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The laparoscopic management of symptomatic renal cysts: A single-centre experience

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KEYWORDS

Renal cyst;
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ABBREVIATION

LESS, laparo-endoscopic single-site surgery

Abstract ***Objectives:*** To present our experience of treating symptomatic renal cysts by different techniques of laparoscopic decortication, as there are many treatment options for such cysts, each of them with advantages and drawbacks.

Patients and methods: Between January 2002 and December 2012, 51 patients underwent laparoscopic renal-cyst decortication; 15 of them had recurrent cysts after percutaneous aspiration. A retroperitoneal approach was adopted in 44 cases, transperitoneal in four and laparo-endoscopic single-site surgery (LESS) cyst decortication in three (two of them had bilateral renal cyst decortications in the same session). All patients were diagnosed by ultrasonography and computed tomography to determine the Bosniak classification of the cyst. Pain and cyst recurrence were assessed during the follow-up.

Results: All procedures were completed successfully, with no major intraoperative complications. The mean (range) operative duration was 56 (35–125) min, affected by the site and number of cysts unroofed. All patients were symptom-free except one, who had a recurrent large cyst, anteriorly located, and who underwent open cyst decortication.

Conclusions: Laparoscopic decortication of symptomatic renal cysts should be the standard of care, especially after failed percutaneous aspiration or decortication.

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LESS cyst decortication is a promising technique, especially with bilateral pathology. It is feasible with conventional laparoscopic instruments and gives a better cosmetic outcome.

Introduction

Renal cysts are common and can represent a manifestation of an inherited or acquired disorder. Simple cysts are rare in childhood, but increase in frequency during adulthood [1]. The increasing incorporation of imaging into urological practice has produced a corresponding increase in the detection of renal cysts [2].

The indications for surgical intervention for renal cysts are pain, infection, hypertension, haemorrhage, collecting-system obstruction, or the risk of malignancy. The treatment options for symptomatic cysts include aspiration with or without instillation of sclerosing agents, percutaneous resection, and open or laparoscopic decortication [3].

Laparoscopic management has become the standard of care because it is minimally invasive and has a high success rate in terms of cyst recurrence [4]. Laparo-endoscopic single-site surgery (LESS) is increasingly used in urology, as it is less invasive than conventional laparoscopy, and can offer bilateral renal surgery in the same session and through the same port [5]. We present our experience in treating symptomatic renal cysts by different techniques of laparoscopic decortication, considering the morbidity and clinical outcome.

Patients and methods

Between January 2002 and December 2012, 51 patients (28 males and 23 females) underwent laparoscopic renal cyst deroofing, with 15 of them having recurrent cysts after percutaneous aspiration. The mean (range) age of the patients was 46 (17–65) years. Twenty-one patients had right renal cysts, 25 had left renal cysts and the remaining five had bilateral cysts. The mean (range) size of the cysts was 10.8 (8–16) cm. A retroperitoneal approach was used in 44 patients, transperitoneal in four and LESS in three (two had bilateral renal cyst decortication in the same session). The patients' demographic data are summarised in Table 1.

The main presenting symptoms were renal pain in all patients, urinary tract obstruction in two, with microscopic haematuria due to lower polar cysts obstructing the upper ureter. After detecting the cysts with abdominal ultrasonography, CT with a renal-mass protocol was used and showed Bosniak type I or II cysts in all cases. Small unsymptomatic simple cysts (< 5 cm) and renal cysts of higher grade (type IIF, III and IV Bosniak classification) were excluded. Urine analysis with culture and sensitivity was assessed in all patients, and urine cytology was assessed in those with haematuria.

The timeline of the procedures conforms to the development of our laparoscopic experience. The earlier patients were operated via a transperitoneal approach, later patients using a retroperitoneal approach, and recently we also used LESS.

For the retroperitoneal approach, under general anaesthesia the patients were placed in the standard lateral kidney position. A skin incision (2 cm) was made in the posterior axillary line midway between the iliac crest and the last rib. The incision was extended through the muscles and lumbar fascia. The index finger was then introduced to create sufficient space to accommodate the balloon. Three ports were used routinely. A fourth port was added in some patients, usually those with anterior upper-pole cysts. The cyst appeared in most cases as a blue dome, which was then dissected and its edge was delivered. The cyst contents were aspirated by a percutaneous needle under laparoscopic guidance, and the aspirate was sent for cytological analysis. The roof of the cyst was then excised with endoscissors and submitted together with several 'bites' from the floor of the cyst for a histopathological examination (Fig. 1). The cyst edge

Table 1 The patients' demographic data, and the complications classified according to the modified Clavien system.

Variable	*n* (%)
Gender, male/female	28 (55)/23 (45)
Laterality:	
Right	21 (41)
Left	25 (49)
Bilateral	5 (10)
Presentation	
Renal pain	51 (100)
Obstruction	2 (4)
Laparoscopic approach	
Unilateral	49 (96)
Bilateral	2 (4)
Transperitoneal	4 (8)
Retroperitoneal	44 (86)
LESS transperitoneal	3 (6)
Complications, by grade	
II, gonadal vessel injury	1 (2)
I, fever	3 (6)
I, ileus	2 (4)
II, perinephric haematoma	1 (2)