

# Management of Urological Lesions Secondary to Obstetrical Gyneco Surgery in the Urology Department of the Gabriel Toure University Hospital Centre

Amadou Berthé<sup>1\*</sup>, Mamadou Tidiane Coulibaly<sup>1</sup>, Adama Toutou Diallo<sup>2</sup>, Moumine Zié Diarra<sup>1</sup>, Ibrahim Yattara<sup>2</sup>, Zanafon Outtara<sup>1</sup>, Amidou Domegué Ouattara<sup>1</sup>, Thièrno Madane Diop<sup>3</sup>

<sup>1</sup>Urology Service, Gabriel Touré University Hospital, Bamako, Mali

<sup>2</sup>Urology Service of the CHU du Point G, Bamako, Mali

<sup>3</sup>Anesthesia Unit, Resuscitation at Gabriel Touré University Hospital, Bamako, Mali

Email: \*amedbe@yahoo.fr

**How to cite this paper:** Berthé, A., Coulibaly, M.T., Diallo, A.T., Diarra, M.Z., Yattara, I., Outtara, Z., Ouattara, A.D. and Diop, T.M. (2018) Management of Urological Lesions Secondary to Obstetrical Gyneco Surgery in the Urology Department of the Gabriel Toure University Hospital Centre. *Surgical Science*, 9, 203-209.

<https://doi.org/10.4236/ss.2018.97024>

**Received:** May 28, 2018

**Accepted:** July 9, 2018

**Published:** July 12, 2018

Copyright © 2018 by authors and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

**Summarizes:** The objective of this work was to study the clinical, diagnostic, therapeutic and evolutionary aspects of urological lesions secondary to gynaeco-obstetrical surgery in the urology department of the Gabriel Touré University Hospital. **Material and method:** It was a transversal and retrospective study carried out in the urology department of the Gabriel Touré University Hospital Centre in Bamako over 8 years. It focused on the files of 25 patients operated on for a urological lesion secondary to gynaeco-obstetrical surgery. Sociodemographic, epidemiological, diagnostic, therapeutic and evolutionary parameters were analysed. **Results:** Urologic lesions secondary to gynaeco-obstetrical surgery were found in 0.72% of urologically operated patients. The mean age of the patients was  $39 \pm 10.4$  years (extremes: 18 and 60 years). The average time to diagnosis was  $121, 88 \pm 15$  days (extremes: 0 and 365 days). Clinical signs were: oligo anuria (16%), urine leakage (52%), lumbar pain (24%). The diagnosis was made by the methylene blue test in 56% of patients, by the uro-scanner (20%) and by intravenous urography (16%). In 8% of patients, the diagnosis was made during surgery. The surgical interventions involved were: hysterectomy (48%), cesarean section (40%), genital prolapse cure (8%), ovarian cystectomy (4%). Lesions were dominated by vaginal vesico fistulas (48%) followed by ureterovaginal fistulas (20%), ureteral ligatures (16%). Treatment consisted of ureterovesical reimplantation according to Lich Gregory with ureteral intubation (36%), fistulography (48%). Healing was achieved in 92% of patients. **Conclusion:** Hysterectomy for cervical malignancy and cesarean section are the

---

main etiologies of urological lesions secondary to gynaeco-obstetrical surgery. Open surgery is the only alternative for the management of these lesions in our context. Controlling anatomy is the main preventive measure.

## Keywords

Urologic Lesions, Gynecology-Obstetrical Surgery

---

## 1. Introduction

Ureter and bladder lesions are the most common complications of pelvic surgery in women, according to a study by P. A. Bouya *et al.* at the service of urology-andrology of the University Hospital Center of Brazzaville in Congo [1].

They often go unnoticed during the procedure and are potentially serious.

Damage to the ureter and bladder can be explained by the close anatomical relationships between the urinary and genital systems in women.

