

## **Uro-Genital and Genito-Digestive Fistulas Following Radiation in Cervical Cancer: A Study of 30 Cases**

**Ali Haidar\*, Hajar Andour, Hatim Essaber, Asaad El Bakkari, Soukaina Alliou, Hounayda Jerguigue, Youssef Omor and Rachida Latib**

*Radiology Department, National Institute of Oncology, Rabat, Morocco*

**\*Corresponding Author:** Ali Haidar, Radiology Department, National Institute of Oncology, Rabat, Morocco.

**Received:** May 14, 2024; **Published:** May 21, 2024

### **Abstract**

Prospective recording of acute and late complications of radiation therapy for cervical cancer is essential to optimize management and minimize the adverse effects of radiotherapy. Uro-genital and genito-digestive fistulas are relatively rare late complications of radiotherapy and are responsible for a significant decline in the quality of life of patients. Their diagnosis is primarily radiological after clinical suspicion or during post-therapeutic surveillance. We present a retrospective study of 30 cases of uro-genital and genito-digestive fistulas following radiation for cervical cancer, diagnosed at the Radiology Department of the National Institute of Oncology between January 2020 and June 2023. MRI was the gold standard for diagnosis, and all cases involved squamous cell carcinoma of the cervix. We observed 43.3% vesico-vaginal fistulas, 16.6% cervico-vesical fistulas, 20% recto-vaginal fistulas, 16.6% combined fistulas (recto-vagino-vesical, vesico-vagino-sigmoid, and vesico-utero-rectal fistulas), 3% vulvo-perineal fistulas, and 3% parametrial fistulas. An advanced FIGO tumor stage was found to be a promoting factor for fistula formation, and treatment with brachytherapy did not increase the risk of fistula compared to exclusive radiochemotherapy. Compared to a study conducted at the University of Kentucky in the United States between 1997 and 2010, a higher frequency of post-radiation cervical cancer fistulas is observed in Morocco. Thus, uro-genital and genito-digestive fistulas constitute a significant complication in cervical cancer radiotherapy, with vesico-vaginal fistulas being the most common type, easily diagnosed through pelvic MRI.

**Keywords:** *Uro-Genital; Genito-Digestive Fistulas; Radiation; Cervical Cancer*

### **Introduction**

Prospective recording of acute and late complications of radiation therapy for cervical cancer is essential to optimize management and minimize the adverse effects of radiotherapy. Uro-genital and genito-digestive fistulas are relatively rare late complications of radiotherapy and are responsible for a significant decline in the quality of life of patients. Their diagnosis is primarily radiological after clinical suspicion or during post-therapeutic surveillance. We present a series of 30 cases of uro-genital and genito-digestive fistulas following radiation for cervical cancer, diagnosed at the Radiology Department of the National Institute of Oncology between January 2020 and June 2023.

### **Objectives of the Study**

To provide an overview of different types of post-radiation fistulas, their frequency, the relationship with initial FIGO stage before radiotherapy, and associated treatments. To understand their clinical presentation and radiological aspects, mainly through magnetic resonance imaging (MRI).

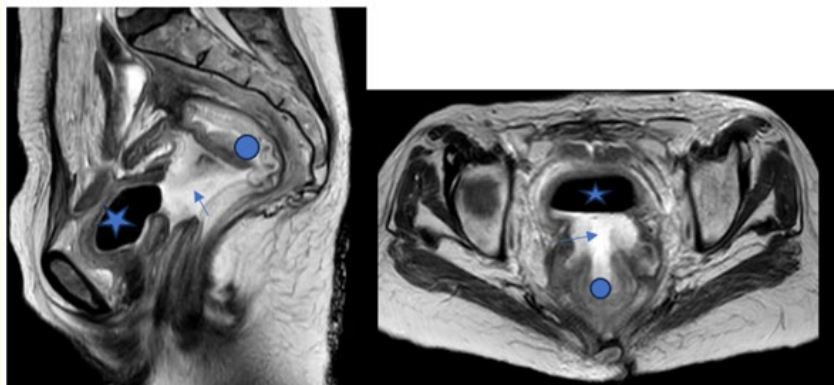
## Methods

We present a retrospective study of 30 cases of uro-genital and genito-digestive fistulas following radiation for cervical cancer, diagnosed at the Radiology Department of the National Institute of Oncology between January 2020 and June 2023. We included all patients with cervical cancer undergoing or having undergone radiation therapy, presenting with a confirmed uro-genital or genito-digestive fistula as confirmed by MRI. We excluded fistulas diagnosed during pre-treatment staging before radiotherapy and cases treated solely with chemotherapy.

