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Case Report

Carcinoma Cervix and Concomitant Fused Renal Ectopia: A Rare Case Managed with Radical Chemo-Radiotherapy

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Abstract

Fused renal ectopia is a rare congenital anomaly that poses challenges in pelvic radiotherapy. We report a case of locally advanced carcinoma cervix with fused renal ectopia successfully managed with radical chemoradiotherapy. Individualized radiation planning ensured adequate target coverage while sparing renal tissue. The patient completed treatment uneventfully with acceptable toxicity and is doing well on follow up.

Keywords: Carcinoma cervix fused renal ectopia, crossed-fused ectopic kidney, radical radiotherapy, pelvic radiotherapy, Volumetric modulated arc therapy.

Introduction

Congenital renal fusion anomalies such as crossed fused renal ectopia are uncommon, with an incidence of 1 in 1,000–2,000 individuals (1,2). Their anomalous position in the pelvis may place the kidney within pelvic radiotherapy fields (3,4). We describe a case of carcinoma cervix with fused renal ectopia managed with customized chemoradiotherapy planning.

Case Presentation

A 45-year-old woman presented with vaginal bleeding and watery discharge for 3 months. Pelvic examination revealed a 4 cm exophytic cervical lesion with parametrial involvement. Histopathology revealed squamous cell carcinoma. MRI pelvis confirmed FIGO stage IIB disease. Routine renal ultrasonography performed for baseline evaluation revealed crossed fused renal ectopia, confirmed on contrast-enhanced CT.

Treatment Planning and Radiotherapy:

CT simulation was performed with the fused renal mass contoured as a critical organ. Standard pelvic fields were unsuitable due to kidney proximity, Volumetric Modulated Arc Therapy planning was used. A dose of 50 Gy in 25 fractions was delivered to the pelvis with weekly cisplatin. Mean renal dose was maintained at 7.8 Gy with adequate PTV coverage (V95% = 96%).

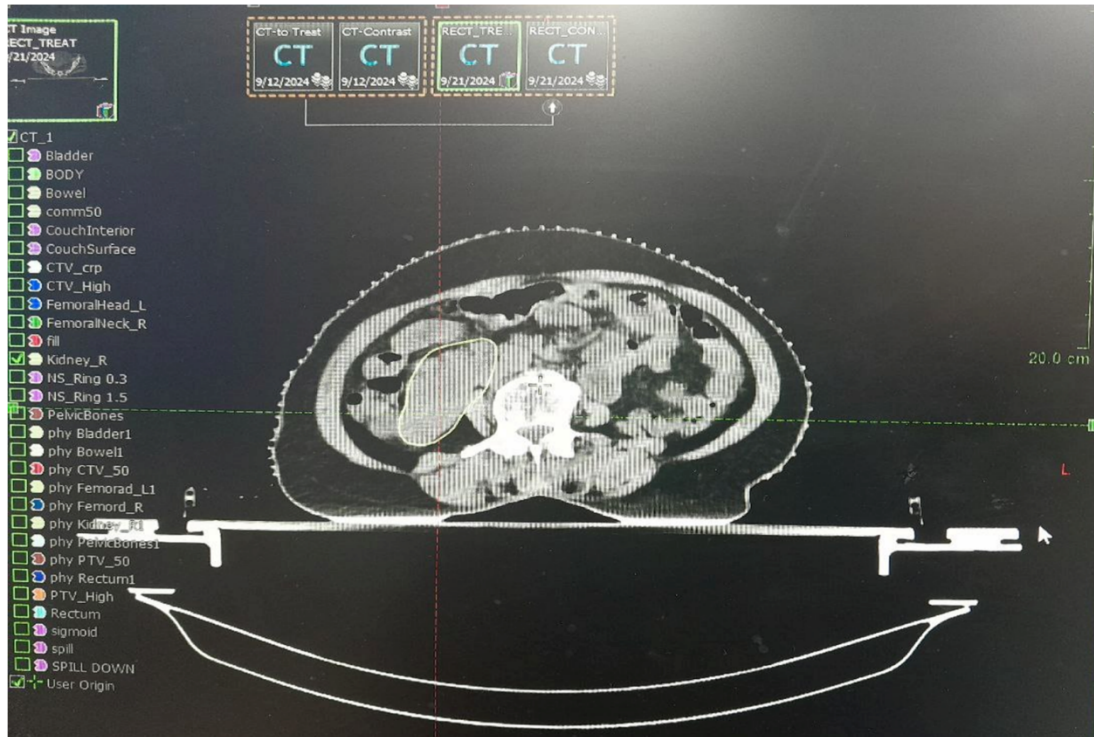


Figure 1: Fused kidney as seen on planning CT (Axial section)

