

IGCS 2025 CAPE TOWN

Annual Global Meeting, November 5–7, 2025

IGCS 2025 Abstracts:

Radiation Oncology Rapid Oral Presentations

Radiation oncology rapid oral abstract presentations are included in the session listed below. The session will be held in-person only (no recording).

Radiation Contouring Workshop

Thursday, November 6, 08:00 - 13:15 | The Verve | in-person only

RO001 / #1302

Topic: AS02. Clinical Disciplines / AS02d. Radiation Oncology

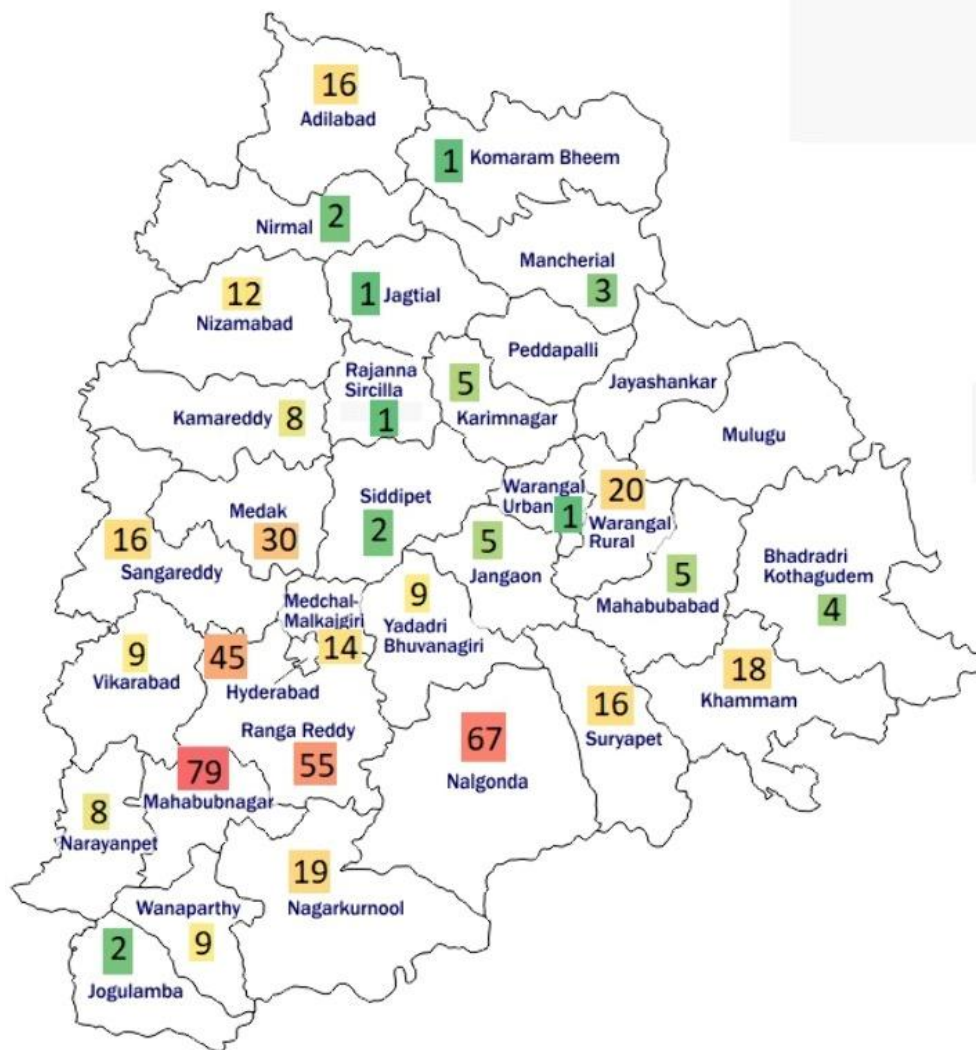
WAITING TIMES FOR RADIOTHERAPY FOR CERVICAL CANCER IN A REGIONAL CANCER CENTRE IN TELANGANA

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Introduction: Cervical cancer is the fourth leading cause of cancer death in women globally, with a significant burden in India. Timely initiation of radiotherapy, a cornerstone of curative treatment, is critical for optimal outcomes. International guidelines recommend starting radiotherapy within 6 weeks of referral, as delays are associated with increased mortality and relapse. While delays are a known issue in India, data from high-volume centres in Telangana are lacking. This study aimed to quantify and analyse waiting times for radical radiotherapy among cervical cancer patients at a Regional Cancer Centre in Telangana.

