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SURGICAL COMPLICATIONS AFTER KIDNEY TRANSPLANTATION

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ABSTRACT

Background : Incidence and severity of surgical complications after kidney transplantation have decreased significantly. The aim of our work is to evaluate the prevalence of these complications and their impact on graft survival.
Methods: This is a retrospective study over a period of 16 years (June 1998 - June 2013) about 40 patients transplanted who presented 55 surgical complications.
Results: Fifty five surgical complications were reported among 40 patients with a preponderance of urologic complications. Median of age was 34.8 +/- 10.5 years (13-56) with a male predominance. We noted 19 urological complications dominated by lymphocoele in 14 patients. Vascular complications are more severe and more frequent in our series. They were noted in 36 patients. Evolution after treatment was favorable in all cases. Just two cases were detransplanted for thrombosis of renal artery.
Conclusion: Surgical complications remain an important risk factor that can influence the final outcome of transplantation. Rapid diagnosis and management determine the prognosis.

Key words: Transplantation, complications, vascular, urological.

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INTRODUCTION

In December 1954, Murray and Merrill Harrison have realized the first transplantation between two identical twins.
Today, transplantation is considered as the treatment of choice for end stage kidney disease both medically and economically.

Despite improvements in surgical and diagnostic techniques, surgical complications following kidney transplantation remain an important clinical problem that may increase morbidity, hospitalization and costs [1].
These complications do not necessarily imply a surgical procedure related technical problem. Several risk factors such as older donor and recipients with atheromatosis and obesity are

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increasingly observed among kidney transplant candidates [2].
On the other hand, newer and more potent immunosuppressive drugs, such as mycophenolate mofetil (MMF) and sirolimus (SRL) have contributed to decrease the acute rejection rate and improve kidney graft function. However, recent reports show a strong association between these agents and increased incidence of wound complications and lymphocoele formation [3-4]. Retrospective studies have reported the incidence and risk factors for a particular surgical complication in adult renal transplant recipients, but most of them do not provide complete information for global perioperative troublesome complications.
The aim of this study was to analyze the overall incidence of surgical complications after kidney graft in our center, their risk and their impact on the graft function in the short and the long term.

MATERIAL AND METHODS

This is a retrospective study of all patients who underwent living donor kidney transplantation from June 1998 to June 2013.Demographic and clinical data were collected at the time of transplantation and during hospitalization until discharge, by chart review. The parameters evaluated in this study were: donor variables (age, gender and relationships with recipients), recipient characteristics (age, gender, cause of kidney failure, dialysis modality, time on dialysis, previous transplants, the human leukocyte antigens (HLA) mismatches and complications) and perioperative factors (left or right kidney, graft anatomy: especially number of arteries and veins, difficult bench surgery: presence of vascular abnormalities or major vascular injury requiring repair, cold ischemia time and graft revascularization time). Vascular complications included vascular thrombosis, renal artery stenosis and haematoma related to the surgical transplant procedure that needed re-intervention, aspiration or blood transfusions. Urological complications included lymphocoele, hernia, urinary leaks and ureteral obstruction. Statistical analysis was performed using SPSS version 21. Univariate and multivariate analysis was performed to examine the association between the presence or absence of complications and number of parameters. Chi-2 test was used to compare categorical variables. For quantitative variables we have chosen the Student test. A p value less than 0.05 were considered significant

RESULTS

Over a period of 15 years, we have collected 81 patients who underwent first living donor transplantation in our center. Among these patients, 40 have presented 55 surgical complications. Our patients' median of age was 34.8 +/- 10.5 years (13-56), with 70% of men and 30% women. Initial nephropathy was unknown in 66.6% of cases. Our patients were treated with hemodialysis before transplantation in38 cases and peritoneal dialysis in 2 cases. Median dialysis duration was 24 months. The average age of donors was 44.5 +/- 13.2 years. They were female in 72.5% of cases. The graft is taken from the parents and the sibling in 45.6% and 46.9% of cases respectively. Nephrectomy occurred in the left kidney in 38 cases with an artery and a vein in all cases. Urological complications occurred in 19 of our patients. They were dominated by lymphocoele in 14 patients (Fig.1). Vascular complications are more severe and more frequent in our series. They were noted in 36 patients (Fig. 2).

