
Kidneys - medullary sponge kidney

Summary

- Medullary sponge kidney is a condition where cysts develop in the urine-collecting ducts and tubules of one or both kidneys.
 - The exact cause of medullary sponge kidney is unknown and there is no cure.
 - Medical treatment aims to manage the symptoms and reduce the risk of complications.
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Medullary sponge kidney is a condition where cysts develop in the urine-collecting ducts and tubules of one or both kidneys. Medullary sponge kidney belongs to a group of diseases known as 'cystic kidney disease'. The exact cause of medullary sponge kidney is not known and there is no cure. It is thought the condition may have a genetic link. Medical treatment aims to manage the symptoms and reduce the risk of complications.

Kidney tubules

The inner part of the kidney is called the medulla, while the outer region is known as the cortex. The cortex and medulla of each kidney contain about one million tiny units called nephrons. Each nephron is made up of a very small filter (glomerulus) that is attached to a tubule. As blood passes through the nephron, fluid and waste products are filtered out.

Normally, most of the fluid is returned to the blood, while the waste products are concentrated in any excess fluid and flow down to the bladder as urine. In a person with medullary sponge kidney, cysts cause the collecting tubules to become abnormally wide. This makes the drainage of urine slow and inefficient. Waste products such as excess calcium build up in the kidneys. Kidney stones may form within kidney tissue.

Sometimes, kidney stones can form inside the cysts. Some researchers think that medullary sponge kidney is a developmental defect of the tubules. Other researchers think that the tubules develop normally, but are affected by unknown factors later in life. Research is ongoing.

Symptoms of medullary sponge kidney

Although medullary sponge kidney is present from birth, symptoms do not usually occur until later in life. Symptoms and signs may include:

- pain in the back, lower abdomen or groin
- cloudy, dark or bloody urine
- burning or painful urination
- fever and chills
- vomiting.

Complications of medullary sponge kidney

Some of the complications associated with the condition include:

- kidney stones
- urinary or kidney infections
- blood in the urine (haematuria)

Diagnosis of medullary sponge kidney

Since medullary sponge kidney may not cause symptoms, the condition is often diagnosed during medical investigations for other problems. The presence of kidney cysts and kidney stones may suggest medullary sponge kidney. However, conditions other than medullary sponge kidney can cause kidney stones (such as hyperparathyroidism) and must be ruled out.

Tests used to diagnose medullary sponge kidney may include:

- renal ultrasound – scan of the kidneys. This is normal in medullary sponge kidney unless stones have formed
- computed tomography (CT) scan – to detect the presence of cysts, if other tests are inconclusive or if more information is needed.

Kidney stones may be seen in the bladder, ureters (tubes that drain urine from the kidneys to the bladder) or kidneys. In severe cases, imaging may reveal multiple large cysts and clusters of broad kidney stones.

Treatment for medullary sponge kidney

There is no cure for medullary sponge kidney. Treatment may include:

- long-term, low-dose antibiotics to prevent urinary tract infections
- medication to discourage the formation of kidney stones
- drinking plenty of water to discourage the formation of kidney stones
- dietary changes such as reducing salt, protein, cholesterol and caffeine. Any changes should be made after talking with your doctor or dietitian
- avoiding non-steroidal anti-inflammatory drugs (NSAIDs), since these types of medication can worsen kidney function in people with kidney disease
- a short course of high-dose antibiotics to treat abscesses
- surgery to drain abscesses, if they are particularly large or do not respond to antibiotic therapy.

Where to get help

- Your doctor
- **Kidney Health Australia Information Line**. Tel. 1800 454 363

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