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SBRT to Portal Vein Tumor Thrombus: Paving the Way for Liver Transplant

Shyam Bisht [1] , Tejinder Kataria [1] , Prateek Mehra [2] , Susovan Banarjee [2] , Tamil Selvan [1]

1. Radiation Oncology, Medanta-The Medicity, Gurgaon, IND 2. Radiation Oncology, Medanta, Gurgaon, IND

Corresponding author: Shyam Bisht, dr_bishtshyam@yahoo.com

Categories: Radiation Oncology, Medical Physics
Keywords: sbrt, pvtt, liver transplant, radiotherapy

How to cite this abstract
Bisht S, Kataria T, Mehra P, et al. (October 24, 2019) SBRT to Portal Vein Tumor Thrombus: Paving the Way for Liver Transplant. Cureus 11(10): a441

Abstract

Objective(s): Liver transplant for Hepatocellular carcinomas (HCC), is not an option in patients having portal vein tumor thrombus (PVTT). Stereotactic Body Radiotherapy (SBRT) to PVTT has made it possible to offer curative liver transplant in such cases.

Methods: We present interim analysis of our cases (n=123), initially considered unfit for transplant and referred for SBRT to PVTT from January 2012 till June 2018. Patient were treated on Cyberknife or Synergy-S linear accelerator with motion management techniques. Post SBRT, cases were assessed at 6-8 weeks for transplant feasibility with triple phase PETCECT. Patients underwent transplant only after disappearance of tumor enhancement/FDG-18 PET activity. Primary end point was amenability to liver transplant.

Results: Intent of treatment was curative in 84.5% (104/123) cases with limited disease and palliative in remaining cases. Based on Japan cancer group classification PVTT cases were Vp1, Vp2, Vp3 and Vp4 type in 18 (14.6%),23 (18.7%),34 (27.6%),48 (39%) respectively. 80% (99) cases were treated on Cyberknife. Most frequent dose fractionation used was 60 Gy in five fractions. Any Radiological response post SBRT was reported in 72% cases. At the time of analyses, 30 (29%) underwent curative transplant. Histopathology of down staged cases were as: Macrovascular invasion was seen in 21% and microvascular invasion in 82%, Tumor necrosis (>50%) was seen in 50% cases.

Conclusion(s): With a transplant rate of 29% in our series, SBRT to PVTT promises to improve outcomes in selected HCC cases by making them amenable to liver transplant. Thus SBRT to PVTT merits attention for its potential as an integral part of multidisciplinary treatment approach towards inoperable HCC in carefully selected cases.

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Published 10/24/2019