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## Clinical application of <sup>192</sup>Ir HDR interstitial brachytherapy and <sup>125</sup>I seeds LDR permanent implantation for recurrence of GYN after pelvic EBRT

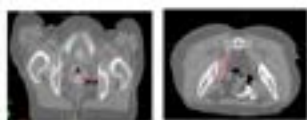
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**Purpose:** To evaluate the feasibility of <sup>192</sup>Ir HDR interstitial brachytherapy and <sup>125</sup>I LDR permanent implantation brachytherapy for recurrence of GYN after pelvic external beam irradiation.

**Materials & Methods:** Pelvic recurrence of GYN includes central recurrence and pelvic sidewall recurrence, different site of relapse associate different management in our center. In our study, all recurrence patients after pelvic adjuvant external beam radiotherapy (EBRT) or radical chemoradiotherapy. 11 patients in our center diagnosed with central recurrence of GYN, they received <sup>192</sup>Ir HDR interstitial brachytherapy under CT guidance with 3D-printing template assisted. Among them, 5 cases under local anesthesia with vaginal insertion template and 6 cases under epidural anesthesia with combined vaginal and perineal insertion template. GTV prescription dose was 5-6 Gy/f, 2-6 f, 1-2 f/W. Totally 45 fraction treatment of 11 patients. 21 patients with pelvic sidewall recurrence received <sup>125</sup>I seeds implantation under the CT guidance with 3D-PNCT assistant. Prescription D90 of GTV was 120-150 Gy, The local control probabilities were calculated and complications and early toxicities were analyzed by the Kaplan-Meier method (SPSS 16.0).

**Results:** 11 patients with central recurrence, totally 229 needles were inserted for 45 FDR applications, median 6 (3-9) needles per fraction, mean inserting depth was 8.3±3.4 cm (2-13.7 cm), mean CT scan 3 (1-5) times, during CT guidance procedure. Actual dosimetry parameters of median V100 were 83±4.5%. Early side effects of grade I/II urethritis were found in 45% patients and relieved after symptomatic treatment. Totally response rate (1 month later) was 91%, 1 lesions had complete remission CR (9%) and 9 had partial remission PR (82%). Among 21 patients with sidewall recurrence, 669 (median 47, 25-113) seeds implanted, total 132 needles (median 9, 6-21) were implanted actually. The activity of <sup>125</sup>I seeds ranged from 0.3 mCi to 0.8 mCi (median: 0.69 mCi). The total number of seeds implanted ranged from 3 to 89 (median: 20). Actual dosimetry parameters of median V100 were 93±4.5%. Totally response rate (1 month later) was 85%, 3 lesions had complete remission CR (14%) and 15 had partial remission PR (71%). severe complications were not seen.

**Conclusion:** <sup>192</sup>Ir HDR interstitial brachytherapy for central recurrence and <sup>125</sup>I LDR permanent implantation for pelvic sidewall recurrence of GYN under CT guidance have good dosimetry parameters. It is clinically feasible and high efficiency with low complications. However long-term clinical outcomes should be further investigated.



A. <sup>192</sup>Ir HDR dose distribution. B. <sup>125</sup>I seeds LDR dose

### Biography

Ping Jiang is an Associate Professor in Radiation Oncology Department in Peking University 3rd Hospital. She works mainly in radiotherapy for malignant tumor, especially in domain of radiation on GYN and thoracic malignant tumor, HDR and LDR brachytherapy in recurrent GYN. She has published many papers as first author. Her research results are oral presented in ESTRO, JASTRO and ABS. She is the member of Youth committee of Chinese Medical Association Radiotherapy Branch and Youth committee of Beijing Medical Association Radiotherapy Branch. She is in charge of national important research and development project, digital diagnosis and treatment equipment research and development.

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