

Chronic pyelonephritis

Introduction

The phrase 'chronic pyelonephritis' (CP) is not really one diagnosis. It is meant to mean the long-term damage done by recurrent urine infection to the drainage system of the kidney. But it has come to be a 'fallback diagnosis'. In other words, when doctors are not sure of the cause of kidney failure, and the kidney has scars on its surface, they call it CP.

The cause of CP is unclear, partly because the condition may exist with no evidence of infection. It can be caused by reflux nephropathy, in which the kidneys are damaged by the backward flow of urine into the kidney – due to a leaky valve between the bladder and the ureter.

Whatever the cause, it is a very variable disease, sometimes causing few problems, sometimes only affecting one kidney, and sometimes causing endstage renal disease (ESRD), requiring dialysis and/or a transplant. Occasionally the removal of one kidney (nephrectomy) is necessary. Blood pressure (BP) is often raised.

Reflux nephropathy (or 'reflux')

Urine flows from the kidneys, through the ureters and into the bladder. Each ureter has a one-way valve where it enters the bladder, preventing urine from flowing back up the ureter. Reflux occurs when these valves fail, allowing backflow of urine into the kidney. If the bladder is infected or the urine contains bacteria, the kidney then becomes infected (pyelonephritis).

Because the pressure in the bladder is generally higher than in the kidney, the reflux of urine exposes the kidney to unusually high pressure. Over time, this increased pressure will damage the kidney and cause scarring.

Reflux is often found when a child is checked for repeat or suspicious bladder infections. If it is discovered, the child's siblings should also be checked because reflux can run in families. Also, an adult patient's children should be checked. This is especially true of female children.

How do you know you have it?

If symptoms occur, they might be those of kidney infection (e.g. burning on passing water), or chronic kidney disease (CKD; e.g. ankle swelling, tiredness and itching).



Other symptoms include:

- Flank pain (pain on one side of the body between the upper belly and the back), back pain, or abdominal pain
- Needing to urinate at night
- Repeated urinary tract infections in early childhood
- Single urinary tract infection in a male.

Note: sometimes the disorder may not cause symptoms. It is picked up by routine blood tests, or when a patient is investigated for high blood pressure, for example.

How is it diagnosed?

Blood creatinine may be raised, if it has led to chronic kidney disease. Urine tests may show infection and low to moderate levels of protein.

Other tests include:

- Kidney ultrasound, or IVP (intravenous pyelogram which is a special x-ray) showing scarring
- Nuclear medicine scan
- Computed tomography (CT)
- Micturating cystourethrogram (MCU). This will usually not be necessary.

Treatment

Simple, uncomplicated CP may require no treatment.

But many patients will need:

- Antibiotics
- Careful watching, with regular blood tests, and BP measurement
- Repeated urine tests.

Even though there is no specific treatment for most patients with CP, keeping the BP low (<130/80) may slow the progression to CKD. Rarely patients with reflux require surgery to place the ureter(s) back into the bladder to stop the refluxing of urine.

Prognosis (outlook)

The outlook of CP is very variable. Many patients have little problem, just the occasional kidney infection. Others require monitoring by a kidney specialist. Some patients will, however, require long-term dialysis or a kidney transplant.

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