

Sexual and Urinary Disorders after Treatment of Rectal Cancer by Radiotherapy and Surgery at the Dantec University Hospital of Dakar

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Abstract

We performed a descriptive retrospective study of sexual and urinary disorders after treatment of rectal cancer by radiotherapy and/or surgery at the Dantec University Hospital in Dakar from 2008 to 2015. The objective of the study was to evaluate these sexual and urinary complications and the factors influencing it. We have collected 50 patients. The average age of is 55.7 years with a sex ratio of 0.78. The dominant clinical signs are rectorrhagia (66.0%). Endoscopy (94.0% of patients) showed an ulcerative-budding appearance in 84.0% of cases. The preferred location was the lower rectum 66.0%). The predominant histologic type is adenocarcinoma lieberkunien (82.0%). Computed tomography is performed in 78% of cases and MRI in 30%. Stage III accounts for 70.0% of cases. Thirty-two patients (64.0%) were treated with conventional 2-beam 2D radiation therapy with or without chemotherapy. The total dose of 46 Gy in 23 sessions was the most used, found in 22 patients; 30 Gy in 10 sessions in 9 cases. And 16 Gy in 10 sessions, found in 1 case. Surgery performed was abdominoperineal amputation (58.0%) and conservative surgery (42.0%). We note a complete response in 28.0% of patients; 8.0%, an increase of 16.0% and a stabilization of 4.0%. The sexual disorders are more important after radiotherapy compared to non-irradiated patients: 31.3% vs 5.6% ($p = 0.035$). We observe respectively that 2%, 6% and 8% of our patients had urinary disorders in the form of acute retention, urinary incontinence, and urinary burning. Patient follow-up time was between 0 and 42.83 months with an estimated average of 34.9 ± 3.37 . The evolution is marked at 6 months by a persistence of sexual disorders in 63.8% of cases and urinary dysfunction in 4% of cases.

Keywords

Sexual, Urinary Disorders After, Rectal Cancers

1. Introduction

Surgery is the cornerstone of rectal cancer treatment. It consists of total removal of the mesorectum. Neoadjuvant radiotherapy is indicated for locally advanced operable tumors [1].

The locoregional treatment constituted by the association of radiotherapy and surgery can lead to sexual and urinary disorders. We are evaluating this type of complication in the management of rectal cancers at CHU, The Dantec of Dakar.

2. Patients and Methods

2.1. Study Framework

This study was conducted at the Joliot Curie Institute of Dakar, which includes a radiotherapy unit, a surgery unit and a chemotherapy unit.

2.2. Type of Study

It is a descriptive retrospective study of 50 patients treated by surgery and/or radiotherapy for rectal cancer from January 2008 to December 2015.

2.3. Objective of the Study

The objective is to assess sexual complications and the influencing factors.

2.4. Selection Criteria

We included during this period all consecutive patients with histologically confirmed rectal cancer.

2.5. Data Collection and Analysis

We used the following documents: patient medical records, hospitalization, operating room and histopathology laboratory records.

The data collected were entered into Excel and processed using the SPSS 21 software.

3. Results

The 50 patients, 22 men and 28 women (Sex Ratio: 0.78), are 55.7 years old on average. The dominant clinical signs are rectorragies, found in 66.0% of cases. Endoscopy is performed in 94.0% of cases, showing an ulcer-budding appearance in 84.0% of cases. The tumor is localized to the lower rectum in 33 patients (66.0%). The predominant histologic type is lieberkunian adenocarcinoma (82.0%). Stage III is the most represented (70.0%).

On the therapeutic level, thirty-two patients (64.0%) benefited from treatment by conventional 2D radiotherapy with 2 beams associated or not with chemotherapy: Eight (08) by exclusive radiotherapy (RTE) preoperative, Twenty (20) by concomitant radiochemotherapy (RCT) preoperative, one (01) RTE preoperative and chemotherapy (CT) postoperative, two (02) by RTE postoperative and

one (1) RCT postoperative

The total dose of 46 Gy (23 fractions of 5 days per week) is found in 22 patients; 30 Gy in 10 sessions in 9 cases and 16 Gy in 10 fractions in 1 case.

