

# Surgical Complications of Kidney Transplantation in a Resource Limited Country: Retrospective Study of the First Five Years

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## Abstract

**Background:** Kidney transplantation is the most efficient treatment for renal failure but may be ruined by complications. **Objective:** To report the surgical complications of renal transplantation and the therapeutic means applied. **Method:** It was a retrospective study including 42 files of kidney transplantation in Côte d'Ivoire. We report 11 cases of surgical complications of the recipient's intervention during the first five years. **Results:** The mean age was 42.64 years ( $\pm 15.04$ ). In 90.9% of the cases, there was a comorbidity factor. Lymphocele and stenosis of the uretero vesical anastomosis were the most frequent complications. One death was observed. **Conclusion:** Kidney transplantation is an effective way of managing chronic renal failure. Postoperative complications are polymorphic and unpredictable.

## Keywords

Renal Transplantation, Post Operative Complication, Ureterovesical Stenosis, Lymphocele

## 1. Introduction

Chronic renal failure is a public health issue worldwide. In Cote d'Ivoire, most of the patients are young people. Less than half of the patients are able to resume professional or educational activities [1] [2].

Kidney transplantation was unavailable in our context until September 2012. Following the firsts cases we noted some complications after a few years. Surgic-

al complications of the recipient procedure are iatrogenic situations related to the renal transplant grafting. Added to that, there is a psychological trauma regarding the hope provoked by the procedure.

The aim of this paper was to share our experience in the management of the surgical complications of the recipient operation in kidney transplantation (KT). Specific objectives were to identify the surgical complications, to precise their treatment and describe the progression after treatment.

## 2. Material and Method

It was a descriptive study from September 2012 to February 2017. During this period 42 patients had a living donor kidney transplantation. We included all files of patients presenting a complication after kidney transplantation. Data were collected using a standardized file then entered in a MS Excel 2021 spreadsheet. The numeric variables were described using means and standard-deviation. Qualitative variables were expressed in percentage. We admitted as major complications life threatening ones or those requiring surgical cure, others were considered as minor.

## 3. Results

Among the 42 kidney recipient there was 36 men and 6 women. Mean age was 42.64 years (sd 15.04). Six kidney transplantations were made in the left iliac fossa (6/11). In 90.9% there was a comorbidity (high blood pressure or diabetes mellitus). We recorded eleven (26.2%) complications (**Table 1**). Lymphocele and uretero vesical stenosis were the most frequent (**Figure 1**).

Complications were severe in 15.4% of all complications. Management depended of the cause (**Table 2**).



**Figure 1.** Lymphocele in left side renal transplantation.

**Table 1.** Complications of living donor kidney transplantation.

	Frequency	Percentage (%)
Anemia	1	9.1
Adenovirus hemorrhagic cystitis	1	9.1
Hematoma	1	9.1
Hematuria	1	9.1
Lymphocele	2	18.2
Lymphocele + delayed healing	1	9.1
Urinary retention	1	9.1
Delayed healing	1	9.1
Uretero vésical stenosis	2	18.2
<b>Total</b>	<b>11</b>	<b>100.0</b>

**Table 2.** Management of the different complications.

Complications	Treatment
Anemia	Blood transfusion
Adenovirus hemorrhagic cystitis	Medical treatment
Hematoma	Surveillance
Hematuria	Bladder irrigation
Lymphocele	Laparoscopic treatment
Lymphocele +delayed healing	Suture
Urinary retention	Bladder catheter
Delayed healing	Suture
Uretero vesical stenosis	Boari-Kuss reimplantation

Mean hospital stay was 9.18 days ( $\pm 3.48$ ). One death occurred. It was a 43 years old male with high blood pressure. He had a right side living kidney donor transplantation complicated by a stenosis of the ureterovesical anastomosis. This stenosis was treated by a Boari flap. The death occurred due to septicemia and renal failure 5 months after the procedure.

#### 4. Discussion

Our patients were young. That may be linked to the frequency of renal failure in that population. It was assessed in our context by Diallo and Lagou [1] [2].

As young team in the world of KT, complications were stressful. Removing a kidney to a healthy human to cure another makes our team uncomfortable when complications start to occur. During this early period we observed different type of unexpected events.

Surgical complications observed during kidney transplantation are generally vascular, urologic and parietal. The most frequent are vascular, dominated by thrombosis and bleeding.

Ben Fatma [3] stated that surgical complications are more frequent in case of hemodialysis and bleeding during surgery. She observed 14% of complications and vascular complications were the most frequent with 25.6% of the cases. Tisserand [4] noted a high prevalence of complications (38.3%). Most of these complications were urologic (26.2%). Graft survival was impacted only by vascular complications which accounted for 14.9% of all complications. Other complications had no influence on graft survival.