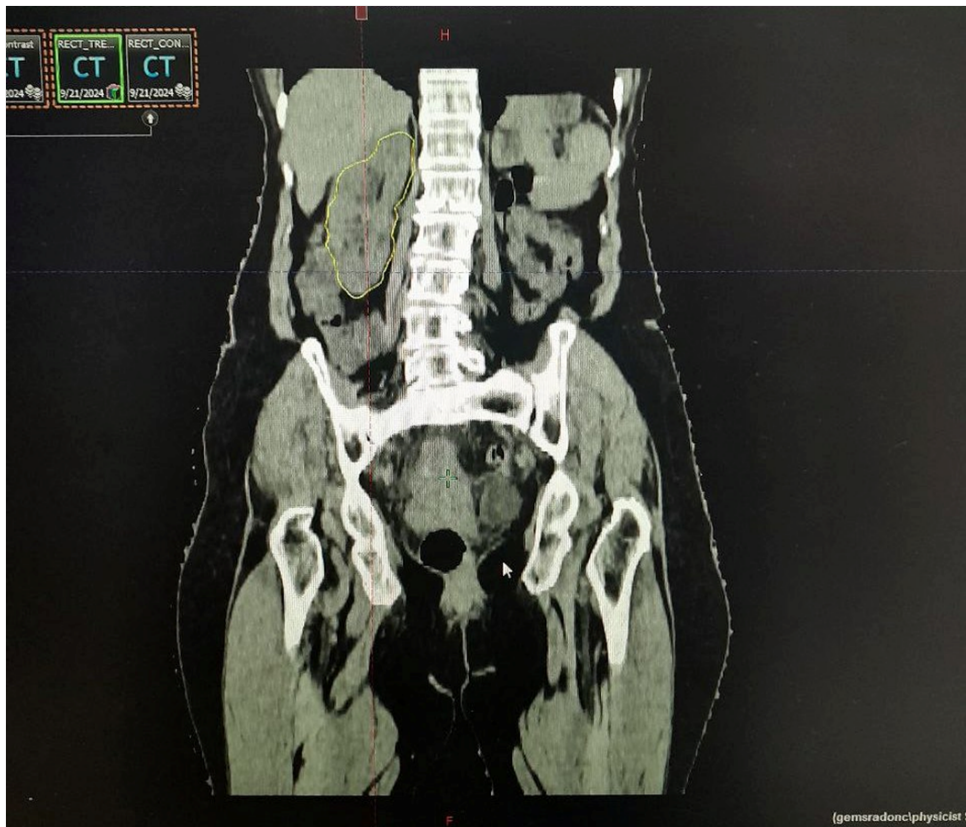


Figure 2: Fused kidney as seen on planning CT (Coronal section)