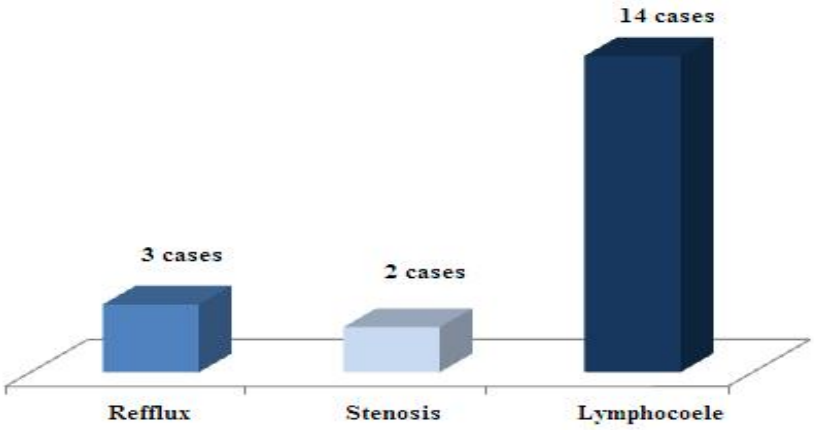

Figure 1: urological complications

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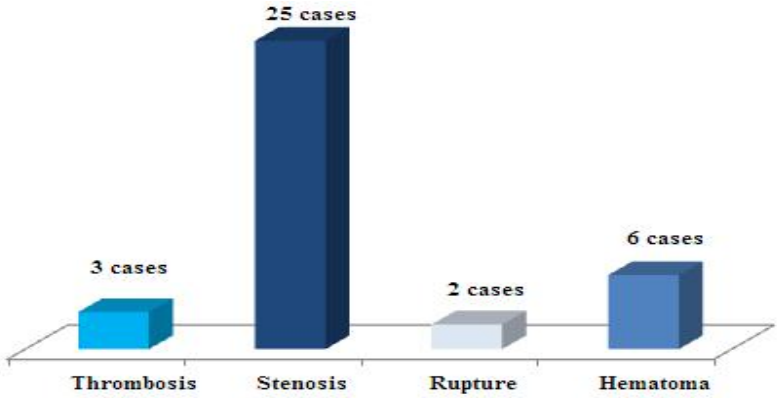

Figure 2: vascular complications

The evolution after treatment of vascular and urological complications was favorable. Only two patients were detransplanted for thrombosis of renal artery (Table I). Statistical analysis of these complications compared to the control group did not reveal any significant risk factors in our series. (Table II)

Table I: Treatment and evolution of complications

	Treatment	Evolution
Thrombosis n=3	Anticoagulation	1 favorable 2 detransplanted
Stenosis n=25	Medical n=20 Angioplasty n=5	Favorable Favorable
Rupture n=2	Surgery	Favorable
Hematoma n=6	Surgery n=2	Favorable
Refflux n=3	No surgery	Favorable
Ureteral stenosis n=2	Surgery JJ	Favorable
Lymphocoele n=14	Marsupialisation n=3	Favorable

Table II: Risk factors associated with surgical complication

Variable	Patients with complication (n=40)	Patients without complication (n=41)	p
Age of recipients (years)	35.3 +/- 11.2	33.8 +/- 12,6	0,4
Sex ratio (Male/female)	1,4	1,5	0,7
Mean duration of dialysis (Months)	24 (5-184)	32 (2-98)	0,06
Age of donors (years)	44,5 +/- 13.2	39,7 +/- 10.2	0,11

DISCUSSION

The frequency of complications observed in our series is broadly comparable to the literature data.
Despite the systematic use of a double-J stent, ureteral complications occurred in our series.
Indeed, we have reported a rate of 5.4% of symptomatic vesico- ureteral reflux discovered at the time of recurrent urinary tract infections or impaired renal function. The incidence of this complication in the literature varies and is not well known. Some authors report a rate ranging from 10 to 80% [5].

The incidence of ureteral stenosis (3.6%) in our study was consistent with the literature [6-7]. The main cause is the ischemic stenosis of the distal ureter [7]. Most strictures occur in the year following the transplantation, 70% in the first 3 months.
Prevention is based on respect of ureteral vascularization and rigor in the technique of the ureterovesical anastomosis.
The frequency of lymphocoele is variable (from 1 to 20%). This variability is probably related to the

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definition of lymphocoele whose research was not systematic.
An increase in incidence was recently reported by the centers using inhibitors of mTOR receptors [8].
Arterial thrombosis is even rarer, 0.4% [8] 2% [9]. It is often linked to technical problems. This complication requires in most cases the detransplantation (3 of the 4 patients considered in our series).Renal artery stenosis occurs in most cases after the third month and in the year following the transplantation. Its prevalence ranges from 1 to 23% depending on the series [10-11]. In our study, this complication was observed in 45.4% of cases, with a time to onset from three months to two years.
However most of these complications were minimal without a repercussion on graft function or increase in hypertension.

CONCLUSION

Renal transplantation is the treatment of choice for patients with end-stage renal disease. It has been shown that vascular and urological complications have compromised patient and graft survival.
To ensure better results, patients should be continuously monitored clinically, biochemically and radiologically for the early detection and management of any complication.

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