In Bessede serie [5] they were estimated to 13%. No vascular stenosis occurred in our series probably due to the little number of our cases. One hematoma was observed. Hemorrhage following KT has various etiologies. Vascular anastomosis, hilar vessels of the transplant hilum, renal capsule, renal parenchyma or retroperitoneal dissection may be concerned. This risk is enhanced by the usage of heparin before and after the procedure [6]. The decision of conservative management was selected because it was non expansive and the transplant vessels permeable at doppler ultrasound. One rare case of hemorrhagic cystitis was observed and reported in the literature [7].

Following vascular complications, urologic ones were the most frequent. They were dominated by ureterovesical stenosis. It was the major urologic complication. Haddiya [8] found vesico ureteral reflux (4.8%) and rupture of the graft (3.2%). We had no vesico ureteral reflux as we used Lich Gregoir technique to avoid this issue.

Most of parietal complications were lymphocele. It is a lymphatic collection in a cavity consequent to a surgical procedure. Its occurrence follows dissection of lymphatics without tying them. Following that, the usage of silk sutures permitted to prevent them. Laparoscopic access is the rule in the cure of lymphocele for its minimally access advantages. It also avoids recurrence compared to ponction. Four factors were identified by Derouiche [9] as predictors of lymphocele. These factors were age above 35 years, origin of the kidney, length of ischemia and the type of immunosuppressor treatment. None of these factors seems to apply to our cases.

#### **Limitations of the study**

This study provides low level of evidence due to the little number of cases. The retrospective plan of this study is also another point of weakness.

## **5. Conclusion**

KT is the reference treatment for renal failure. Complications are unpredictable and cannot be avoided. Diagnosis must be precise and fast. They lead to an emergency for the transplant team and can compromise the procedure results.

## **Conflicts of Interest**

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Diallo, A., Niamkey, E. and Beda, Y. (1997) L'insuffisance rénale chronique en Côte d'Ivoire: Étude de 800 cas hospitaliers. *Bulletin de la Société de Pathologie Exotique*, **90**, 346-348.
- [2] Lagoud, D., Ackoundoun, N., Tchicaya, A., Moudachiro, M. and Gnionsahe, D. (2008) Réinsertion professionnelle et scolaire des patients atteints d'insuffisance rénale chronique et traités par hémodialyse en Côte d'Ivoire. *Médecine d'Afrique Noire*, **55**, 259-264.
- [3] Ben Fatma, L., Tlili, S., Ghabi, H., Ben Hmida, F., Raies, L., Mami, I. and Zouaghi, M.K. (2022) Complications chirurgicales après transplantation rénale: Facteurs prédictifs et impact sur la survie du greffon. *Néphrologie & Thérapeutique*, **18**, 465-466. <https://doi.org/10.1016/j.nephro.2022.07.019>
- [4] Tisserand, B., Doré, B., Touchard, G., Bridoux, F. and Irani, J. (2013) Long-Term Outcome of Renal Transplantation: Impact of Surgical Complications on Graft Survival. *Progrès en Urologie*, **23**, 113-120. <https://doi.org/10.1016/j.purol.2012.09.016>
- [5] Bessede, T., Droupy, S., Hammoudi, Y., Bedretdinova, D., Durrbach, A., Charpentier, B., et al. (2012) Surgical Prevention and Management of Vascular Complications of Kidney Transplantation. *Transplant International* **25**, 994-1001. <https://doi.org/10.1111/j.1432-2277.2012.01533.x>
- [6] Mohan, P., Murphy, D.M., Counihan, A., Cunningham, P. and Hickey, D.P. (1999) The Role of Intraoperative Heparin in Cyclosporine Treated Cadaveric Renal Transplant Recipients. *The Journal of Urology*, **162**, 682-684. <https://doi.org/10.1097/00005392-199909010-00012>
- [7] Ackoundou-N'Guessan, C., Coulibaly, N., Guei, C.M., Aye, D., N'guessan, F.Y., N'Dah, J.K., Lagoua, D.A., Tia, M.W., Coulibaly, P.A., Nzoue, S., Konan, S. and Gnionsahe, D.A. (2015) Cystite hémorragique à adénovirus chez le transplanté rénal: À propos d'un premier cas en Afrique noire survenu dans un tout débutant programme de greffe rénale et revue de la littérature. *Néphrologie & Thérapeutique*, **11**, 104-110. <https://doi.org/10.1016/j.nephro.2014.11.003>
- [8] Intissaar, H., Zoubeir, S. and Hakima, R. (2010) Les complications chirurgicales de la transplantation rénale à partir de donneurs vivants: Expérience du CHU Ibn Sina de Rabat. *Pan African Medical Journal*, **6**, 20. <https://doi.org/10.4314/pamj.v6i1.69092>
- [9] Derouiche, A., Mechri, M., Ktari, M.M., Helal, I., Ben Abdallah, T. and Chebil, M. (2010) Lymphoceles after Renal Transplantation: Study of Risk Factors. *Progrès en Urologie*, **20**, 301-306. <https://doi.org/10.1016/j.purol.2009.05.003>