

Lithotomy: the development of surgical treatments for kidney stones over time

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Kidney stones are a painful medical problem caused by hard deposits that become stuck in the urinary tract. Lithotomy, i.e. cutting into the bladder to remove a stone, is thought to be one of the world's oldest surgical procedures.

400 BC

Ancient times

"I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work."

Source: *The Genuine Works of Hippocrates*, Francis Adams¹

Ancient Greek physicians were not trained as surgeons, so doctors were forbidden by the Hippocratic Oath from endangering their patients by trying to treat them without the appropriate specialist skills, even if they were in great pain.

45 BC

The Roman surgeon Celsus described a method of removing stones that was used until the 1700s. His method involved holding the stone in place with the fingers before cutting into the bladder directly above the stone. As we can see, he took the procedure seriously:

"It is not to be undertaken precipitately... nor at all times of life, nor in every degree of the disease, but only in the spring, upon patients whose age exceeds 9 years, and not 14."

cited in *A Treatise on the operation of lithotomy*, Robert Allan²

Later developments

1697 AD

"The entire time taken from the time he was chloroformed, bound up, cut, and twenty-seven calculi [stones] taken out, only occupied thirteen minutes. There was no bleeding, from the careful way in which the prostate was incised."

Source: *Stone in the Bladder*, Richard Butcher³

The next major development came in France with the invention of the 'lateral method'. This involved cutting into the bladder from the side, and it increased in popularity as it resulted in far less bleeding than Celsus' method.

"With the knife, we have it in our power to make our incision adequate to the extraction of a stone of any size... and allow of an easy extraction."

Source: *A Treatise on the operation of lithotomy*, Robert Allan²

Modern practice

1984 AD

Surgery for kidney stones has become less common since the 1980s, with the development of more efficient methods of breaking up stones in the body to allow them to be passed in the urine.

Stones which are too large to break are still removed surgically, but most often through smaller, safer "keyhole" incisions. The large open lithotomy incisions of the past are extremely rare.

References

¹ Francis Adams. *The genuine works of Hippocrates: translated from the Greek with a preliminary discourse and annotations: vol I*. 1849.

² Robert Allan. *A treatise on the operation of lithotomy*. 1808

³ Butcher, Richard. *Stone in the bladder*. 1870.