

## Case Report

# Successful Kidney Transplant with Incidental Lesion in Donor Nephrectomy

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## Abstract

**Introduction:** A renal transplant offers the best renal replacement therapy due to greater graft survival and better quality of life of the recipient. It has sought to improve surgical techniques and better immunosuppression to extend the life of the graft. Some of the immediate complications involve renal artery stenosis, thrombosis, hematoma, ureteral obstruction, urinary leakage, hematoma, lymphocele and peri-graft collection. In the same way, parenchymal complications such as incidental rupture, by accident and of immunological character such as interstitial fibrosis, tubular atrophy, drug toxicity, acute tubular injury, among others. This case presentation shows the immediate repair where there was incidental rupture in the middle of the nephrectomy of the donor.

**Case Report:** This is a 51-year-old female patient, which is protocolized to receive an emotionally related donor kidney transplant, from her husband. On March 13, 2017, after concluding the TR protocol, the patient entered the operating room. During the nephrectomy event of the donor, grade II kidney parenchymal incidental lesion of 4 cm in length by 1.5 cm in depth was presented, in addition to decapsulation with exposure of the renal pelvis, it was decided to repair the kidney injury with 4 points with monocryl, also placing perirenal fat as a patch and fat over the exposed area of the renal pelvis, as well as JJ catheter placement. During the hospitalization, 72 hours of absolute rest were maintained due to this complication, with surveillance by means of ultrasound without observing perirenal collections, as well as penrose wasting, which was negativized. The patient is removed JJ catheter at 6 weeks and 6 months after the event the patient is stable renal function, in addition to being fully incorporated into their daily activities.

**Conclusion:** The case responded adequately to the repair with 4 points and the exhaustive monitoring associated with this incidental injury, it was feared that as main complications: 1) the urinary leak, which was managed with the JJ catheter to help reduce the pressure in the anastomosis sites, for that reason the catheter was removed until week 6; 2) infection and 3) bruising by manipulation and collections in the peri-graft space by urine or blood, observed by penrose expenses that at the beginning was serohematic until it was only serous and negative. The monitoring with renal ultrasound was very important, since it was not an invasive method; it was possible to assess at any time any indication of complication. Due to the success, the repair of injuries of this type should be considered in the case of patients with complications either incidental or with prior knowledge of nephrectomy in the case of cadaveric donation due to automobile or other accidents.

**Keywords:** Kidney transplant; Donor nephrectomy; Incidental lesion; Renal trauma

## Introduction

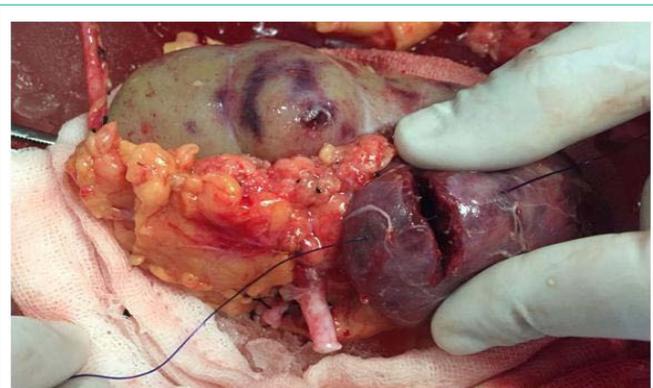
Nowadays kidney transplantation offers the best replacement therapy for renal function in patients with Chronic Kidney Disease (CKD) because they do not have a family dependency, or a machine or time for renal replacement therapy, so it has increased its realization, besides looking hard for the greatest survival; this is due to the improvement of the surgical techniques and better options of the immunosuppressive treatment, both of the recipient and of the graft. All this does not exempt that immediate or delayed complications can

occur in receptors [1,2], as well as in donors [3].

Acute complications range from surgical ones such as renal artery stenosis, thrombosis, hematoma, ureteral obstruction, urinary leakage, hematoma, lymphocele and peri-engraft fluid collection [4]; in the same way, parenchymal complications that are classified as mechanical, such as incidental rupture, by accident and immunological parenchymal diseases such as interstitial fibrosis, tubular atrophy, drug toxicity, acute tubular injury, among others [5-10].



**Figure 1:** Where the arterial phase with only renal vessels is observed in the 2 upper images; lower left venous phase and lower right urinary phase without alterations.