Methods: A retrospective analysis was conducted on all cervical cancer patients offered curative-intent radiotherapy in 2024. Data collected included age, residence, FIGO stage, and key dates (histopathology report, centre registration, planning CT, and radiotherapy initiation). Waiting time was defined as the interval from registration to the start of radiotherapy.

Results: Of 512 patients, the mean age was 53 years. The mean waiting time from registration to radiotherapy initiation was 27 days (median: 21 days; range: 2–315 days). Patients receiving 3D-Conformal Radiotherapy (n=352) had a shorter mean waiting time (25 days) compared to those receiving Intensity-Modulated Radiation Therapy (n=70), with a mean of 35 days. Out of 468 patients who were planned for treatment, 32 (7.3%) did not initiate radiotherapy.



Andhra Pradesh/India	14
Assam	1
Bihar/India	2
Karnataka/India	8
Maharashtra/India	1
Odisha/India	2
Punjab/India	1
Telangana/India	482
Uttar Pradesh/India	1
Grand Total	512

Conclusion/Implications: The mean waiting time of 27 days at our centre is within the internationally recommended limits. However, the longer wait for IMRT plans and the rate of treatment abandonment highlight areas for improvement, ensuring that delays do not adversely affect patient outcomes.

RO002 / #1303

Topic: AS02. Clinical Disciplines / AS02d. Radiation Oncology

FEASIBILITY OF CT-BASED VOLUME-GUIDED BRACHYTHERAPY USING PRE-BRACHYTHERAPY MRI IN CERVICAL CANCER: A DOSIMETRIC ANALYSIS

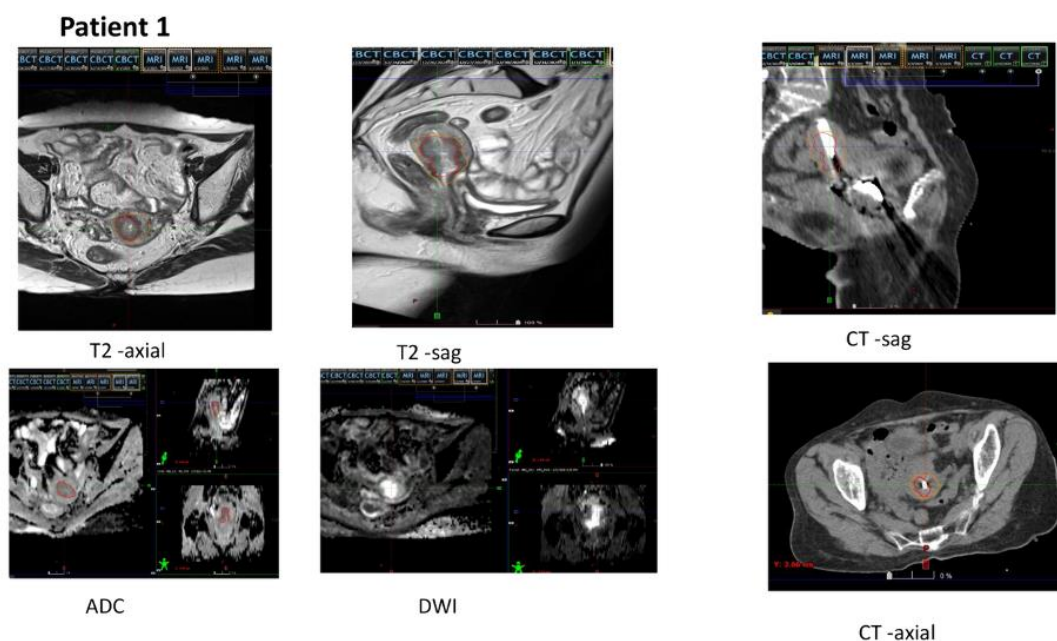
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Introduction: Accurate identification of residual disease post-EBRT is key for dose escalation in cervical cancer brachytherapy. While in-situ MRI-based planning is standard (EMBRACE)(1), logistical constraints often limit it. This study explored a feasible alternative using pre-brachytherapy MRI(2) without an applicator to guide CT-based planning, aiming to optimise tumour coverage in MRI-limited settings.

Methods:



Fifty-six patients with biopsy-proven cervical cancer were included in the study (Table 1). Residual GTV (GTVres) and HRCTV were contoured and identified on the Brachytherapy simulation CT based on the information from MRI image using T2W, DWI and ADC sequences. Brachytherapy was planned using a volume-based approach, aiming for higher EQD2 to the GTVres while respecting organ-at-risk (OAR) constraints. Dosimetric parameters including EQD2 to bladder, rectum, sigmoid, HR-CTV D90/D98, and GTVres D98 were compared between conventional Point A-based and volume-based planning (Image 1).

