

## Case Report

# Uterine Fibroids Resulting in Hydronephrosis in Post-Kidney Donation Patients

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## Abstract

Uterine fibroids are estimated to affect 70% of women. A rare complication of these benign growths is ureteral compression which can become clinically significant and cause renal injury. Two female kidney donors, 33-year-old, and 57-year-old, both with uterine fibroids, experienced ureteral compression caused by their fibroids. This led to hydronephrosis of the remaining kidney requiring surgical intervention, with ultimately good outcome. A multi-specialty approach, particularly early gynecologic evaluation, is important in preventing this rare complication.

**Keywords:** Kidney transplant; Uterine fibroids; Ureteral compression

## Abbreviations

Cr: Serum Creatinine; WBC: White Blood Cell Count; MRI: Magnetic Resonance Imaging; Cm: Centimeters

## Introduction

Leiomyomas, also known as uterine fibroids, are the most common benign gynecologic tumor. Fibroids are estimated to be present in nearly 70% of women [1]. While many will be asymptomatic, the potential morbidities for fibroids include chronic pain, fertility issues and heavy menstrual bleeding [1]. A rare complication of fibroids occurs when tumor growth causes ureteral compression. The exact incidence of obstructive uropathy due to fibroids is unknown [2]. However, there are several case reports in the literature detailing this complication. One report included a 40-year-old kidney transplant recipient with a large leiomyoma which obstructed the transplanted ureter and displaced the transplanted kidney laterally. This patient ultimately underwent a hysterectomy to prevent further harm to the transplanted kidney [3]. Another report detailed a 38-year-old woman with a uterine fibroid causing obstructive uropathy, followed by acute renal failure and septic shock [4]. To date, there are no reports of this complication occurring in kidney donors. We present two patients who previously underwent donor nephrectomy and subsequently developed hydronephrosis of the remaining kidney due to enlarged fibroids. Surgical intervention was performed in both cases, and permanent renal injury was avoided.

## Case Presentation

### Case 1

A 33-year-old woman with asymptomatic fibroids discovered

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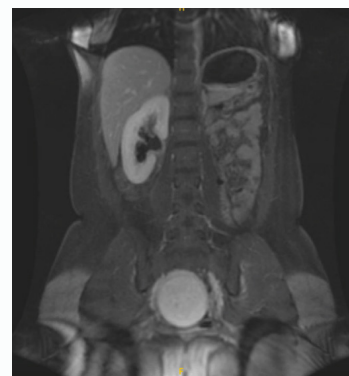
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in the pre-donation health screening underwent a laparoscopic donor left nephrectomy. The immediate perioperative period was uncomplicated. However, 8-months post-operatively, this patient presented with fevers, dysuria, and right lower quadrant abdominal pain. Biochemical testing revealed a serum Creatinine (Cr) of 1.10 and a White Blood Cell count (WBC) of 9.6. Baseline Cr was 0.97. A Magnetic Resonance Imaging (MRI) demonstrated moderate right hydroureteronephrosis due to extrinsic compression of the ureter by a uterine fibroid measuring 6.7 cm × 6.8 cm (Figure 1). A urological consultation was obtained, and a ureteral stent was placed for decompression, with rapid return of the patient's renal function and Cr. The patient subsequently underwent a transabdominal myomectomy, and 13 leiomyomas were removed weighing a total of 615 gm with an aggregate size of 15.8 cm × 13.6 cm × 8.0 cm. The patient was discharged in stable condition and the ureteral stent was removed two weeks later, after resolution of the hydronephrosis was confirmed by ultrasound.

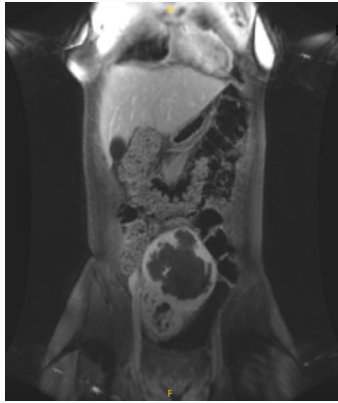


**Figure 1:** Hydronephrosis of the right kidney seen on MRI.

### Case 2

A 57-year-old woman with a history of symptomatic uterine fibroids and a past surgical history of two prior transabdominal myomectomies underwent a laparoscopic donor left nephrectomy. A preoperative MRI demonstrated a markedly enlarged uterus with multiple intramural and sub serosal leiomyomas (Figure 2). A bulky

uterus was seen at the time of the surgery extending to the level of the umbilicus. The surgery and immediate perioperative period were uncomplicated. After eight months, the patient underwent a renal ultrasound for flank pain demonstrating mild hydronephrosis and an enlarged uterus. The patient subsequently underwent a total abdominal hysterectomy, and the hydronephrosis resolved on ultrasound.



**Figure 2:** Enlarged uterine fibroid seen on MRI.

## Discussion

Uterine fibroids, although common and benign, can enlarge and become symptomatic. The compressive effect of these tumors can cause an obstructive uropathy leading to significant morbidity. The two cases presented are living kidney donors who developed hydronephrosis of the remaining kidney due to enlarged fibroids. Live organ donors represent an extremely protected patient population within the healthcare system, given their altruistic sacrifice. Careful patient selection and precautions to both avoid and detect potential renal complications are essential. While intended to delineate renal anatomy and aid in surgical planning, incidental findings on preoperative imaging such as large fibroids warrant careful consideration, and gynecologic input is strongly recommended before donation.

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