

NOVEL APPROACH OF USING LIVER DOME AS SURROGATE FOR REAL TIME MOTION TRACKING OF TUMORS IN LIVER STEREOTACTIC BODY RADIOTHERAPY WITHOUT FIDUCIALS

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Background :

- Stereotactic body radiotherapy (SBRT) is one of the treatment modality for treating liver metastasis as well as in Hepatocellular carcinoma.
- Using effective motion management techniques is important in delivering high dose to liver tumor with precision.
- We studied the feasibility and outcome of patients treated using liver dome for real time motion tracking in Liver SBRT on helical delivery platform.

Materials and Methods:

- We studied 9 patients with liver metastasis or Hepatocellular carcinoma whose tumor was located near Liver dome treated at our institute from July 2024 to October 2025.
- Median age of presentation was 55 years (45-70 years).
- Mean tumor size was 3.5 cm.
- All patients received dose of 50 Gy in 5 fractions at 10 Gy per fraction for 5 consecutive days.
- Gross tumor with margins and Liver dome was contoured on simulation CT scan.
- Patients underwent SBRT using Liver dome as a surrogate for synchrony based real time motion tracking on a helical delivery platform without fiducial implants.

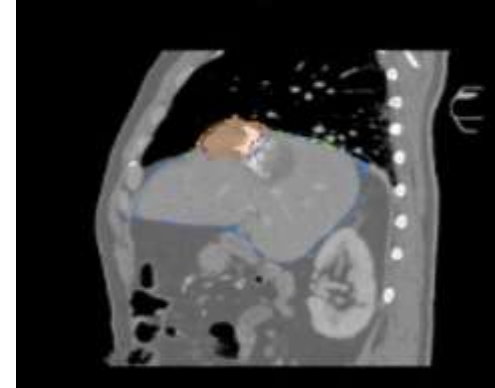


Figure 1 : Lesion in Liver dome in orange color



Figure 2 : Synchrony tracking of Liver dome

Results :

- Median follow up was 6 months (3-12 months).
- Patients were evaluated with MRI Liver (plain+contrast) for response assessment.
- 8 patients had complete response on post treatment MRI Liver at 3 months.
- 1 patient had partial response.
- No grade 3 toxicities were observed in these patients.

Conclusion:

- We conclude that this novel technique of using Liver dome for synchrony based real time motion tracking in liver SBRT is feasible and can be used as a safe alternative to fiducial implants.