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### RESEARCH ARTICLE

#### COMPLICATIONS OF ENTEROCYSTOPLASTY“CASE SERIES”

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#### Abstract

Radical cystectomy is the reference treatment for infiltrating bladder tumors or those that escape local treatment. A urinary diversion is then necessary, enterocystoplasty has become, when possible, the preferred choice of urologists because of its advantage of respecting the body schema of the patients and offering them a natural micturition. We present a series of 50 patients who underwent enterocystoplasty as a urinary diversion over a period of 20 years, performed by the Department of Urology A at Ibn Sina hospital university, while specifying early and late complications related to this procedure as well as its functional results.

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#### Introduction:-

Bladder cancer ranks 9<sup>th</sup> among cancers worldwide and ranks the 2<sup>nd</sup> urogenital cancer in men after prostate cancer [1]. Bladder tumors benefit from several treatment modalities, from the least to the most invasive.

We are interested in an invasive treatment preserving the body pattern with its complications, represented by the continental internal bypass which is enterocystoplasty where the objective of this work is to appreciate its benefit and to study its early and late complications.

#### Methodology:-

Retrospective study, spread over a period of 20 years, in the department of urology A of the Ibn Sina University Hospital.

From February 15<sup>th</sup>, 2000, to February 15<sup>th</sup>, 2020.

During this period, 50 patients underwent radical cystectomy with replacement enterocystoplasty for a bladder tumor. And all patients who had undergone a urinary diversion other than enterocystoplasty or who had incomplete records were excluded.

In our study, pre and postoperative elements, early (<30 days) and late (> 30 days) postoperative complications were analyzed, with a total follow-up of 60 months.

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**Results:-**

The distribution of patients was 44 men and 6 women, with an average age of 53 years with extremes of 33 to 63 years.

For intraoperative elements, the average duration of the intervention is 360 min with extremes of 260 min to 500 min; this time includes the realization of the cystectomy with the preparation of the neo-bladder, the intraoperative bleeding is estimated at 1300 cc on average, of which 31 patients required a transfusion of 2CG on average; this blood loss was mainly at the expense of the cystectomy.

After total cystectomy, four types of neo-bladders were used: CAMEY II (20 cases), HAUTMANN pocket (15 cases), KOCK pocket (8 cases) and STUDER pocket (7 cases)[**Table 1**].

In our series, the early postoperative follow-up of patients was characterized by an average hospital stay of 24 days (D) with extremes ranging from 17 to 60 days, with resumption of transit on D3 on average (D2-D7) and a delay means of resumption of food at D4. As for the use of drainage, the abdominal drains were removed on average on the 6<sup>th</sup> postoperative day (D4-D10), the ureteral catheters on average on the 11<sup>th</sup> day (D9-D14) while the urethral catheter was removed on the 14th day on average (D11-D20).

During postoperative patient monitoring, no death occurred among our 50 patients immediately. On the other hand, 16 early complications were noted in 9 patients (18%) appeared within 30 days of the postoperative period [**Table 2**].

Among these early postoperative complications, we note that related to the neo bladder, of which 7 patients had presented a complication related to their urinary diversion (14%) where leaks from the bag were reported in 6 patients and one patient who presented with urinal peritonitis. following a leakage of the uretero-ileal anastomosis requiring a surgical revision.

Regarding the long-term follow-up of patients, 10 patients (20%) presented 10 late postoperative complications [**Table 3**]. 8 patients with a complication related to their urinary diversion where 4 patients presented a stenosis of the urethro-neo-vesical anastomosis treated endoscopically, and 5 patients required a second intervention including one patient for a neo-bladder stone after 5 years, one for the appearance of a neo-vesico-vaginal fistula at 2 months and the last two months hydronephrosis on stenosis of the uretero-neo-vesical anastomosis.

Functional follow-up with assessment of the quality of life was assessed by daytime and night-time continence and the need for self-catheterization for chronic urine retention where 32 patients (64%) out of 49 (one patient had a conversion to an incontinent bag) were continents including 25 (50%) patients with nocturnal continence and 2 patients (2%) requiring self-catheterization for chronic retention of urine.

Among the 44 male patients in our series, nerve preservation was performed in 26 patients taking into consideration the carcinological results. Thus, 15 patients kept a a satisfying erection, which represents 57.7%, and 6 patients required the application of local treatment.

