



## **Carcinoma Cervix in a Rare Case of Uterine Didelphys: A Case Report and Review of Imaging Findings**

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### **Abstract**

*Uterine didelphys is an uncommon finding seen in 1 in 3000 females. Didelphys uterus with cervical cancer is an infrequent condition in clinical practice. There are few cases reported to date of these conditions co-existing. Association between Mullerian malformation and cervical cancer limited to medical references. Risk factors for cervical carcinoma include human papilloma virus (HPV) infection, becoming sexually active at a young age (especially younger than 18 years old) or having multiple sexual partners, smoking, HIV / AIDS, Chlamydia infection and long term use of oral contraceptives. The most common presentation is abnormal vaginal bleeding, as is the case with our patient. Here we present a rare case of carcinoma cervix in didelphys uterus..*

### **Clinical Presentation:**

This patient is a 50 year old female patient, G2P2L2A0 with both normal vaginal deliveries. She had no significant past medical history and was not diagnosed to have didelphys uterus. She presented with postmenopausal per vaginal bleeding since 3 months. Per-vaginal and per speculum examination revealed a 3x4 cm sized cervical mass with involvement of left posterior parametrium and supple right parametrium. Per-rectal examination revealed uterosacral involvement on left side and rectal mucosa was free. Clinically, the patient was diagnosed as carcinoma cervix stage IIB.

Cervical biopsy was performed which revealed squamous cell carcinoma involving cervix. Hence, referred to radiology department for staging CT scan and MRI.

### **Differential Diagnosis:**

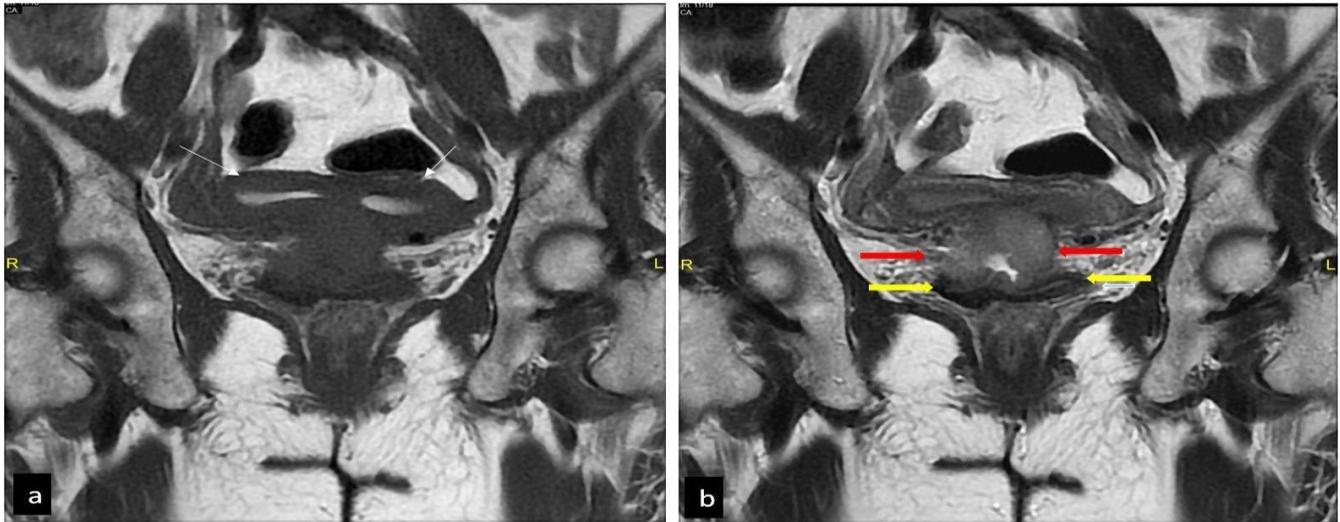
The differential diagnosis for postmenopausal bleeding includes both gynecologic and non-gynecologic etiologies, both benign and potentially malignant, such as endometrial atrophy, endometrial carcinoma, cervical carcinoma, polyps ,endometrial hyperplasia, adenomyosis and infection.(3)