Conventional splits had an average spread of 30.14 days and hypofractions of 13.24 days. After irradiation, we note a complete response in 28.0% of patients; partial response in 8.0%, progression in 16.0% of patients and stabilization in 4.0% of patients.

The surgery performed is abdominal-perineal amputation in 58.0% of cases and resection with sphincter conservation in 42.0% (anterior resection in 17 patients and total proctectomy in 4 patients). The surgical technique influenced the sexual functional result (**Table 1**).

Sexual disorders are more important after radiotherapy compared to non-irradiated patients: 31.3% vs 5.6% ($p = 0.035$) (**Table 2**).

At 6 months, the evolution is marked by persistent sexual problems in 63.8% of cases and urinary dysfunction in 4% of cases.

Patient follow-up ranged from 0 to 42.83 months with an estimated mean of 34.9 ± 3.37 (95% CI = [28.270 - 41.465]).

From 3 months the survival, which was 0.978 ± 0.022 , decreases to 0.878 ± 0.052 at the 6th month and stabilizes until the 26th month. It is 0.658 ± 0.194 and was obtained from the 28th month (**Figure 1**).

4. Discussion

The average age of our patients is 55.7 years. It ranges from 65 to 75 years in Western literature [2]. This young age is one more argument for studying sexual disorders after treatment.

We can improve the pre-therapeutic assessment of our patients. Computed tomography is performed for 78% of them. It has a diagnostic accuracy of 55% to 72% for tumor and 25% to 75% for adenopathies.

Magnetic resonance imaging has better resolution for mesorectum. We have done it for 30% of our patients. According to Beets-Tan *et al.*, an IRM distance of 5 mm between the tumor and fascia led to a resection margin of 1 mm on

Table 1. Sexual disorders by type of anastomosis and stoma

Sexual disorders	High colorectal anastomosis (7)	Low colorectal anastomosis (10)	Colo anale anastomosis (4)	Final colostomy (29)
Ejaculation disorder	0	1	0	10
Erectile dysfunction	0	1	0	10

Table 2. Sexual disorders by radiation therapy.

Sexual disorders	RTE (32)	Without RTE (18)	p	OR	IC to 95%
Ejaculation disorder	10 (31.3%)	1 (5.6%)	0.035	7.727	[0.899 - 66.394]
Erectile dysfunction	10 (31.3%)	1 (5.6%)	0.035	7.727	[0.899 - 66.394]

histological examination and better predicted resection margins [3].

The German Rectal Cancer Group compared a pre-operative or adjuvant RCT approach. The first approach offered a benefit in terms of local control (6% versus 13%) [4]. We have 20 cases of pre-operative RCT, while only one case has had post-operative RCT.

Abdominal amputation is performed in 58% of cases and sphincter conservation surgery in 42%. The sphincter conservation rate of different foreign series is given in **Table 3**.

4.1. Sexual Disorders

Very few studies have specifically studied sexual disorders in women. Age is associated with decreased sexual activity in both the male and female population. Post-operative sexual activity is 86% among those under 60 years and 46% after 60 years [5] [6] [7]. We find a rate of sexual disorders in men lower than that found in foreign series (**Table 4**).

According to Lange, the risk of nerve damage during dissection in the narrow male pelvis is higher than in women. However, the instruments used to assess sexual disorders are different between men and women, so comparison between the two sexes is difficult [8].

The rate of sexual impotence after rectal surgery varies from 5% to 92% [9] [10]. We found a significant difference depending on the type of surgery. Thus, 66% of our patients had functional sexual disorders after prior resection of the rectum. They were more important after abdominal-perineal amputation. Our results are consistent with the data in the literature [11]. However, the preservation of the autonomic nervous system is not specified in our patients' operating reports.

Like Bonnel *et al.*, Heriot *et al.*, we note a deleterious effect of radiotherapy on sexual function [7] [12]. A Dutch study including 990 patients reported a decline in sexual activity in both sexes after radiotherapy [13].

The efficacy of sildenafil on these disorders has been described. Erectile function is improved in 80% of patients compared to 17% with placebo [14].

Finally, the insertion of a penile prosthesis is effective but irreversible and

Table 3. Sphincter conservation rates in our series and in the literature [23].

