

Perspective

Hydronephrosis: An overview of kidney swelling and its causes

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ABOUT THE STUDY

Hydronephrosis is a medical condition characterized by the swelling of one or both kidneys due to the build-up of urine. It occurs when urine fails to drain properly from the kidney to the bladder, leading to the dilation of the renal pelvis and calyces. This condition can be caused by various underlying factors and may result in significant complications if left untreated.

Causes

Urinary obstruction: The most common cause of hydronephrosis is the obstruction of the urinary tract, which can occur at any point from the kidneys to the bladder. Common obstructions include kidney stones, tumors, strictures, blood clots, or congenital abnormalities.

Vesicoureteral Reflux (VUR): VUR is a condition where urine flows backward from the bladder into the ureters and kidneys. This reflux can lead to urine accumulation in the kidneys and subsequent hydronephrosis.

Pregnancy: In pregnant women, the growing uterus can exert pressure on the urinary tract, causing urinary obstruction and hydronephrosis.

Neurogenic bladder: Conditions affecting the nerves that control bladder function, such as spinal cord injuries, can disrupt the normal flow of urine and contribute to hydronephrosis.

Other causes: Hydronephrosis can also be caused by urinary tract infections, kidney stones, tumors, and certain congenital abnormalities.

Symptoms

The symptoms of hydronephrosis can vary depending on the severity of the condition and the underlying cause. Some common symptoms include:

Flank or abdominal pain: Dull, aching pain on one side of the abdomen or back is a common symptom.

Urinary symptoms: Changes in urinary patterns, such as increased frequency, urgency, or pain during urination, can be present.

Hematuria: Blood in the urine may be observed which can range from microscopic to grossly visible.

Nausea and vomiting: Severe cases of hydronephrosis can cause nausea, vomiting, and general discomfort.

Fever and infection: If hydronephrosis is caused by a urinary tract infection, fever, chills, and general signs of infection may be present.

Diagnosis

To diagnose hydronephrosis, healthcare professionals employ several diagnostic techniques, including:

Medical history and physical examination: A detailed medical history is taken, and a physical examination is performed to identify signs and symptoms associated with hydronephrosis.

Urinalysis: Examination of a urine sample can help identify the presence of infection, blood, or other abnormalities.

Imaging tests: Various imaging techniques are utilized to visualize the kidneys and urinary tract. These include ultrasound, Computed Tomography (CT) scan, Magnetic Resonance Imaging (MRI), and Intravenous Pyelogram (IVP).

Cystoscopy: A thin, flexible tube with a camera is inserted through the urethra to examine the bladder and ureters for any abnormalities or obstructions.

Treatment

The choice of treatment for hydronephrosis depends on the underlying cause, the severity of the condition, and the patient's overall health. Treatment options include:

Removal of urinary obstruction: If hydronephrosis is caused by an obstruction, such as a kidney stone or tumor, procedures like

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lithotripsy, ureteroscopy, or surgery may be performed to remove or bypass the obstruction.

Catheter placement: In some cases, a catheter may be temporarily placed to relieve urine build up and allow for drainage.

Antibiotics: If hydronephrosis is due to a urinary tract infection, antibiotics are prescribed to treat the infection and prevent further complications.

Surgical intervention: In severe cases or when other treatments are ineffective, surgical intervention may be required to repair structural abnormalities or remove tumors causing the obstruction.

Monitoring: Regular monitoring and follow-up are essential to assess the progress of treatment and ensure the condition does not worsen or recur.

Hydronephrosis is a condition characterized by the dilation of the renal pelvis and calyces due to urine accumulation in the kidneys. It can be caused by various factors, including urinary obstructions, vesicoureteral reflux, pregnancy, and neurogenic bladder. Prompt diagnosis and treatment are crucial to prevent complications and preserve kidney function. By understanding the causes, recognizing the symptoms, and seeking appropriate medical care, individuals with hydronephrosis can receive effective treatment and improve their quality of life.