### **Imaging Findings:**

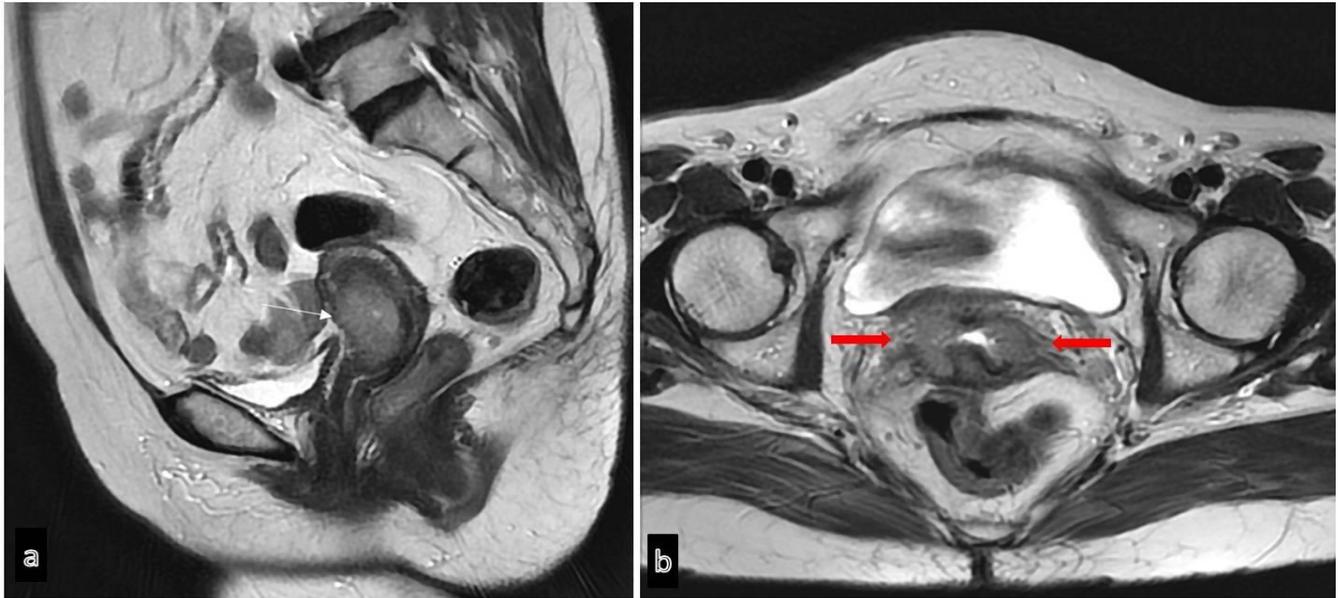
Contrast enhanced (CE) MRI pelvis was performed on 1.5T GE Signa voyager, for local staging of carcinoma cervix. Sequences obtained are FSE T1W, FSE T2W, and small FOV frFSE T2W images dedicated to cervix. DWI and dynamic contrast enhanced images were also obtained since they provide a useful adjunct to the diagnostic information provided by the regionally recommended sequences. Contrast enhanced CT scan of thorax and abdomen was performed on 16 slice GE Discovery scanner from thoracic inlet to iliac crest before and after intravenous iodinated contrast administration to look for distant nodal/ visceral metastases. CE-MRI pelvis revealed a typical imaging finding of uterine didelphys, i.e., complete duplication of uterine horns, wide separation of the uterine fundi as well as duplication of cervix. Two vaginas were also seen with septum in upper vagina. There was an altered signal intensity mass involving both the cervixes with fistulous communication between them. There was also obliteration of their lumen and internal os with resultant hematometra in both uterine horns. (Fig 1) The mass extended to the lower uterine bodies of both uterine horns superiorly and upper third of the vagina inferiorly. Bilateral medial parametrium were involved. (Fig 2) It showed restricted diffusion on diffusion weighted images and moderate early and persistent enhancement on dynamic contrast enhanced images.

(Fig 3) There was no involvement of lower two third of vagina, upper uterine bodies, ureters, lateral pelvic wall, urinary bladder or rectum. There was no significant pelvic lymphadenopathy. CT scan revealed no retroperitoneal lymphadenopathy or distant visceral metastases. Hence, according to FIGO staging system for uterine cervical cancer 2018, radiologically it was stage IIB.