Drowned in retro- and sub-peritoneal connective tissue, small in size, the ureter is not always easily spotted. Poor knowledge of anatomy, anatomical variations, acquired distortion of anatomical relationships, surgical bleeding, obesity, postoperative or tumor adhesions are all factors that can lead to inadvertent damage to the ureter.

In France gynaecological surgery is complicated in 0.5% to 10% by ureteral lesions [2].

More than 80% of lesions are in the pelvic ureter, while the iliac ureter is affected in 13% of cases and the lumbar ureter in 6% of cases. The convergence in the small pelvis between the ureter and the vessels of the pelvic organs, and the absence of easily individualized anatomical planes between the fascia of the pelvis, explain why pelvic surgery is the most likely provider of iatrogenic lesions of the ureter, especially in women [2] [3].

Gynecological surgery seems to be the most exposed to the risk of ureteral lesion (50%); however, these lesions can be encountered during digestive surgeries, particularly during abdominal amputations (5% - 15%) or during vascular surgery [4].

In urology, ureteral injuries are rare, apart from endoscopic techniques.

The lesional mechanisms are either direct by section or ductal obstruction, or indirect by devascularization and secondary ureteral necrosis [5].

Often late diagnosis involves renal prognosis, justifying early diagnosis and intraoperative management.

The present study was initiated in order to determine the frequency of these urological lesions, their type as well as their etiologies in the urology department of the Gabriel Touré University Hospital.

## 2. Material and Method

It was a transversal and retrospective study carried out in the urology depart-

ment of the Gabriel Touré University Hospital Centre in Bamako over 8 years (February 2010 to February 2018).

It involved the records of 25 patients hospitalized for urological lesions secondary to obstetrical gynaecological surgery.

Included in the study were all patients who had a urological lesion that occurred during gynaeco-obstetrical surgery during the study period and was managed by the urology department.

The variables analyzed were: age, time to diagnosis, clinical and paraclinical aspects, type of surgery involved, site of injury, surgical repair.

The results were considered satisfactory in the absence of urine leakage, ureteral permeability to intravenous urography.

Data entry and analysis were performed on Microsoft Word software; Epi-Info version 3.5.4.

Qualitative variables were expressed in terms of proportion. The analysis of the quantitative variables consisted of the measurement of central tendency and dispersion, namely the mean, median and standard deviation. No statistical tests were performed due to the lack of comparison of two groups.

One of the limitations of our study was the small size of the study population.

### 3. Resultants

During the study period, 3426 patients were operated on in the urology department of the Gabriel Touré University Hospital, including 25 patients (0.72%) for a urological lesion secondary to gynaeco-obstetrical surgery.

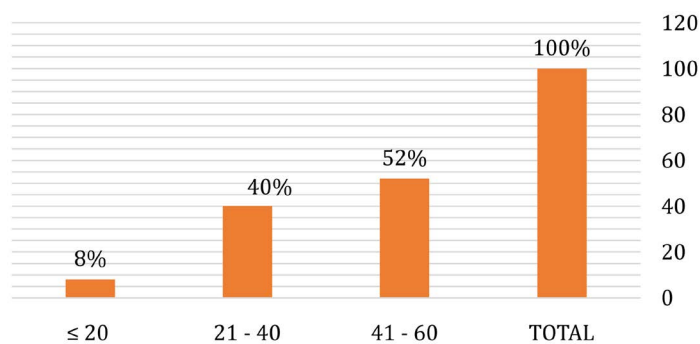
The average age of our patients was  $39 \pm 10.4$  years (extremes: 18 and 60 years).

#### Percentage

The average time to diagnosis of the lesion was 121,  $88 \pm 15$  days (extremes: 0 and 365 days) (**Figure 1**).

Hysterectomy provided urological lesions in 12 cases (48%).

The other responsible interventions were respectively: Caesarean section: 10 cases (40%), Genital prolapse cure: 2 cases (8%), Ovarian cystectomy: 1 case (4%) as summarized in **Table 1**.



