

DISORDERS OF THE HUMAN EXCRETORY SYSTEM

Learning outcomes

Students will be able to:

1. identify the causes of kidney stones.
2. describe lithotripsy and surgery as the methods to remove kidney stones.
3. outline the causes of kidney failure.
4. explain that dialysis is one of the treatments in kidney failure.
5. describe the contributions of Al-Farabi and Abul-Qasim in introducing the method of removing stone from the urinary bladder.

KIDNEY STONES

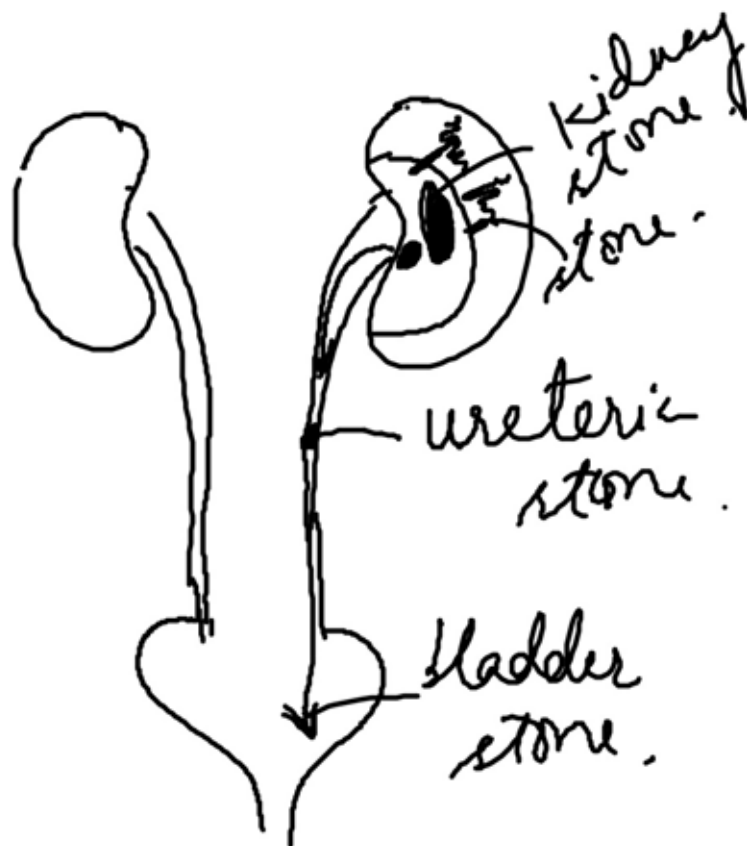
A kidney stone is formed when the substances in the urine clump together instead of being eliminated from the kidney.

Types:

1. Calcium oxalate /phosphate

Most common type of kidney stones.

Calcium that is not used by the bones and muscles, goes to the kidneys. In most people, the kidneys flush out the extra calcium in the urine. However, when calcium stays in the kidneys, it joins with other waste products to form a calcium kidney stone.



2. Uric acid

A uric acid stone may form when there is too much acid in the urine. If you tend to form uric acid stones, you may need to cut back on the amount of meat that you eat.

3. Cystine

Cystine is one of the building blocks that make up muscles, nerves, and other parts of the body. Although cystine stones are rare, they may form when there is too much cystine buildup in the urine. The disease that causes this [kidney stone](#) type runs in families.

Lithotripsy

*lithiasis:-
formation of
stones.*

Lithotripsy is a medical technique for dissolving kidney stones using shock waves to break a kidney stone into small pieces so that they can more easily travel through the [ureter](#) and into the bladder. Once the stones are in the bladder, the pain is over! Most of the pain comes from the kidney stone irritating the ureter on the way down.

Lithotripsy, takes about an hour and sedatives or anesthesia may or may not be administered.

Kidney surgery

1. Nephrectomy
2. Percutaneous nephrostolithotomy
3. Lithotripsy

Causes of kidney failure

- Hemorrhage
- Internal bleeding
- Shock
- heart attack
- Acute pancreatitis
- Heat exhaustion
- Acute nephritis
- Urinary obstruction
- Hypertension
- Glomerulonephritis
- Polycystic kidney disease
- Chronic nephritis
- Urinary stones
- Urinary tumour

DIALYSIS

Hemodialysis

Peritoneal dialysis

AL-FARABI (ALPHARABIUS)

ABUL-QASIM IBN AL ABBAS AL ZAHRAWI (ABULCASIS)

He is best known for his early and original breakthroughs in surgery as well as for his famous medical encyclopedia called Al-Tasrif. Al-Zahrawi was the inventor of several surgical instruments, of which three are notable

- (i) an instrument for internal examination of the ear;
- (ii) an instrument for internal inspection of the urethra;
- (iii) an instrument for applying or removing foreign bodies from the throat.

Multiple Choice Questions

1. Most of the kidney stones are made up of

- A. sodium.
- B. magnesium.
- C. potassium.
- D. calcium.

2. The removal of the kidney for removal of kidney stones is called

- A. percutaneous nephrostolithotomy.
- B. nephrectomy.
- C. lithotripsy.
- D. ureteroscopy.