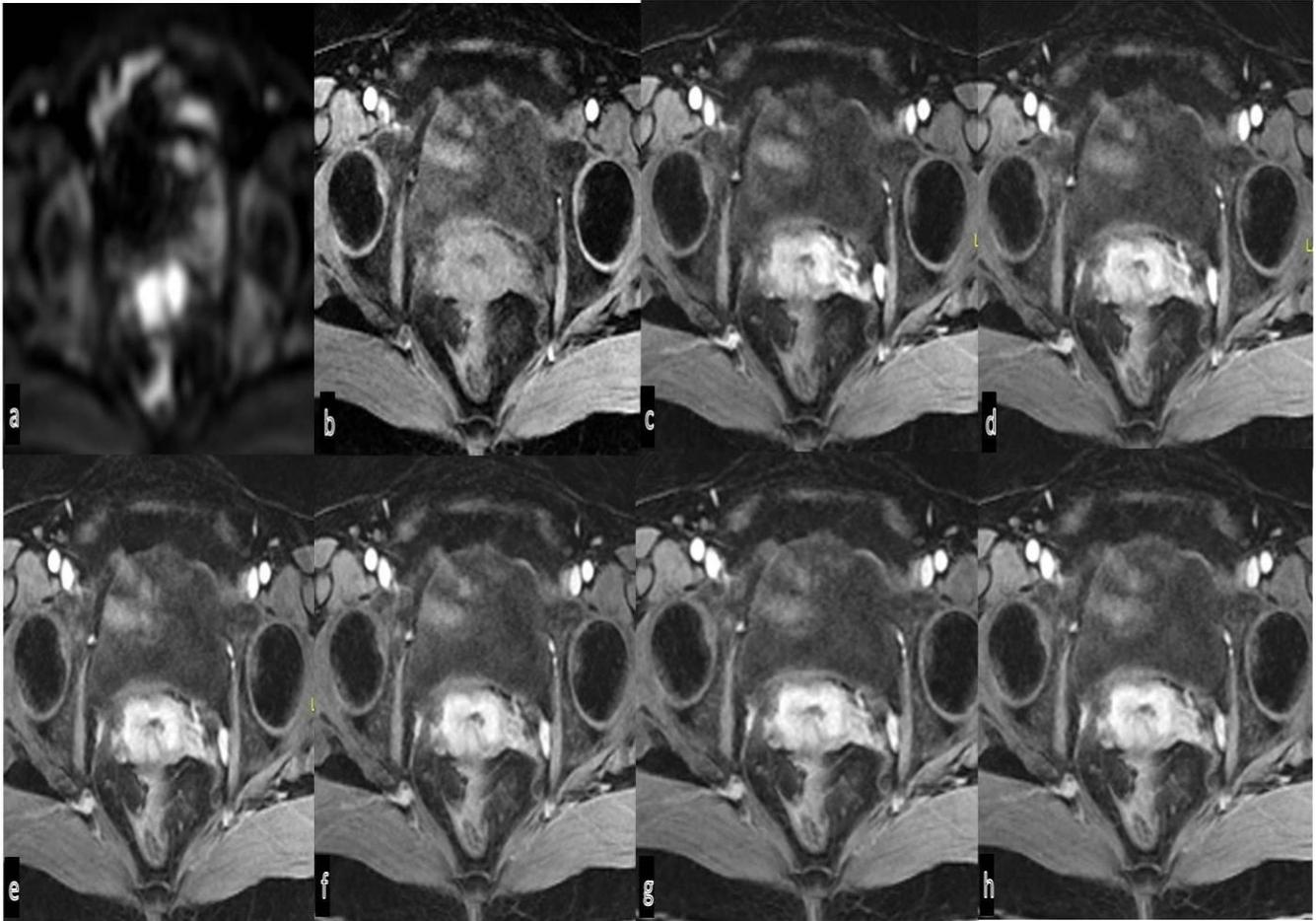
Following staging and regional multidisciplinary discussion, the patient underwent definitive concurrent chemo-radiotherapy.