**Figure 1.** Age distribution of patients age group in years.

The types of urologic lesions counted are summarized in **Table 2**.

They were dominated by bladder lesions (48%).

The distribution of patients according to etiology and type of lesion are summarized in **Table 3**.

A case of partial section of the right ureter was diagnosed during a hysterectomy for cervical cancer. Treatment consisted of ureterography on a tutor probe during the same operation. A lesion of the bladder trigone was diagnosed during a bi-cicatrical uterine cesarean section treated by cystorraphy on bilateral ureteral intubation during the same operation.

The after-effects were favourable after 2 weeks of drainage.

In the other patients, the clinical picture was revealing: oligo anuria (16%), urine leakage (52%), lumbar pain (24%).

The methylene blue test made it possible to make the diagnosis in 56% of

**Table 1.** Distribution of patients according to the etiology of the lesion.

Etiology		Number	Percentage
Hysterectomy	Programmed	10	40
	Emergency	2	8
	Caesarean	10	40
	Genital prolapse cure	2	8
	Ovarian cystectomy	1	4
TOTAL		25	100

**Table 2.** Distribution of patients by type of injury.

Type of injury	Number	Percentage
Ureteral	10	40
Bladder	12	48
Uretro-cervical	3	12
TOTAL	25	100

**Table 3.** Distribution of patients according to etiology and type of lesion.

Etiology of the lesion	Type of injury					TOTAL
	Ureteral ligation	Wound/section of ureter	U.V.F	V.V.F	C.U.F	
Hysterectomy	4	1	5	2	-	12
Caesarean	-	-	-	9	1	10
Genital prolapse cure	-	-	-	-	2	02
Ovarian cystectomy	-	-	-	1	-	01
TOTAL	04	01	05	12	03	25

\*V.V.F: Vesico-vaginal fistula; \*U.V.F: Ureterovaginal fistula; \*C.U.F: Cervic Urethral Fistula.

patients by highlighting a communication between the bladder and the vagina (44%), between the cervico urethral zone and the Vagina (12%).

Ureteral lesions were diagnosed using the uro-scanner (20%), intravenous urography (16%) by the detection of unilateral uretero-hydronephrosis.

The treatment of ureteral lesions consisted of ureterovesical reimplantation according to Lich Grégoire on a tutor probe in 20% of cases, on a probe double J in 16% of cases whose ablation took place between the 10th and 30th day.

For bladder and cervical urethral lesions, vaginal fistulography was performed using the Chassar-Moir technique in 40% of cases and high fistulography in 16% of cases.

The average hospitalization time was 11 days with extremes of 5 days and 32 days.

In terms of evolution, the result was considered satisfactory in 92% of cases.

One patient developed neo meatus stenosis, another developed parietal sup-puration with antibiotic therapy and local care.

One death occurred in a 55-year-old patient at J4 after bilateral ureterovesical reimplantation in a stroke table.

#### 4. Discussion

The prevalence of urologic lesions during gynaeco-obstetrical surgery in our series was 0.72%. This prevalence was lower than that observed in Senegal by Kpatcha, T. M. *et al.* (0.9%) [6] but higher than that recorded in Guinea by Diallo, A. B. *et al.* (0.29%) [7].

The average age in our series ( $39 \pm 10.4$  years) was lower than that of Likic *et al.* who reported 48.68 years in a series of 536 women who had urological complications after hysterectomy [8].

Liu C *et al.* reported an average age of 50.8 years during a study on endoscopic realignment in the management of complete transection of the ureter at the Department of Urology, the fourth hospital of the Medical University of China [9].

The narrowness and relatively high percentage of caesarean sections (40%) of the active obstetrical patients in our sample could explain this age difference.

The most frequent urological complications were bladder lesions (48%) followed by ureteral lesions (40%).

Our results are consistent with those of Lee, J. S. *et al.* who, in a study of urological complications after gynaeco-obstetrical surgery, obtained 71.8% of bladder lesions followed by ureteral lesions (23.9%) [10].

