LAPAROSCOPIC CHOLECYSTECTOMY IN THE TREATMENT OF GALLBLADDER POLYPOID LESIONS – 15 YEARS OF EXPERIENCE

MACIEJ MATŁOK, MARCIN MIGACZEWSKI, PIOTR MAJOR, MICHAŁ PĘDZIWIATR, PIOTR BUDZYŃSKI, MAREK WINIARSKI, MATEUSZ OSTACHOWSKI, ANDRZEJ BUDZYŃSKI, KAZIMIERZ REMBIASZ

2nd Department of General Surgery, Jagiellonian University Collegium Medicum in Cracow
Kierownik: prof. dr hab. K. Rembiasz
Students’ Society of Science, 2nd Department of General Surgery, Jagiellonian University Collegium Medicum in Cracow

Due to the constant increase of public health awareness and widespread “cancerophobia”, the progressively larger number of incidentally diagnosed gall-bladder polyps became the source of anxiety, which leads patients and physicians to undertake therapeutic decisions, despite the absence of symptoms. The majority of gall-bladder polyps are benign. It is estimated that only 3 to 5% of polyps are malignant. Currently, there is lack of randomized control trials based on which the clear-cut criteria of qualification of patients with gall-bladder polyps for surgical procedure can be created.

The aim of the study was to analyze gall-bladder polyps in patients who underwent laparoscopic cholecystectomy in the 2nd Department of General Surgery, Jagiellonian University Collegium Medicum.

Material and methods. The retrospective study was conducted on 5369 patients who underwent laparoscopic cholecystectomy in the 2nd Department of General Surgery, Jagiellonian University Collegium Medicum with special attention to 152 (2.8%) patients in whom gall-bladder polyps were diagnosed preoperatively. Qualification criteria for surgery, surgical treatment results, and histopathological examination results were also analyzed.

Results. Amongst the 5369 patients qualified for laparoscopic cholecystectomy, 152 (2.8%) were diagnosed with gall-bladder polyps during the preoperative ultrasound examinations. Postoperative histopathological examinations of 41 (27%) patients confirmed the presence of gall-bladder polyps. In 102 (67%) patients, only gall-stones were diagnosed without previously described polyps during the ultrasound examination. Analysis of the histopathological examination results revealed the presence of benign lesions in 35 (23.35%) patients. In 5 (3%) patients the presence of an adenoma, and in one (0.65%) the presence of adenocarcinoma were confirmed.

Conclusions. Based on the conducted study and previous personal experience in the treatment of patients with gall-bladder polyps, we believe that due to the potential risk of neoplastic transformation, patients with polyps larger than 10 mm in diameter and polyps of proven rapid growth should be qualified for laparoscopic cholecystectomy. Indications for surgical treatment also seem reasonable in case of patients with present polyps and coexisting right upper quadrant pain, even though the above-mentioned is connected with gall-bladder deposits.

Key words: gall-bladder polyps, laparoscopic cholecystectomy, gall-bladder cancer, gall-bladder ultrasound

Gall-bladder polyps are a rare pathology. Their occurrence, based on various reports is estimated at 0.5 to 6% of the population (1, 2, 3). With the introduction, development, and popularization of ultrasonography, the diagnosis of gall-bladder polypoid lesions is steadi-
ly increasing. Additionally, thanks to the constant increase of the public health awareness and widespread ‘cancerophobia’, the progressively larger number of incidentally diagnosed gall-bladder polyps became the source of anxiety, which leads patients and physicians to undertake therapeutic decisions, despite the absence of symptoms (2, 4, 5). The majority of gall-bladder polypoid lesions are of benign character, including pseudopolyps (cholesterol, hyperplastic, and inflammatory polyps), and true polyps, including mesenchymal polyps (fibromas, hematomas, lipomas) and epithelial polyps (adenomas) (6). Considering adenomas there is the possibility of malignant transformation (7, 8). Nearly 50% of adenoma polyps exceeding 10 mm are burdened with the risk of adenocarcinoma transformation. It is estimated that 3 to 5% of polypoid lesions are diagnosed as adenocarcinomas, the incidence increasing with the size of the lesion (9). Diagnostics of gall-bladder polypoid lesions consider ultrasonography, computed tomography, MRI, and PET-CT (10, 11, 12). However, there is still lack of a method enabling to differentiate a benign and malignant lesion in case of polyps exceeding 10 mm. There are no randomization trials, based on which clear qualification criteria for surgery of patients with gall-bladder polyps, would be determined (8). It has been accepted that the following are an indication to perform laparoscopic cholecystectomy: patient age >60 years, size of polyp>10 mm, multiple polypoid lesions, and progression of the size of the lesion during control imaging examinations performed every 6 to 12 months (6).

