Comparative study on the lumboscopic and transperitoneal laparoscopic management of renal cysts

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Background: Symptomatic renal cysts require surgical management. Aims: To compare the results of the transperitoneal laparoscopic and lumboscopic approaches in the management of renal cysts.

Methods: A prospective, descriptive, longitudinal study was conducted on patients diagnosed with symptomatic Bosniak I renal cyst. They were divided into 2 groups: group 1, transperitoneal laparoscopy and group 2, lumboscopy. Variables: intraoperative blood loss (IBL), hospital stay (HS), and age.

Results: Twenty-eight patients were divided into 2 groups; group 1: 19 patients and group 2: 9 patients. Group 1, means: age 52 years, size of cyst 6.6 cm, days of hospital stay 1.26, intraoperative blood loss 20.5 ml. Group 2, means: age 63 years, size of cyst 7.3 cm, days of hospital stay 1.11, intraoperative blood loss 20 ml. Statistically significant difference was found in relation to age (p=0.01), but not in relation to size of cyst (p=0.3), days of hospital stay (p=0.3), or intraoperative blood loss (p=0.9). There were no complications.

Discussion: Good results with the laparoscopic management of renal cysts have been published, but the case series have been small and with little follow-up. Studies in the literature report means for intraoperative blood loss of 70-150 cc and hospital stay of 3 days; in our study the mean for intraoperative blood loss was 20 cc and for HS was 1.2 days.

Conclusions: There were no statistically significant differences between the two approaches in our study, making it clear that the approach depends on the location of the cyst, as well as on the preference and experience of the surgeon.
Introduction

The incidence of renal cyst at birth is from 0.1% to 0.45% and increases with patient age, with a 20% incidence at 40 years of age and 33% at 60 years. The majority of renal cysts are asymptomatic, discovered incidentally, and do not require treatment. However, there are those that present with painful palpable mass, hematuria, high blood pressure, and urinary tract obstruction, and thus require management. Ultrasound usefulness as a diagnostic tool is limited to Bosniak I simple renal cysts. Cysts that do not show benign criteria in an ultrasound study need to be evaluated through computed tomography with and without contrast material. Nuclear magnetic resonance is equivalent to tomography for classifying renal cysts and has greater sensitivity for detecting internal septa, attenuation, and medullary lesions. The first laparoscopic deroofing of a renal cyst was reported in 1989 by Hulber. However, these cysts can also be managed through percutaneous aspiration and sclerotherapy. The following complications have been described: retroperitoneal hematoma, postoperative bleeding, and chemical peritonitis secondary to intestinal perforation. Several advantages of the retroperitoneal approach over the transperitoneal approach have been reported; there is direct access to the kidney without moving the colon, and when the peritoneal cavity is not accessed, fluid effusion into the peritoneal cavity is avoided. Therefore, the aim of this study was to compare renal cyst management results through the laparoscopic transperitoneal and lumboscopic approaches.

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1 (n:19)</th>
<th>Group 2 (n:9)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men (%)</td>
<td>15</td>
<td>33</td>
<td>-</td>
</tr>
<tr>
<td>Women (%)</td>
<td>85</td>
<td>67</td>
<td>-</td>
</tr>
<tr>
<td>Age (years)</td>
<td>52 (25-78)</td>
<td>63 (52-73)</td>
<td>0.01</td>
</tr>
<tr>
<td>Size of cyst (cm)</td>
<td>6.6 (3-10)</td>
<td>7.3 (5-10)</td>
<td>0.3</td>
</tr>
<tr>
<td>Intraoperative blood loss (ml)</td>
<td>20.5 (10-40)</td>
<td>20 (10-60)</td>
<td>0.9</td>
</tr>
<tr>
<td>Days of hospital stay</td>
<td>1.26 (1-2)</td>
<td>1.11 (1-2)</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Methods

A prospective, descriptive, longitudinal study was conducted on patients seen at the Urology Service that were diagnosed with Bosniak I symptomatic renal cyst, corroborated through plain and contrast-enhanced tomography (fig. 1). Patients were chosen by convenience sampling. Two groups were formed depending on the location of the cyst (whether on the anterior or posterior surface of the kidney):
Both approaches were carried out using 3 ports (two 10 mm and one 5 mm, and a 0 degree lens), the cyst was dissected, punctured, and the fluid was aspirated (and analyzed by the Cytology Department), and finally, the cyst was deroofed (fig. 2).

The variables were analyzed through means and central tendency tests and the Student’s t test was used for comparing the 2 groups. Statistical significant was set at a p value > 0.05.

Results

One hundred and forty laparoscopic procedures were performed within the time frame of 2011-2013, 28 of which corresponded to laparoscopic deroofing.

Of these 28 patients, 19 were included in group 1 and 9 in group 2 of the study. Group 1 was made up of 15% men and 85% women, the mean age was 52 years (range 25-78), mean cyst size was 6.6 cm (range 3-10), mean hospital stay was 1.26 days (range 1-2), and mean intraoperative blood loss was 20.5 ml (range 10-40). Group 2 was made up of 33% men and 67% women, the mean age was 63 years (range 52-73), mean cyst size was 7.3 cm (range 5-10), mean hospital stay was 1.11 days (range 1-2), and mean intraoperative blood loss was 20 ml (range 10-60) (table 1). The t-test was used for the statistical analysis with the SPSS 18 program. Statistically significant difference was found in the age variable with a p value of 0.01, but there were no differences when comparing cyst size (p=0.3), hospital stay (p=0.3), or intraoperative blood loss (p=0.9). There were no complications, transfusions, or deaths in any of the groups.

Discussion

The advantages of minimally invasive surgery that include rapid recovery from the surgery and rapid return to the workplace, make it an excellent option in relation to open surgery. Surgical deroofing has a high success rate (99% to 100%). Good results with laparoscopic management of renal cysts have been published, but the case series are small and have had little follow-up. As expected, the majority of our patients were in the adult and elderly age groups, the groups that benefit even more from minimally invasive approaches. Mean intraoperative blood loss of 70-150 cc has been reported in the literature, and it was much lower in our patients (20 cc). Mean hospital stay has been reported at 3 days, whereas in ours it was also much lower (1.2 days). Despite the fact that different complications have been reported, there were none in our study. However, only Ryu (2009) conducted a comparative study of both approaches for renal cyst management, evaluating surgery duration, time necessary for oral tolerance and ambulation, and he found lumboscopy to be the better approach; we analyzed different variables and found no statistically significant differences between the 2 approaches.

Conclusions

The treatment of renal cysts through laparoscopic techniques (transperitoneal or lumboscopic) has been shown to be safe, effective, and with a low complication rate. Our study found no statistically significant differences between the 2 approaches, thus the technique to be used will depend on the location of the cyst, as well as the preference and experience of the surgeon.

Conflict of interest

The authors declare that there is no conflict of interest.

Financial disclosure

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References