**Figure 01:** MRI T1W (a) and T2W(b) coronal images demonstrating two uterine cavities with hematometra (white arrows in a), mass involving both cervixes (red arrows in b), two separate vagina (yellow arrows in b).



**Figure 02:** MRI T2 sagittal image(a) and T2W axial image (b) illustrating intermediate signal intensity mass involving the cervix, lower uterine body and upper vagina (white arrow in a) and bilateral medial parametrial infiltration (red arrows in b). Fistulous communication between two cervixes is also seen in b



**Figure 3.** Axial MRI DWI (a) and Dynamic contrast enhanced fat saturated T1W axial image(b - h) illustrating , diffusion restriction in cervical mass (a), early and persistent contrast enhancement on dynamic contrast images (b-h).

### **Discussion:**

A didelphys uterus is a very rare Mullerian duct anomaly (4) and carcinoma cervix in anomalous uterus is even rarer with only case reports in the literature.(5)(6)(7) Most women with a didelphys uterus are asymptomatic, however in the presence of a thick, sometimes obstructing vaginal septum, they can present with dysmenorrhea or dyspareunia. This obstructing vaginal septum can lead to hematocolpos/hematometocolpos and thus patient can present as chronic abdominal pain as well (5). Rarely, genital neoplasm's and renal anomalies are reported in association with didelphys uterus.(4) In our case report, the patient was unaware of presence of didelphys uterus because she had no problems at reproductive age and

develops two pregnancies with successful evolution. Uterine anomalies such as our case of uterine

didelphys can be diagnosed using multiple imaging modalities such as ultrasound, hysterosalpingography (HSG) and MRI.(8) Ultrasonography is widely available and is usually first investigation in evaluation of any pelvic pathology. Ultrasound shows separate divergent uterine horns with a large fundal cleft. Endometrial cavities are uniformly separate, with no evidence of communication. Two separate cervixes are seen.



**Figure 4.** Ultrasonography image demonstrating two uterine cavities (white arrows).

(Fig 4) HSG demonstrates two separate endocervical canals that open into separate fusiform endometrial cavities, with no communication between the two horns. Each endometrial cavity ends in a solitary fallopian tube.(9)

Magnetic resonance imaging (MRI) has excellent soft tissue resolution. It helps in detail anatomical evaluation and to rule out associated pathology. MRI shows two separate uteri with widely divergent fundi, two separate cervixes, and usually an upper vaginal longitudinal septum. Normal uterine zonal anatomy is preserved in each uterus (Fig 1).

Local staging of cervical malignancy is most accurately performed with dedicated MRI protocol. MRI

provides excellent anatomical detail and characterization of both normal anatomy and co existing pathology. MRI is superior in its ability to not only stage cervical stromal involvement in cervical carcinoma but also assess invasion into adjacent structures such as parametrium, uterus, vagina, urinary bladder and rectum.(10) Demonstration of nodal involvement is of utmost importance in the treatment planning. MRI is a safe (with accurate check listing), noninvasive and usually well tolerated imaging method with good pathological correlation in staging gynecological malignancies. However, patient compliance, poor renal function and movement artifact more often due to bowel peristalsis may limit MRI staging. Limited spatial resolution also affects image interpretation.

In our case, both uterine anomaly and malignant pathology are clearly demonstrated and accurately staged with dedicated MRI pelvis. It is also essential for the surgeon / radiation oncologist to be aware of relevant anatomy before embarking on definitive surgery / radiotherapy. MRI is particularly useful in distinguishing between different uterine malformations and is in most case superior in this regard in comparison to ultrasonography and hysterosalpingography.

In this case, we have reported a rare occurrence of carcinoma cervix in a didelphys uterus and its imaging findings. The detail knowledge of anatomy, anomalies and staging are important in carcinoma cervix before planning surgery or radiotherapy.

### **Key Points:**

1. MRI is the most useful imaging modality for defining Mullerian tract anomalies and staging gynaecological malignancies.
2. It is essential for the treating surgeon / radiation oncologist to be aware of the relevant anatomy prior to definitive surgery / planning of radiotherapy.
3. In this case MRI images clearly depicts anatomy as well as detail extent of the pathology.

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