

# **Imaging in Interventional Radiology**

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# **Retrocaval Ureter: A Rare Anomaly in Urology**

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#### INTRODUCTION

Retrocaval ureter, also known as circumcaval ureter, is a rare congenital anomaly of the urinary system. This condition occurs when the ureter, the tube that carries urine from the kidney to the bladder, abnormally wraps around the inferior vena cava, a large vein that carries deoxygenated blood from the lower part of the body back to the heart. This anatomical anomaly can obstruct urine flow and lead to various urological symptoms. In this article, we will explore the causes, symptoms, diagnosis, and treatment of retrocaval ureter. In a typical anatomy, the ureter descends from the kidney, passing in front of the inferior vena cava and entering the pelvis to reach the bladder. However, in a retrocaval ureter, the ureter takes an unusual detour behind the inferior vena cava before rejoining its normal course to the bladder.

## **DESCRIPTION**

This abnormal positioning can cause compression or constriction of the ureter, resulting in urinary obstruction. Retrocaval ureter is a congenital condition, meaning it is present from birth. During fetal development, as the urinary system forms, the ureter may aberrantly migrate and position itself posterior to the inferior vena cava instead of its usual anterior path. The exact cause of this abnormal migration remains unknown, but it is believed to be related to genetic and developmental factors. The symptoms of retrocaval ureter can vary depending on the severity of the obstruction. Common signs and symptoms may include: Flank Pain: Dull or sharp pain on the affected side of the abdomen or lower back. Hematuria: Blood in the urine, visible to the naked eye or detected through microscopic examination. Recurrent Urinary Tract Infections (UTIs): Frequent

infections of the urinary system due to the obstructed urine flow. To diagnose retrocaval ureter, imaging studies are essential: Urography: Intravenous pyelogram (IVP) or CT urography can provide detailed images of the urinary tract, revealing the anomalous position of the ureter. Ultrasound: Ultrasonography can visualize the ureter and any dilation or blockage. MRI (Magnetic Resonance Imaging): MRI can offer high-resolution images to confirm the diagnosis and assess the severity of the condition. The mainstay of treatment for retrocaval ureter is surgical intervention. The goal of surgery is to reposition the ureter in its normal anatomical position, alleviating the obstruction and restoring proper urine flow. Two common surgical approaches include: Ureteroureterostomy: This procedure involves detaching the retrocaval portion of the ureter and reattaching it in front of the inferior vena cava, allowing unobstructed urine flow.

### **CONCLUSION**

In this technique, the obstructed segment of the ureter is removed, and the healthy portions are reconnected, bypassing the inferior vena cava. Surgery is typically successful in resolving the obstruction and relieving symptoms. Post-operative care involves monitoring and follow-up to ensure optimal recovery and prevent recurrence of the condition. Retrocaval ureter is a rare congenital anomaly of the urinary system, characterized by the ureter abnormally looping behind the inferior vena cava. Prompt diagnosis and appropriate surgical intervention are crucial in managing this condition and preventing complications associated with urinary obstruction. Through proper medical care and surgical treatment, individuals with retrocaval ureter can lead healthy, symptom-free lives.

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