A novel technique for removing renal calculi during laparoscopic pyeloplasty

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BACKGROUND

Laparoscopic pyeloplasty and pyelolithotomy is a treatment option for pelviureteric junction (PUJ) obstruction with renal calculi.¹ We describe a new technique for stone extraction.

Figure 1 The trocar of the Amplatz sheath is inserted through a 12mm laparoscopic port into the pyelotomy

TECHNIQUE

Following pneumoperitoneum and exposure of the PUJ, a 1cm pyelotomy is made at a position suitable for later extension during the pyeloplasty. An extended Amplatz sheath with a trocar (28F/16cm; Cook Medical, Bloomington, IN, US) is inserted through a 10mm laparoscopic port into the pyelotomy (Fig 1) so that a closed percutaneous transperitoneal access channel is created into the renal pelvis (Fig 2).

Figure 2 The Amplatz sheath is advanced over the trocar to create a transperitoneal watertight access channel into the renal pelvis

A flexible cystoscope is passed through the Amplatz sheath into the collecting system. The stones can be basket extracted through the Amplatz sheath directly or withdrawn into the peritoneal cavity and extracted using graspers (Fig 3). The pyeloplasty is then performed.

Figure 3 Stones are extracted through the Amplatz sheath by basket or grasper

DISCUSSION

Extraction of complex calculi during a laparoscopic pyelolithotomy can be challenging. For calculi located in calyces, intrarenal visualisation of the collecting system is required.² Manipulation of flexible instruments through a laparoscopic port into the pyelotomy can be difficult even when the instrument is stabilised with a grasper.^{3,4} Furthermore, extensive irrigation required during multiple stone extractions or prolonged intrarenal inspection may fill the peritoneal cavity, spreading infective material and hindering the subsequent pyeloplasty by elevating the bowel so that it obscures the laparoscopic view.³⁻⁵ Our technique facilitates introduction and manipulation of instruments into the renal collecting system, and reduces the risk of dissemination of infected material and the leakage of irrigation fluid during removal of multiple or large calculi.

References

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