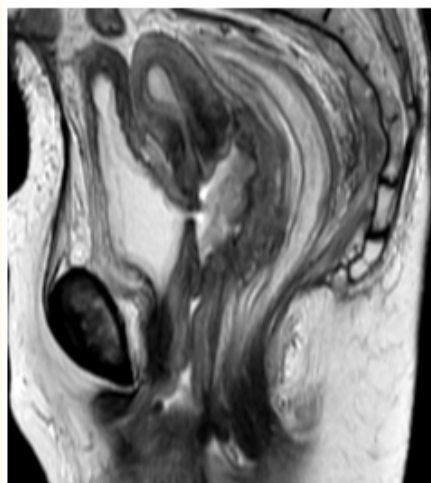
## Results

This prospective study focuses on patients with cervical cancer treated with radiotherapy, presenting with uro-genital or genito-urinary or mixed fistulas, diagnosed by MRI at the Radiology Department of the National Institute of Oncology between January 2022 and June 2023. The total number of patients is 30, with ages ranging from 34 to 88 years and an average age of 57 years. All cases involved squamous cell carcinoma of the cervix. We noted 13 vesico-vaginal fistulas (43.3%), 4 cervico-vesical fistulas (16.6%), 6 recto-vaginal fistulas (20%), 5 combined fistulas (3 recto-vagino-vesical, 1 vesico-vagino-sigmoid, and 1 vesico-utero-rectal) (16.6%), 1 vulvo-perineal fistula (3%), and 1 parametrial fistula (3%). Before radiation treatment, 50% of cases had an initial FIGO stage of IVa, 3% were stage IVb, 17% were stage IIIc, 17% were stage IIIb, 3% were stage IIIa, and 10% were stage IIb. 46% of patients were treated with exclusive radiochemotherapy, 44% with radiochemotherapy and brachytherapy, and 10% with total hysterectomy followed by radiochemotherapy. Clinical signs included symptoms such as urinary burns, fecaluria, pneumaturia, and urine or fecal discharge through the vagina or rectum. Pelvic MRI was the gold standard for fistula diagnosis, performed after clinical suspicion or as part of post-therapeutic surveillance. A standard cervical cancer protocol was used, including T2-weighted sequences without fat saturation (sagittal slices, thin axial slices perpendicular to the cervical axis, thick axial slices covering the renal hilum, +/- coronal slices parallel to the cervical axis), a diffusion sequence, and post-contrast T1-weighted axial slices with fat saturation.

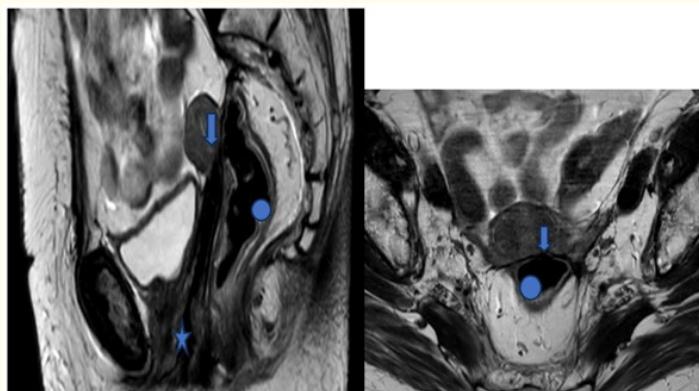
The key sequences for diagnosing uro-genital and genito-digestive fistulas are represented by axial and sagittal T2-weighted slices without fat saturation, which reveal vaginal, bladder, or rectal wall defects with communication between different cavities, sometimes associated with pneumaturia in uro-genital or mixed fistulas.



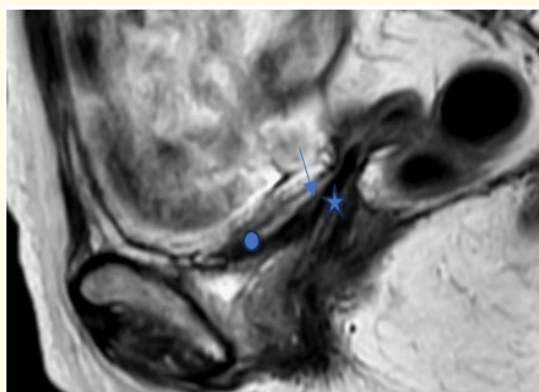
**Figure 1:** Sagittal and axial T2 revealing a combined vesico-vaginal and recto-vaginal fistula with the formation of a single cavity (Star: bladder, Arrow: vagina, Circle: rectum). The presence of air in the bladder, attributed to the dorsal decubitus position during the examination, is also noticeable.