Urological lesions in our series were mainly favoured by interventions on the uterus scarring and carcinological pathologies which lead to a reshaping of anatomical relationships. The same finding was made by Blandy, J. P. *et al.*; Mattingly, R. F. *et al.* [11] [12].

The average time to diagnosis of injury in our series was 121,  $88 \pm 15$  days.

This average delay is lower than that obtained by Diallo, A. B. *et al.* (5 months) [7] but higher than that obtained by Bouya, P. A. (15 days) [1].

The relatively long average time for the diagnosis of the lesion in our series could be explained by the lack of specificity of the clinical signs of the lesions, the insufficiency of the technical platform and poverty which delayed the consultation of the patients and the diagnosis by the medical team. This late diagnosis did not influence the outcome of reconstructive surgery in our series, unlike the results obtained by Karmouni *et al.* who reported that late diagnosis of urological complication was a pejorative factor in successful management [13].

The main interventions providing urological lesions in our series (hysterectomy: 48%, cesarean section: 40%) were superimposed on those identified in some sub-Saharan studies. In Senegal Kpatcha, T. M. T. *et al.* reported in a study of 29 cases of urological complications secondary to pelvic surgery that cesarean section and hysterectomy were the main procedures providing urological lesions [6].

Similar results have been obtained by Bouya *et al.* in Congo [1].

In France, however, hysterectomy and adnexectomy were the most frequently complicated procedures for urological lesions in the Tostain study [2].

Some authors are unanimous on the need to place a JJ catheter or a ureter catheter before surgery in the face of any risk of ureteral injury [14] [15].

In Morocco, Tazi, M. F. *et al.* recorded 20 cases of bladder sores out of a series of 1636 gynaeco-obstetrical interventions, *i.e.* an incidence of 1.4%.

The risk factor for this study was the scarring of the uterus [16].

The same factor was found in our study.

Therapeutically, ureteral lesions required open ureterovesical reimplantation without an anti-reflux system on a tutoring catheter or a JJ catheter.

Bladder and cervical urethral lesions required vaginal or high fistulography as appropriate.

This treatment achieved 92% good results.

## 5. Conclusion

Urological lesions secondary to gynaeco-obstetrical surgery could be explained by the close anatomical relationships that exist between the genital and urinary systems. Carcinological pathologies, scarring of the uterus often leading to anatomical changes which contribute to increase the risk of these lesions in our country or hysterectomy and cesarean section were the main causes. Open surgery is the only alternative for the management of these lesions in our context. Controlling anatomy is the main preventive measure.

## Declaration of Interest

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

## References

- [1] Bouya, P.A., Odzébé, A.W.S., Otiobanda, F.G., Itoua, C., Mahoungou-Guimbi, K., Banga, M.R., Andzin, M., Ondongo-Atipo, M., Ondzel, S. and Avala, P. (2011) Les complications urologiques de la chirurgie gynécologique. *Progrès en urologie*, **21**,

