotherapy. APOBEC3B predicted a poor prognosis only in those patients that received radiotherapy as part of their primary treatment, also when this analysis was restricted to patients that received a mastectomy (figure). This suggests that APOBEC3B influences radiosensitivity, and does not merely predict efficacy of surgery (as radiotherapy is generally given to lumpectomy patients). The effect of APOBEC3B knockdown and overexpression on radiosensitivity is currently being assessed using colony-forming assays and will be presented.

Conclusion: Our data suggest that the anti-viral APOBEC3B enzyme influences radiosensitivity in breast cancer, and might be a potential target for radiosensitization.

Proffered Papers: Clinical 9: SBRT and oligometastatic disease

OC-0444
Stereotactic body radiotherapy of hepatocellular carcinoma lesions in liver transplant candidates
J. Shiao1, A. Gutierrez2, A. Patel1, A. Harris3, K. Washburn2, G. Halff4, J. Lopera3, F. Sharkey4, R. Crownover1
1University of Texas Health Science Center San Antonio, Radiation Oncology, San Antonio, USA
2University of Texas Health Science Center San Antonio, Transplant Surgery, San Antonio, USA
3University of Texas Health Science Center San Antonio, Radiology, San Antonio, USA
4University of Texas Health Science Center San Antonio, Pathology, San Antonio, USA

Purpose or Objective: To determine the radiographic response of Hepatocellular Carcinoma (HCC) lesions treated via stereotactic body radiotherapy (SBRT) in a series of liver transplant candidates and to correlate these findings with pathology after transplant.

Material and Methods: We retrospectively reviewed 17 liver transplant candidates from December 2008 to December 2013 at a single institution with discrete HCC lesions were treated with SBRT for evaluation of local control (LC); other methods of bridging patients to transplant were also available. Peripheral SBRT dose was either 50 Gy in 5 fractions or 45 Gy in 3 fractions with 2 fractions weekly. The records of transplant patients who underwent SBRT for single or multiple hepatomas were reviewed for maximum tumor dimension (MTD) at time of simulation, last imaging before transplant, and gross pathology following transplant. Radiographic LC of the treated lesion was defined as stable or decreasing enhancement on imaging with either triple-phase CT Liver or MRI Liver prior to transplant as demonstrated in Figure 1; this was recorded one month subsequent to treatment and just before the transplant. Pathologic Control (PC) was defined as stable to decreased size in MTD and/or no viable tumor present.

Results: Twelve patients have successfully been transplanted. All patients were male with a median age of 57 years. Of the 12 patients transplanted, there were 17 lesions treated. Median MTD at time of radiation was 3.6 cm (1.1 cm - 6.1 cm). Median time to transplant from radiation treatment for 12 patients was 9 months (2mo -18mo). Table 1 summarizes tumor and treatment characteristics. Eight lesions (47%) had no evidence of viable tumor on pathology. Radiographic LC and PC was achieved in all 17 lesions. At a median follow-up of 53 months, disease free and overall survival were 100% with no evidence of disease (NED). Of the remaining 5 candidates, 3 patients awaiting transplant had one lesion, 1 had two lesions, and 1 had three lesions treated via SBRT. No patient experienced significant decrement in liver function nor indication of radiation induced liver disease. One patient experienced Grade 1 abdominal pain and three patients experienced Grade 1 nausea.

Conclusion: SBRT for HCC lesions in transplant candidates is an effective means of LC with successful bridging to transplant. Radiologic assessment subsequent to SBRT correlated with pathologic findings after transplant. These promising results suggest a broader role for SBRT in management of limited volume HCC.