Our series	Mohuidin <i>et al.</i> (121)	Rouanet <i>et al.</i> (143)	Crane <i>et al.</i> (34)	Rengan <i>et al.</i> (138)	Kim <i>et al.</i> (91)
42%	90%	70%	50%	77%	35%

Table 4. Sexual disorders in our series and in the literature [23].

Sexual disorders	Our series	Jayne <i>et al.</i>	Hendren	Stamopoulos	Bittorf <i>et al.</i> [17]
M	47.8%	50%	43%	66%	69.5%
F	44.4%	-	39%	-	16.7%

invasive. It must be proposed only after failure of medical means.

The therapeutic approach to sexual dysfunction in women, including libido disorders after rectal surgery, is empirically based on sex therapy and psychotherapy [15] [16].

Short-term estrogen therapy is recommended for genital trophicity disorders [17].

4.2. Urinary Problems

Post-operatively, we observed respectively that 2%, 6% and 8% of our patients had urinary problems in the form of acute transient urine retention, urinary incontinence, and urinary burning.

In the literature, the rate of urinary disorders varies between 30% and 70% [18]. According to Fish, the risk of urinary dysfunction increases with age [9]. Our small numbers do not allow us to compare our results with those of the literature. Two studies have found that urinary disorders are all the more important when the anastomosis is closer to the anus [19] [20]. We have not found this influence of the type of anastomosis.

There is little consensus on the duration and type of bladder drainage to be implemented after rectal cancer surgery. The recommendations of the French Society of Digestive Surgery underline the interest of the supra pubic catheter in case of tumor of the lower rectum or if a bladder drainage of more than five days is envisaged [21].

The rate of urinary disorders we have observed is low. At 3 months, this rate is 1%. Del Rio *et al.*, describe 31% of urinary disorders at 3 months [22].

We do not note any influence of radiotherapy on urinary function contrary to Bonnel and Heriot who report a deleterious effect on this function [7] [12].

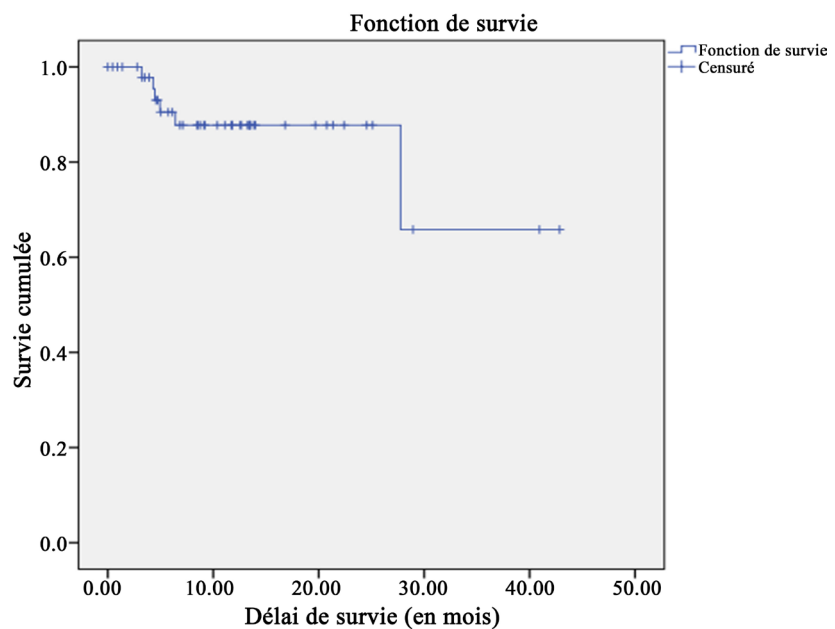


Figure 1. Survie globale.

The persistence of urinary disorders in our series is 4% to 6 months post-operative, higher than the data in the literature 0 to 2.8% [19].

We have an overall survival rate at 5 years of 10%, lower than the data in the literature [20]. This could be explained by the fact that the majority of our patients are received in advanced stages and the preoperative radiochemotherapy indicated to reduce the stage often results in difficult, often incomplete R1-type excision, source of recurrence and mortality in the medium term.

5. Conclusion

The reduction of sexual and urinary complications in the treatment of rectal cancers and their better evaluation and management will only be achieved through wider transdisciplinary consultation. It will also require the accessibility of modern irradiation methods.

Conflicts of Interest

The authors declare that they have no conflicts of interest in relation to this article.

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