- 875-878. <https://doi.org/10.1016/j.purol.2011.03.008>
- [2] Tostain, J. (1992) Les lésions urétéro-vésicales après chirurgie gynécologique: intérêt du diagnostic précoce. *Journal de Gynécologie Obstétrique et Biologie de la Reproduction (Paris)*, **21**, 519-523.
  - [3] Culty, T., Lebreton, T. and Botto, H. (2008) Lésions opératoires de l'uretère. EMC (Elsevier Masson SAS), Paris.
  - [4] Kirakoya, B., Yameogo, C.A.M.K.D., Pare, A.K., Kabore, M., Kabore, F.A. and Zango, B. (2018) Les lésions de l'uretère au cours de la chirurgie Gynécologique et obstétricale. *Uro'Andro*, **1**, 419-423.
  - [5] Querfani, B., Elmhef, S., Fekak, H., Aboutaieb, R., El Moussaoui, A., Dakir, M., Rabii, R., Debbagh, A., Joual, A., Bennani, S. and Meziane, F. (2007) Les lésions iatrogènes de l'uretère (à propos de 27 cas). *Journal Marocain d'Urologie*, **7**, 26-30.
  - [6] Kpatcha, T.M., Tengué, K., Anoukoum, T., Botcho, G., Sikpa, K.H., Fall, P.A., Diao, B. and Diagne, B.A. (2014) Complications urologiques de la chirurgie pelvienne au CHU Aristide Le Dantec de Dakar. *African Journal of Urology*, **20**, 206-210. <https://doi.org/10.1016/j.afju.2014.04.007>
  - [7] Diallo, A.B., Sy, T., Diallo, T.M.O., Bah, A.B., Touré, A., Bah, M.D. and Diallo, M.B. (2015) Surgical Treatment of Urological Complications of Gynecological and Obstetric Surgeries at the University Hospital of Conakry Guinea. *Open Journal of Urology*, **5**, 231-237.
  - [8] Likic, I.S., Kadija, S., Ladjevic, N.G., Stefenovic, A., Jeremic, K., Petkovic, S. and Dzamic, Z. (2008) Analysis of Urologic Complications after Radical Hysterectomy. *American Journal of Obstetrics and Gynecology*, **199**, 644-647. <https://doi.org/10.1016/j.ajog.2008.06.034>
  - [9] Liu, C., Zhang, X., Xue, D., Liu, Y. and Wang, P. (2014) Endoscopic Realignment in the Management of Complete Transected Ureter. *International Urology and Nephrology*, **46**, 335-340. <https://doi.org/10.1007/s11255-013-0535-7>
  - [10] Lee, J.S., Choe, J.H., Lee, H.S. and Seo, J.T. (2012) Urologic Complications Following Obstetric and Gynecologic Surgery. *Korean Journal of Urology*, **53**, 795-799. <https://doi.org/10.4111/kju.2012.53.11.795>
  - [11] Blandy, J.P., Badenoch, D.F., Fowler, C.G., Jenkins, B.J. and Thomas, N.W. (1991) Early Repair of Iatrogenic Injury to the Ureter or Bladder after Gynaecological Surgery. *Journal of Urology*, **146**, 761-765. [https://doi.org/10.1016/S0022-5347\(17\)37915-6](https://doi.org/10.1016/S0022-5347(17)37915-6)
  - [12] Mattingly, R.F. and Thompson, J.D. (1985) *Telinde's Operative Gynecology*. 6th Edition, JB Lippincott Co., Philadelphia.
  - [13] Karmouni, T., Patard, J.J., Bensalah, K., Manunta, A., Guillé, F. and Lobel, B. (2001) Prise en charge urologique des traumatismes iatrogènes de l'uretère. *Progrès en urologie*, **11**, 642-646.
  - [14] Klap, J., Phé, V., Chartier-Kasteler, E., Mozer, P., Bitker, M.O. and Roupret, M. (2012) Aetiology and Management of Iatrogenic Injury of the Ureter: A Review. *Progrès en urologie*, **22**, 913-919. <https://doi.org/10.1016/j.purol.2012.05.003>
  - [15] Al-Awadi, K., Kehinde, E.O., Al-Hunayan, A. and Al-Khayat, A. (2005) Iatrogenic Ureteric Injuries: Incidence, Aetiological Factors and the Effect of Early Management on Subsequent Outcome. *International Urology and Nephrology*, **37**, 235-241. <https://doi.org/10.1007/s11255-004-7970-4>
  - [16] Tazi, M.F., Ahallal, Y., Ahsaini, M., El Fassi, M.J. and Farih, M.H. (2010) Plaies vésicales d'origine gynéco-obstétricale: mise au point à propos de vingt cas. *Journal Marocain d'Urologie*, **17**, 17-21.