**Figure 2:** Repair of the incidental lesion during the surgical event.

Another way of observing complications in renal transplantation is above all those associated with cadaveric donation, where, due to trauma-related death in children under 40 years of age, the procurement of these organs is achieved, some of them may result in kidney damage in different degrees, which According to the classification of the American Association for the Surgery of Trauma (AAST), it is divided into 5 grades, where multiple injuries can occur from grade III [11]. These lesions have not yet been determined if attempts to repair them are finally adequate to finally carry out the kidney transplant, there are some anecdotal cases where it is possible to carry out the surgical repair and later the connection of the kidney in the renal receptor. Can be divided into vascular lesions, routinely can present with hematuria as an indicator of severity, with options for direct surgical repair, embolization of the bleeding vessel or even conservative; these two last ones with the intention of a greater preservation of the parenchyma and renal function [12]. There is another classification of renal traumas by Federle et al., Where he divides it into 4 categories (Table 1).

\*In the case of the AAST classification, it divides into 5, where category 2 subdivides them into grade II (laceration of the renal cortex of less than 1 cm, without urinary extravasation) and grade III (renal laceration of more 1 cm, without urinary extravasation);

**Table 1:** Clasificación de trauma renal por Federle.

Cuadro 1. Clasificación de trauma renal por Federle	
1 <sup>st</sup> Category	Small corticomedullary contusions and lacerations that do not communicate with the collecting system. 75-86% of injuries are included in this group
2 <sup>nd</sup> Category	Lacerations of the renal parenchyma that communicate with the renal collecting system, with extravasations of urine
3 <sup>rd</sup> Category	Renal rupture or wound of the vascular pedicle. It represents 5% of the renal traumatismos
4 <sup>th</sup> Category	Avulsion of the ureteropelvic junction and laceration of the renal pelvis. These are rare situations.

Urinary extravasation is up to grade IV.

In the National Congress of Urology 53, a new classification was proposed that includes 3 levels of severity [11]. Diagnosis is achieved through intravenous urography, arteriography, tomography, but the most used for its low cost, availability and not to be invasive is renal ultrasound; among the main complications is the failure to perform adequate repair, which involves the persistence of bleeding, urinary extravasation, with subsequent collection or urinary fistula, partial or complete thrombosis of the renal vessels [11]. Finally, it is difficult to list a case where the injury was incidental in the operating room in the live donor-related transplant, as in the present case, due to the inexperience of the surgery, the conditions of the donor or an inadequate position in the nephrectomy. Of the donor can act as causes of said injury in this case.

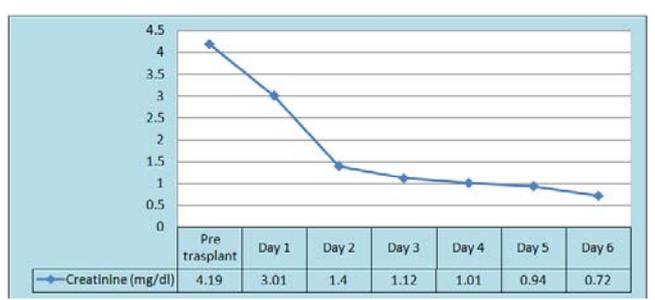
### Case Report

A successful case of renal transplantation after an incidental lesion in the nephrectomy of the donor is presented. Receiving patient of 51 years of age, housewife, which has as important antecedents: allergic to dicloxacillin and naproxen, 4 pregnancies, all of childbirth, blood group A positive; Systemic Arterial Hypertension since 2014 in treatment with telmisartan half tablet every 24 hours, Dyslipidemia since 2006 in treatment with pravastatin, hysterectomy in 2004 due to benign tumor of uterus, chronic kidney disease since 2014 of unknown etiology that was managed with pulses of methylprednisolone but due to glycemic uncontrolled are suspended, Left alone with nutritional support based on protein restriction. In the transplant protocol, he does not share any haplotype with his donor (HLA of 01-18-17), reactive panel of antibodies both classes of 0%, MIC-A negative, without specific donor antibodies in the Single Antigen. His relevant laboratory studies: urea of 159 mg/dl, creatinine of 4.19 mg/dl, glucose of 117 mg/dl; memory for Cytomegalovirus. Relevant cabinet: bladder capacity of 300 ml, without reflux, atrophic kidneys of 7 and 8 cm, echocardiogram with ejection fraction of 75%, with mild tricuspid regurgitation. During the evaluations, the Colon and Rectum service detected a rectum polyp that concludes a tubular adenoma, was resected with a cold loop and then discharged by said service, proceeding to the presentation before the transplant committee, for the designation of the surgical date. Renal donor, husband of 57 years, weighing 66 kg and height of 1.59 meters, with a BMI of 26.19, complete protocol without contraindications in laboratory studies, cabinet or interconsulted services; gammagram with GFR of 119 ml/min and angiurotomography with single vessels and urinary system with single ureters without dilatations (Figure 1).