The aim of the study was to analyze gall-bladder polyps in patients who underwent laparoscopic cholecystectomy in the 2nd Department of General Surgery, Jagiellonian University Collegium Medicum.

MATERIAL AND METHODS

During the period between January, 1997 and December, 2012, 5369 elective laparoscopic cholecystectomies were performed in the II Chair and Department of General Surgery, Jagiellonian University, Cracow. In case of 152 (2.8%) patients qualified for surgery the preoperative ultrasound examination revealed the presence of gall-bladder polyps. The study group comprised 94 (62%) female (mean age – 52.9 years, ranging between 24.5-83.5 years), and 58 (38%) male patients (mean age-48.6 years, ranging between 21-73 years). The average age of the study group amounted to 50.7 years (ranging between 21-83.5 years).

Retrospective analysis of patients who underwent surgery in the II Chair and Department of General Surgery, Jagiellonian University Collegium Medicum in Cracow, during the period between January, 1997 and December, 2012 by means of laparoscopic cholecystectomy was undertaken, especially considering patients with preoperative diagnosis of gall-bladder polyps. Patients with preoperative ultrasound diagnosis of gall-bladder polyps exceeding 10 mm, multiple polypoid lesions, those with disease progression, as well as those with painful polypoid lesions were qualified for surgery. The surgical qualification criteria, treatment results, and histopathological examination results were subject to evaluation. All patients were subjected to laparoscopic cholecystectomy. Histopathological sample evaluation was performed in the Department of Clinical and Experimental Pathomorphology, Jagiellonian University Collegium Medicum in Cracow.

RESULTS

When analysing the indications for surgical intervention, which considered 152 patients with gall-bladder polyps subjected to laparoscopic cholecystectomy, it was decided that the above-mentioned procedure was performed most often (62 patients – 41%) after diagnosis of at least one polypoid gall-bladder lesion. In case of 42 (28%) patients the size of the polyp exceeded 10 mm. Qualification for surgery in case of 40 (26%) patients was associated with unspecific upper right quadrant symptoms and simultaneous ultrasound presence of gall-bladder polyps. In only 8 (5%) patients the decision concerning surgical treatment was undertaken after noting ultrasound progression of polypoid lesions (tab. 1). It is worth mentioning that some patients, due to cancrophobia, forced surgery.

The ultrasound size of polyps, considering the study group, ranged between 3 and 20 mm (mean – 8.14 mm). All surgical procedures were performed by means of laparoscopy. Con-
Table 1. Indications for laparoscopic cholecystectomy in patients with gall-bladder polyps

<table>
<thead>
<tr>
<th>Indications for surgery</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple polyps (more than one)</td>
<td>62</td>
<td>41</td>
</tr>
<tr>
<td>Size of polyp &gt; 10 mm</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>Pain</td>
<td>40</td>
<td>26</td>
</tr>
<tr>
<td>Progression in the size of the polyp during control ultrasound examinations</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

version to open surgery was not observed. Significant complications were not observed during the postoperative period. None of the patients required reoperation. Mortality was not observed in the perioperative period.

The histopathological postoperative examination result in 102 (67%) of 152 patients showed the presence of gall-bladder concrements, without the preoperative diagnosis of polyps. The above-mentioned group comprised all patients complaining of preoperative, abdominal, upper right quadrant pain. The presence of polypoid lesions was confirmed in 41 (27%) of 152 patients. In case of 9 (6%) patients the pathomorphological examination revealed no pathology. When analysing the histopathological results of 41 patients with gall-bladder polyps, the postoperative material in 35 (23.35%) patients proved benign: cholesterol polyps – 20 (13.35%), hyperplastic polyps – 6 (4%), inflammatory polyps – 3 (2%), papilliform polyps – 3 (2%), and adenomyoma lesions – 3 (2%). In case of 3% of patients, the potential risk of neoplastic transformation was observed. The above-mentioned group comprised 5 female patients, aged between 25 and 62 years (mean age – 38 years). None of the patients complained of pain, and the qualification for surgery was based on the preoperative ultrasound examination [polyp >10 mm (4 patients) or multiple polypoid lesions (1 pts.)].

In one case (0.65%) the polyp proved to be an adenocarcinoma. The patient was a 78-year old female who came to the outpatient clinic, due to upper right quadrant pain with concomitant weight loss. The preoperative ultrasound showed the presence of a polypoid lesion in the lumen of the gall-bladder, 17 mm in size, with Doppler-USG suggesting the possibility of malignancy (tab. 2).

