

PERCUTANEOUS AND EXTRACORPOREAL MANAGEMENT OF RENAL CALCULI*

*John EA Wickham MS, FRCS***

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For nearly three years the majority of stone cases referred for treatment to St. Paul's Hospital, Institute of Urology, London, have been treated by percutaneous endoscopic lithotomy.

Method for Percutaneous Endoscopic Lithotomy

With this method the kidney is firstly punctured under X-ray control with a fine needle with a Teflon sheath. The needle is removed and a semi-rigid Lundquist guide wire is passed down the sheath to the renal collecting system. Plastic graduated dilators are passed over this guide until a 26F track has been dilated. A hollow plastic (Amplatz) tube is then passed over the last dilator giving a conduit into the kidney. Down this conduit endoscopic instruments and grabbing forceps may be passed to remove the calculi under direct vision. Small stones may be removed mechanically, larger stones may be fragmented first with ultrasound or electrohydraulic discharge and then removed.

Results

Of the first 350 cases treated by this method the results have been very satisfactory. Of the first group of 50 to be treated there was a 60% success rate. As experience was gained this went up and by the fourth group the success rate was 98%, the failure rate 2%. At this stage more complicated stone cases were tackled and the success rate dropped slightly, but soon returned to 97 - 98%.

The failures can be divided into three types: endoscopic failures, access failures and radiological access failures. By failure is meant here the inability to clear the kidney completely. There has been no direct mortality in the whole series, and just one case of very indirect mortality. One or two patients have complained of a little pain

* From the Institute of Urology, St. Paul's Hospital, London, United Kingdom.

** Director of Academic Unit, Institute of Urology, London.

for a couple of days after the procedure, but compared with an open urethrotomy this was really quite negligible.

At the start the procedure was done in two stages, but it is now being carried out more or less exclusively as a one - stage procedure with puncture, dilation and endoscopy all being done under one general anesthetic. This way the majority of patients leave hospital the day after the procedure and several have gone out the same day. Seventy - five percent of the patients are out of hospital in four days, and a number of them are even back at work then.

However, with the advent of the Dornier extracorporeal shock wave lithotripter, stone management has moved even further from open operative surgery. By this method the patient is placed in a water bath on a cradle. X - ray monitor screens are used to pinpoint the stone, and the patient is maneuvered on the cradle until the stone is in the right position, and a focussed shock wave is induced outside the bath by electrical discharge and the shock passed through the bath water and soft tissues of the patient. It impinges on the first solid thing it hits, which is the stone, and fragments it. You can give up to 2000 individual shocks to reduce these stones down to powder. There are now five of these machines working in Germany and five in the United States. They are tackling 100% of all stones on these machines. They started out slowly by not doing infective stones, by not doing stag horns, but they're now doing all types of renal stones on the machine. It's totally non - invasive, 70 - 80% of the patients pass the stone fragments out without problems. About 30% of them have a bit of colic and about 15% of them need percutaneous jiggling to get the bits out, because these tend to get stuck in the ureter at various points.

I think this is the treatment of the future, and I honestly think open stone surgery is quite dead. In five years time, I imagine, it will be quite immoral to do open stone surgery on patients. It will be either the percutaneous technique or this.