Results:

Dosimetric Parameters (EQD2 in Gy, Median with IQR)& Toxicity

Parameter	Point A	Volume Based	Toxicity	Grade	n (%)
EQD2_BLADDER	85 (79–91)	86 (83–92)	Diarrhoea	Grade 0	22 (39.3%)
EQD2_RECTUM	70 (62–73)	70 (63–76)		Grade 1	29 (51.8%)
EQD2_SIGMOID	73 (70–76)	76 (72–80)		Grade 2	5 (8.9%)
EQD2_RT_POINT A	80 (76–82)	81 (78–84)	Nausea/Vomiting	Grade 0	22 (39.3%)
EQD2_LT_POINT A	80 (76–82)	82 (78–86)		Grade 1	31 (55.4%)
EQD2_POINT A	80 (76–82)	81 (78–85)		Grade 2	3 (5.4%)
EQD2_D98_GTVres	107 (83–127)	109 (90–131)	Proctitis	Grade 0	54 (96.4%)
EQD2_D90_CTV_HR	83 (77–87)	86 (83–89)		Grade 2	2 (3.6%)
EQD2_D98_CTV_HR	71 (67–76)	74 (71–77)	Dermatitis	Grade 0	22 (39.3%)
				Grade 1	34 (60.7%)
			Vaginitis	Grade 0	53 (94.6%)
				Grade 1	3 (5.4%)
			Anemia	Grade 0	40 (71.4%)
				Grade 1	16 (28.6%)

Volume-based planning achieved a higher median EQD2 to GTVres [109 Gy (IQR: 90–131)] compared to Point A planning [107 Gy (IQR: 83–127)]. Similarly, HR-CTV D90 improved from 83 Gy (77–87) to 86 Gy (83–89). Dose to organs at risk remained within acceptable limits, with no significant increase in EQD2 to bladder, rectum, or sigmoid. Volume-based planning demonstrated better conformity and target coverage without compromising safety (Table 2).

Conclusion/Implications: Our approach offers a feasible alternative to standard MR Brachytherapy performed with an in-situ applicator, particularly in resource-limited and logistically challenging settings. By enabling targeted dose escalation while maintaining organ-at-risk constraints, this strategy may improve local control through optimised tumour coverage in the era of image-guided adaptive brachytherapy.

RO003 / #1304

Topic: AS02. Clinical Disciplines / AS02d. Radiation Oncology

A COMPARATIVE STUDY WITH DOSIMETRIC EVALUATION OF TRUS-GUIDED VS C-ARM-BASED INTERSTITIAL BRACHYTHERAPY IMPLANTS IN CERVIX CANCER

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Introduction: Image-guided brachytherapy (IGBT) is integral to the treatment of locally advanced cervical cancer. Conventionally, C-arm fluoroscopy has been employed for implant guidance; however, transrectal ultrasound (TRUS) is emerging as a promising alternative due to its real-time soft tissue visualization and radiation-free nature. This study aims to compare the dosimetric quality of TRUS-guided versus C-arm-based interstitial brachytherapy (ISBT) implants in cervical cancer patients.

Methods: A dosimetric analysis was conducted at our hospital on 32 patients with FIGO stage IIB–IVA cervical cancer who underwent ISBT between [June 2022– May 2025]. Fifteen patients were treated using C-arm guidance and seventeen with TRUS guidance (BK Medical Flex Focus 800, probe No. 8848). All patients received EBRT with concurrent chemotherapy followed by ISBT. High-risk clinical target volume (HR-CTV) D90 and V100 and doses to organs at risk (OARs) were evaluated. Statistical comparison was performed using an independent t-test.

Results: The mean HRCTV D90 in the TRUS-guided group was **105.6%** (SD- **8.47**), while the C-arm group demonstrated a mean D90 of **101.79%** (SD-**14.35**). An unpaired t-test (Welch's correction) revealed a statistically significant difference between the two groups (**t = 2.59, p = 0.0156**), indicating superior dose conformity with TRUS guidance. For the V100 parameter, the TRUS group exhibited a mean V100 of **93.15%** (SD: **4.08**), whereas the C-arm group showed a mean of **90.8%** (SD: **6.34**) & Welch's t-test did not reach statistical significance [**p = 0.172**]. OAR doses—bladder and rectum D2cc showed no significant difference. TRUS guidance enabled improved needle placement accuracy and HR-CTV coverage.

Conclusion/Implications: TRUS-guided interstitial brachytherapy provides superior dosimetric outcomes when compared to C-ARM with enhanced HR-CTV coverage, comparable OAR sparing & lower radiation hazard.