### DISCUSSION

The incidence of gall-bladder polyps in patients undergoing laparoscopic cholecystectomy is estimated at about 5%. The ultrasound examination is the basic imaging method of the gall-bladder and bile ducts. Due to the rapid development and widespread availability of ultrasonography the number of performed examinations is continuously increasing. Technological progress enables imaging by means of a much higher resolution, thus, the possibility to diagnose smaller gall-bladder lesions, including asymptomatic polyps. Of the 5369 patients subject to laparoscopic cholecystectomy in the II Chair and Department of General Surgery, UJCM, polypoid lesions were diagnosed in 152 (2.8%) patients. Collett et al. evaluated 627 patients showing polyps in 42 operated subjects (6.7%) (13). Amongst 4343 patients (Moriguchi et al.) polypoid lesions were diagnosed in 109 (2.5%) patients (14).

Amongst the 152 patients qualified for surgery preoperative suspicion of gall-bladder polyps was confirmed in only 41 (27%) patients. Interestingly, in the 102 (67%) patients with

### Table 2. Postoperative diagnosis considering histopathological examination results of excised gall-bladder polyps

<table>
<thead>
<tr>
<th>Postoperative diagnosis</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholecystolithiasis</td>
<td>102</td>
<td>67</td>
</tr>
<tr>
<td>cholesterol polyps</td>
<td>20</td>
<td>13.35</td>
</tr>
<tr>
<td>hyperplastic polyps</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>inflammatory polyps</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>papilliform polyps</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>adenomyoma</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Benign polyps</td>
<td>35</td>
<td>23.35</td>
</tr>
<tr>
<td>Adenomas</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Adenocarcinomas</td>
<td>1</td>
<td>0.65</td>
</tr>
<tr>
<td>No pathology</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100%</td>
</tr>
</tbody>
</table>
preoperative ultrasound diagnosis of polyps, the pathologist observed the presence of gall-bladder deposits without polyp presence. Sun et al. showed that the percentage of preoperative cholecystolithiasis diagnosis erroneously described as polyp presence amounted to 63.6% (15). Corvin et al. presented a similarly high percentage of erroneous ultrasound diagnoses, amounting to 57% (16). Alternative imaging examinations used in the diagnostics of gall-bladder polyps include computed tomography and MRI. In case of polyps <10 mm, none of the above-mentioned can rule out the possibility of malignant transformation (10). High-resolution ultrasonography (HUSG), Endoscopic ultrasonography (EUS), or Positron emission tomography (PET), also did not lead to the expected results (12, 17). Despite the high percentage of false-positive diagnoses, it seems that abdominal ultrasonography is sufficient before qualifying patients with gall-bladder polyps for surgery. Considering the study group of more than 5000 patients subjected to laparoscopic cholecystectomy, there was no situation in which the histopathological examination confirmed the presence of a polypoid lesion, which was not previously diagnosed by means of ultrasound.

Most gall-bladder polyps are benign (16, 18). The benign lesions were diagnosed in 40 patients, which accounted for 26.35% of the study group. Considering benign lesions, cholesterol (13.35%) and hyperplastic polyps (4%) were most common. Boulton et al. also showed cholesterol polyps as most common (19). In case of 5 (3%) patients from the analysed group the histopathological examination result showed the presence of an adenoma gall-bladder polyp without features of dysplasia. The average size of the adenoma polyp amounted to 12 mm (ranging between 10 and 14 mm). Shinkai et al. observed adenoma polyps in 5 (6%) of 74 study group patients (20). In case of Lee and Wong the above-mentioned percentage amounted to 5.9% (5). In one (0.65%), 73-year old female patient the postoperative microscopic image enabled to diagnose an adenocarcinoma. It is worth noting that during the preoperative ultrasound examination, the size and pathological vascularization of the lesion aroused suspicion of possible malignancy. Amongst 417 patients Ito et al. observed malignant cells in one (0.23%) patient (21). A relatively high percentage of malignancy amounting to 8% (2 cases amongst 23 polyps) was described by Chattopadhyay et al. (22).

CONCLUSIONS

Based on the conducted study and previous personal experience in the treatment of patients with gall-bladder polyps, we believe that due to the potential risk of neoplastic transformation, patients with polyps larger than 10 mm in diameter and polyps of proven rapid growth should be qualified for laparoscopic cholecystectomy. Indications for surgical treatment also seem reasonable in case of patients with present polyps and coexisting right upper quadrant pain, even though the above-mentioned is connected with gall-bladder deposits. In case of isolated gall-bladder polyps whose size does not exceed 10 mm, being asymptomatic, control ultrasound examinations every 6-12 months seem sufficient.

Therefore, in our opinion the abdominal ultrasound examination is the method of choice, and the proposed qualifying algorithm of patients with gall-bladder polyps appears to be legitimate, enabling early detection of potential malignant lesions.

REFERENCES