During the surgical event performed on March 13, 2017, in the nephrectomy of the donor, an incidental lesion of the upper renal



**Table 2:** Urea (mg/dl) during hospitalization.



**Table 3:** Creatinine (mg/dl) during hospitalization.

pole was performed. This lesion occurred at the time prior to the clamping of the renal artery, where it was being taken from the pole by one of the assistants who showed little visibility and made a sudden movement that led to the direct injury in the upper pole; The clamping and cutting of both the vein and the renal artery was carried out immediately and the patient underwent back surgery. When the kidney is received, decapsulation is described with exposure of the renal pelvis, as well as grade II parenchymal kidney injury of 4cm in length and 1.5 cm in depth towards the superior renal pole (Figure 2); it is decided to repair the kidney injury with 4 points with monocryl also placing perirenal fat as a patch and fat over the exposed area of the renal pelvis. Anastomosis was performed in the external iliac artery and the external iliac vein, perfusion was performed with mean arterial pressure of 94 mmHg, when performing an anastomosis of the ureter, JJ catheter was left and surgical times of warm ischemia of 4 minutes 17 seconds and cold ischemia of 2 were given hours and one minute, with approximate bleeding of 400 ml, it is not transfused and the graft remains with adequate consistency.

The evolution of the patient was favorable during her hospital stay, with gradual decrease in azote levels, (Tables 2 and 3). Only with two eventualities unrelated to the renal lesion, one of them due to the use of steroids with decompensation of the glucose and need to require insulin for intrahospital management and subsequently orthostatic hypotension event, since it was managed with absolute rest for 3 days (routine of the service is relative rest from the 2<sup>nd</sup> day of the transplant) due to kidney injury and repair, with ultrasonographic monitoring at 24 and 72 hours no evidence of bleeding or urinary leakage; the patient withdrew with creatinine values of 0.72 mg/dl on the 6<sup>th</sup> day, with scarce expenses for the penous on the 4<sup>th</sup> day and withdrawal of the drainage on the 5<sup>th</sup> day of hospitalization. At 6 weeks the patient comes again for JJ catheter removal, after ultrasound verification of renal graft conditions. The patient 6 months after renal

transplantation is stable with primary immunosuppression based on tacrolimus 3 mg every 12 hours (adequate serum levels), prednisone at a dose of 10 mg daily and mycophenolate mofetil 500 mg every 8 hours, with levels of 1.1 mg/dl creatinine and ultrasonic control without alterations.

### Conclusion

The case responded adequately to the surgical repair decided at that moment with 4 points and the exhaustive monitoring after the kidney transplant associated with said incidental lesion. Of which it was feared that as main complications the urinary leak, which was managed with the JJ catheter to help by decreasing the pressure on the stitches and the healing of the anastomosis sites, therefore the catheter was withdrawn until week 6 that would allow us to guarantee an adequate anastomosis and bladder healing after the withdrawal; the infection and bruises were the other feared complications due to manipulation and collections in the peri-graft space due to precipitation of urine or blood from the site of renal injury, which was observed due to the expenses of the penous that was characteristic in the first 2 days. Serohematics until being only serous after the 3<sup>rd</sup> day and becoming negative until the 5<sup>th</sup> day deciding to withdraw the penous. The surveillance with renal ultrasound was very important since as it was not an invasive method, it was possible to assess any indication of complication from the first day of the transplant to its discharge, in addition to the assessment prior to the withdrawal of the JJ catheter and in its monthly consultations. Due to the success, the repair of lesions of this type should be considered in the case of patients with this type of complication either incidental or with knowledge in the case of cadaveric donation due to automobile or other accidents.

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