**Figure 2:** Sagittal T2 illustrating a cervico-vesical fistula.



**Figure 3:** Sagittal and axial T2 revealing a recto-vaginal fistula (Star: vagina, Arrow: fistula, Circle: rectum).



**Figure 4:** Sagittal T2 revealing a vesico-vaginal fistula (Star: vagina, Arrow: fistula, Circle: bladder, filled with air).

### Discussion

Cervical cancer is the third leading cause of cancer-related deaths among women worldwide. In 2018, epidemiological data reported 3,067 new cases of cervical cancer in France, ranking it 13<sup>th</sup> among causes of cancer-related deaths in women, with an incidence rate of 9.3 per 100,000 women. Cervical cancer is the fourth most common cancer in women under 45 years old. Squamous cell carcinoma accounts for 90% of cases, while adenocarcinoma accounts for the remaining 10% [1].

In Morocco, with over 3,300 new cases and nearly 2,500 deaths each year, cervical cancer ranks second among female cancers in Moroccan women. The majority of cases occur in women aged 50 and above [2]. The standard first-line treatment for early-stage cervical cancer is surgery: radical colpohysterectomy ( $\pm$ ) with surgical lymph node staging. In cases with unfavorable prognostic factors based on MRI or conization (lymphovascular space invasion, largest dimension greater than 2 cm), preoperative brachytherapy is an option to avoid postoperative external radiotherapy [1]. Currently, chemotherapy is used in addition to definitive locoregional treatments (surgery or radiotherapy) for cervical cancer patients to improve outcomes. It's also used in palliative therapy for patients with recurrent or de novo metastatic disease. These treatment modalities are applied regardless of the disease's histology, which can impact prognosis and treatment response [2].

In post-radiation patients, late vascular sequelae and fibrosis predispose women to poor tissue healing, potentially allowing small tissue lesions to evolve into much larger ones, such as fistulas [3].

Limited data is available in the literature regarding post-radiation complications of cervical cancer. A retrospective study was conducted to assess all patients treated for cervical cancer at the University of Kentucky between 1997 and 2010. After a 55-month follow-up, 27 out of 325 patients (8.2%) developed fistulas. The types of fistulas observed were enterovaginal (5 patients), vesicovaginal (7 patients), rectovaginal (8 patients), and combined vesicovaginal (8 patients) as well as combined vesicovaginal and rectovaginal fistulas (7 patients).

According to our series, we observed that an advanced initial FIGO stage is a predisposing factor (FIGO IVa and IVb account for 53%). Uro-genital fistulas were the predominant type (60%). Brachytherapy does not increase the risk of fistulas compared to exclusive radiochemotherapy.

### Conclusion

Uro-genital and genito-digestive fistulas are significant complications in cervical cancer radiotherapy. The uro-genital form, particularly vesico-vaginal, is the most common type, and diagnosis is easily accomplished through pelvic MRI. Prevention involves cervical cancer prevention through HPV vaccination and regular screening of the target population.

### Competing Interests

The authors declare no conflict of interest in preparing this article.

### Ethics Approval

Our institution does not require ethical approval for reporting individual cases or case series.

### Informed Consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

### Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### **Acknowledgments**

We want to express our deepest gratitude to the team at the Rabat National Institute of Oncology, and in particular the radiology and radiotherapy department.

### **Bibliography**

1. Chargari C., *et al.* "Radiotherapy of cervical cancer". *Cancer Radiothérapie* 26.1-2 (2022): 298-308.
2. Belglaiaa E and Mougin C. "Le cancer du col de l'utérus: État des lieux et prévention au Maroc". *Bulletin du Cancer* 106.11 (2019): 1008-1022.
3. Feddock J., *et al.* "Impact of post-radiation biopsies on development of fistulae in patients with cervical cancer". *Gynecologic Oncology* 133.2 (2014): 263-267.

**Volume 13 Issue 6 June 2024**

**©All rights reserved by Ali Haidar, *et al.***