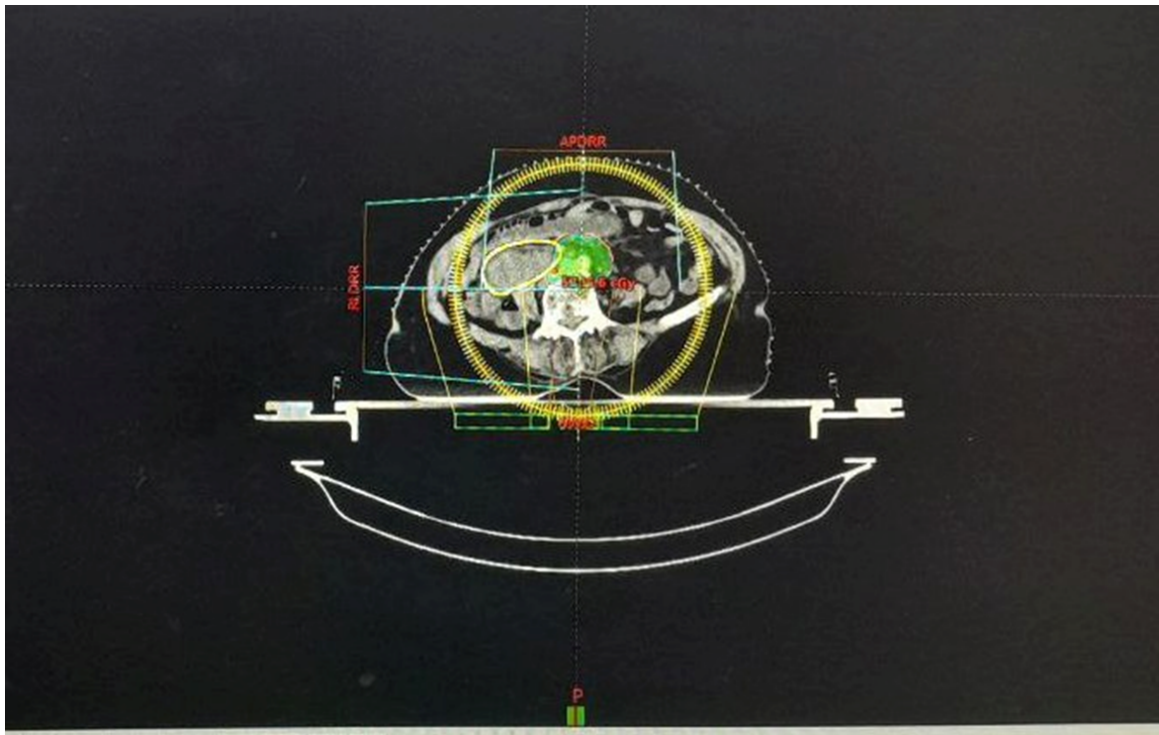


Figure 3: Dose colour wash at common iliac level

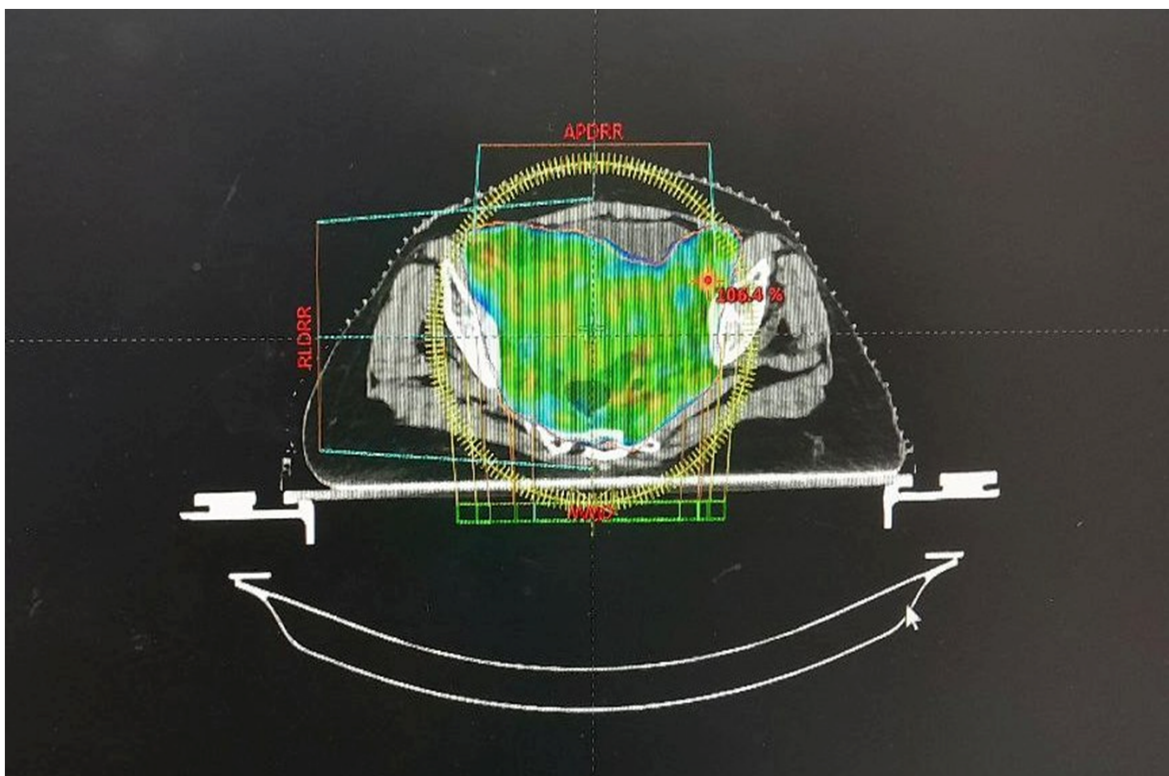


Figure 4: Dose colour wash at tumour location

Brachytherapy

The patient subsequently received HDR intracavitary brachytherapy: 7 Gy × 3 fractions to HR-CTV. All organ-at-risk constraints were met.

Treatment Tolerance and Follow-Up

The patient experienced only grade 1–2 gastrointestinal and urinary toxicities. Renal function remained normal. At 3-month post-treatment evaluation, MRI showed complete response. At 12 months follow-up, she remained disease-free.

Discussion

Crossed fused renal ectopia is rare and often detected incidentally(1,2,3). Its anomalous location within the pelvis complicates radiotherapy for gynecologic malignancies, particularly carcinoma cervix where renal tissues are normally outside fields(5).

Key considerations in this case: Pre-treatment imaging is essential to identify anatomical anomalies. Individualized RT planning using 3D-CRT, IMRT or VMAT techniques can achieve curative doses with renal sparing. Dose constraints must be modified to account for the abnormal single functioning renal mass. Published experience is limited, and this case adds to the literature showing feasibility and safety of pelvic RT in the setting of fused renal ectopia. This case demonstrates that radical chemoradiotherapy can be safely delivered with careful adaptation of field geometry and renal dose constraints.

Conclusion

Radical chemoradiotherapy is feasible in cervical cancer patients with fused renal ectopia when customized radiotherapy planning is applied. Adequate tumor coverage and renal sparing can be achieved without compromising treatment outcomes. Organ-at-risk protection can be achieved without compromising tumor coverage. This case highlights the importance of individualized planning in patients with congenital anatomical variants.

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