**Discussion:-**

Several surgical teams are starting to prefer replacement enterocystoplasty as a method of urinary diversion with an operating time of 285 min reported in the SOULIE series [2] for HAUTMANN type derivations or 382 min reported by the Japanese team from OBARA [3] as well as blood loss, reported in the literature [4], estimated between 400 and 2000 cc mainly related to cystectomy that can be minimized by the use of automatic staples [5] or by controlled hypotension in intraoperative [6].

The intraoperative mortality has clearly decreased to less than 1% due to the improvement in surgical techniques and the progress of anesthesia [4] as reported in our series where no death during the operation. For early postoperative mortality is most often medical, infectious or secondary to comorbidity. It is now accepted that the ASA score of patients is a predictor of morbidity and mortality [7].

The known delicate radical cystectomy in the 1980s has become a standardized routine intervention which nevertheless is not without complications, estimated between 25-57% [8] which are represented mainly by parietal infections at 10%, intestinal obstruction at 10%, postoperative hemorrhages and thromboembolic complications at 5% and rectal wounds at 4% [4].

Despite progress in patient management, reflex ileus is a common cause of prolonged hospitalization, affecting the patient's recovery time [9], the cause of which is multifactorial, its occurrence can be minimized by early removal of the nasogastric tube, early resumption of feeding and early ambulation [4].

With a rate varying between 3% and 48% depending on the series [Table 4], represents the percentage of late complications related to enterocystoplasty

These late complications rarely require surgical revision with a rate estimated between 9% and 19% [10, 11], whether for uretero-neo-vesical reimplantation or continent cystostomy.

Late complications of neo-bladder can be broadly divided into 3 groups:

1. Mechanical complications represented by uretero-neo-vesical stenosis, the risk of which is twice as high when an anti-reflux system is used regardless of the method and type of intestinal segment used [12] and stenosis urethro-neo-vesical which can compromise the evacuation of the graft with an occurrence rate of 1-2% [13, 14] whose occurrence is related in the event of anastomosis performed under tension in a patient with a short mesentery.
2. Metabolic complications linked either to malabsorption by digestive resection of the ileum or by reabsorption of electrolytes in the urine. These complications can be prevented by preserving the last ileal loop and eliminating the retention of mucus [2].
3. Infectious complications dominated by pyelonephritis on obstacle whose etiological treatment allows healing or bacterial colonization of the graft with a rate of 40% [4] which must be treated even in an asymptomatic patient according to Studer [15] and which may favor calculus formation [16].

The enterocystoplasty type urinary diversion requires good monitoring and functional evaluation, watching for nocturnal leaks, which are often more present than leaks during the day, hence the need for good postoperative rehabilitation. Soulie and Hautmann estimate that the rate of daytime and night-time continence decreases over the 1st postoperative year. And the chronic urine retention occurring especially in women, of a mechanical nature, due to an excessive angulation of the urethra in relation to the neo-bladder during abdominal thrust [17], prevented by the location of the neo-orifice urethral at the most inclined point of the neobadder and closest to the posterior insertion of the mesentery which is fixed.

### Conclusion:-

Enterocystoplasty is the urinary diversion of choice when the patient's condition allows it, hence a good selection upstream.

Thus, for good postoperative results, a good operative technique, a strict anesthetic monitoring with mainly a rigorous postoperative follow-up and an early perineal reeducation without forgetting the good choice of patients.

type of intervention	number of patients
CAMEY II	20 cases
HAUTMANN	15 cases
KOCK	8 cases
STUDER	7 cases

**Table 1:-** Type of intervention.

Early complications	Number of patient (%)
Urinary leakage from the pouch	6 (12%)
Leakage of the uretero-ileal anastomosis	1 (2%)
Urine peritonitis	1 (2%)
Abdominal wall infection	4 (8%)

Sepsis	1 (2%)
Occlusion	1 (2%)
Ileus	2 (4%)
<b>TOTAL</b>	<b>16 complications</b>

**Table 2:-** Types of early complications and number of patients affected.

Late complications	Number of patients (%)
Urethro-neo-vesicalstenosis	4 (8%)
Uretero-neo-vesicalstenosis	2 (4%)
Neo-vesico-vaginal fistula	1 (2%)
Neo-bladderlithiasis	2 (4%)
Eventration	1 (2%)
<b>TOTAL</b>	<b>10 complications</b>

**Table 3:-** Types of late complications and number of affected patients.

Series	Number of patients	Middle age(year)	Morbidity rate (%)
Obara	31	64	3,2
Hautmann	363	63	32
Soulie	55	58	25,4
Our serie	50	53	20

**Table 4:-** Rate of late complications according to series.

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