Methods Scans from 20 patients with pelvic recurrence were used, delivering EBRT 45 Gy/25 fractions to pelvis followed by SBRT boost. Cumulative dose limits for bowel, bladder, sigmoid, rectum and sciatic nerve were converted to 5 and 10 fraction equivalent constraints. For isoxic planning, prescription was escalated/de-escalated until any OAR dose constraint was exceeded. Feasible tumour doses (EQD210) with 5 and 10 fractions were compared.

Results With conventional VMAT 20 Gy in 10 fractions, median GTV and PTV dose was 20.00 Gy (total EQD210 64.2 Gy). Using isoxic SBRT planning for central pelvic disease, median PTV dose (EQD210) was 29.9 Gy (total 74.1 Gy) with 5 fractions compared to 32.9 Gy (77.2 Gy) with 10 fractions and GTV 30.8 Gy (cumulative 75 Gy) versus 33.9 Gy (cumulative 78.1 Gy) (p < 0.0001). Similarly, with pelvic sidewall disease isoxic doses were increased with 10 fractions: PTV 42.2 Gy (cumulative 86.4 Gy) versus 45.5 Gy (cumulative 89.7 Gy); GTV 45 Gy (cumulative 89.2 Gy) versus 48.6 Gy (cumulative 92.9 Gy) (p < 0.0001).

Conclusions Longer fractionation can significantly increase deliverable tumour doses. Further investigation is required to determine optimal patient specific regimens.

**IMPACT OF MANDATORY VERSUS OPTIMAL ORGAN AT RISK DOSE CONSTRAINTS FOR ISOTOXIC DOSE ESCALATION WITH AN SBRT BOOST FOR RECURRENT GYNAECOLOGICAL CANCER**

Nana Gomes*, Desmond Barton, Alexandra Taylor. The Institute of Cancer Research, Gynaecologic Oncology, London, UK; The Royal Marsden Hospital, Gynaecologic Oncology, London, UK

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**Objectives** Outcomes using external beam radiotherapy alone for pelvic recurrence are poor. Stereotactic radiotherapy (SBRT) can potentially improve local control by dose escalation. Isoxic planning using cumulative OAR dose tolerances is internationally established for intrauterine brachytherapy, with GEC-ESTRO tolerances modified with new optimal constraints. Aim: To evaluate the impact of different OAR target doses on an isoxic dose-escalation approach with SBRT for locally recurrent gynaecological cancer.

**Methods** Dosimetric studies were undertaken on 20 planning scans, 10 central recurrent disease (CRD) and 10 pelvic sidewall recurrences (SWRD), delivering 45 Gy/25 fractions to pelvis followed by SBRT boost. Mandatory and optimal dose constraints were defined for 2 cc bowel bladder, sigmoid, and rectum, and 1 cc sciatic nerve. Starting with 20Gy/5 fractions, the prescription dose was escalated or de-escalated until OAR dose limits were exceeded.

**Results** Median GTV volume was CRD 41.52 cm³, SWRD 26.17 cm³. With conventional VMAT boost, median PTV dose was 20 Gy (cumulative EQD210 64.3 Gy) and GTV 19.8 Gy (64.1 Gy). For CRD, median SBRT prescription dose was 17.4 Gy/5 fractions (EQD210 19.5 Gy) with optimal constraints, increased to 21.1 Gy (26.6 Gy) mandatory constraints. This resulted in median EQD210 PTV 22.3 Gy (cumulative 66.6 Gy) versus 29.9 Gy (74.1 Gy); GTV 22.6 Gy (66.9 Gy) versus 30.8 Gy (75 Gy) respectively. With SWRD, higher prescription doses were feasible, optimal 23.5 Gy (28.8 Gy EQD210) versus 26.7 Gy (34.1 Gy) mandatory. This resulted in PTV 29.9 Gy (79.2 Gy) versus 42.2 Gy (total 86.4 Gy); GTV 36.9 Gy (total 81.1 Gy) versus 45 Gy (total 89.2 Gy).

**Conclusions** SBRT boost can significantly dose escalate to tumour using mandatory GEC-ESTRO dose constraints, particularly for sidewall disease.