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Laparoscopic Management of Large Benign Ovarian Cysts

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Abstract

Background: Laparoscopy is a valid surgical technique for the management of benign ovarian cysts. But its effectiveness when dealing with large cysts is unclear. Our aim is to evaluate the results of laparoscopy in routine management of huge benign ovarian cysts.

Materials and Methods: We performed a prospective study from August 2014 to January 2016. We enrolled 42 patients with large benign ovarian cysts laparoscopically managed in the department of Gynecology and Obstetrics "A" at Charles Nicolle's hospital.

Results: Eight patients had emergency laparoscopy for suspected adnexal torsion. The laparoscopic exploration revealed a right ovary cyst in 63% of cases and a left ovarian cyst in 35% of patients without any extra-cystic vegetation. A cystectomy was performed in 42% and an adnexectomy in all the other cases. A bilateral adnexectomy was performed in 25% of cases. A laparoconversion was needed in 32.7% of cases. No vascular, digestive or infectious complications were observed. The mean duration of the operative procedure was 115 minutes. The average hospital stay was 3 days. Pathological examination of the surgical specimens revealed a serous cystadenoma in 33 cases.

Conclusion: Laparoscopy is a safe and reliable first choice in the management of huge benign ovarian cysts.

Keywords: Ovarian cysts; Laparoscopic management; Benign

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Introduction

Benign ovarian cysts are one of the most common causes of surgery in gynecology. Indeed, 10% of women in the United States will undergo surgery for adnexal masses [1]. Laparoscopic management of large benign ovarian cysts is challenging for the surgeons. In fact, it raises many problems concerning the nature of the cyst as the spin risk in case of malignancy, on the one hand and technical problems, on the other hand, such as the trocars location, the risk of rupture of the cyst if mobilized. All these constraints make laparotomy the gold standard technique in the management of large ovarian. For years, laparoscopy has managed to supplant laparotomy through the technical development of devices and especially the advances in surgeons learning and experience. The superiority of laparoscopy over laparotomy for surgical treatment of benign adnexal lesions has been proven [2]. Indeed, laparoscopy improves the life quality after surgery with less pain, and by reducing the risk of post-operative adhesions that optimizes the fertility results on women of child-bearing age.

Few authors have studied the results of laparoscopic treatment of huge benign cysts of the ovary. The objective of this study was to report our experience regarding the feasibility and efficacy of laparoscopic management of huge benign ovarian cysts.

Materials and Methods

We performed a prospective study from August 2014 to January 2016, during which we enrolled 42 cases of patients with huge benign ovarian cysts managed laparoscopically in the department of Gynecology and Obstetrics "A" at Charles Nicolle's hospital. All patients underwent preoperative pelvic ultrasound and had serum CA 125.

Inclusion criteria

A maximum diameter of the cyst over 10 cm and less than 20 cm. Ultrasound signs for benign cyst such as unilocular cyst,

thin walls, or solid hyper echogenous teeth-shaped component producing "dirty acoustic shadowing suggesting calcifications in a dermoid cyst. CA 125<30 UI/l. No indication against laparoscopy such as respiratory failure, or heart failure. Patient consent for laparoscopy is taken.

Exclusion criteria

Maximum diameter of cyst less than 10 cm or over 20 cm. Ultrasound signs for malignancy such as thick walls, solid mass, vegetation, vascularized mass at Doppler and ascites. Mild or severe obesity: Body mass index (BMI) ≥ 35 and pregnancy.

All patients had a bowel preparation the day before surgery and antibiotic prophylaxis during the intervention (2 gm of Augmentin© in the absence of penicillin allergy or 200 mg Dalacin© if allergic patient). Laparoscopy was performed under general anesthesia. All surgeries were performed by experienced surgeons using the same surgical techniques. A vaginal track was installed, to help mobilize the uterus during the procedure. All patients had primary puncture of the cyst. Twenty patients had an open laparoscopy because of abdominal scar in 6 cases and due to the risk of the cyst perforation with an umbilical incision. Thirteen patients had the insufflation at the left upper hypochondrium. The first 10 mm trocar was located between the umbilicus and the xiphoid process and three 5 mm trocars were introduced under visual control. The surgery was performed with a pneumoperitoneum pressure between 12-15 mmHg. The first step of the procedure was to explore the abdominal and pelvic cavity searching for ascites, peritoneal lesions, suspicious lesions in the momentums, and appearance of the appendix. Peritoneal cytology was performed routinely in cases of adnexal mass. In case of suspicious lesions in the cyst such as exocytic vegetation or suspicious abdominal and/or pelvic abnormalities, laparotomy was indicated. If the appearance of the cyst was reassuring, we first made a damp-proof puncture of the cyst. Then, we completed the exploration and the pelvic cystectomy or adnexectomy. In case of cystectomy, no suture of the ovarian incisions was done. The specimen was extracted in a bag under visual control. For human right protection, this study was submitted to our institutive review board (IRB) and the IRB approved this trial.

Results

The mean age of our patients was 38 years. Six of them had previous surgery (3 cases of appendectomy, 2 cases of caesarean section and one case of myomectomy). They had open laparoscopy. Eight patients were operated in emergency for suspected adnexal torsion; these patients were known carriers of benign ovarian cyst and have consulted in an acute setting. Laparoscopy confirmed the diagnosis of adnexal torsion in 6 cases.

Physical examination showed an under-umbilicalhydric abdomino-pelvic mass in 2 cases. Pelvic ultrasound, performed before surgery, showed a solidocystic image in favour of a dermoid cyst in 10 cases. No complications were noted during the installation phase. The laparoscopic exploration revealed a cystic formation in the right ovary in 63% of cases and a left ovarian cyst in 35% of patients without any extra-cystic vegetation, any peritoneal lesion except for brownish spots suggestive of endometriosis in 3 cases. Peritoneal cytology was performed in all cases. A cystectomy was performed in 42% and an adnexectomy was performed in 58% of cases. A bilateral adnexectomy was performed in 25% of cases.

A laparotomy was required in 32.7% of cases (19 cases): In one case for severe pelvic adhesions in a patient with a history of myomectomy, in 3 cases for haemostasis problem during the adnexectomy, in 2 cases for technical difficulties due to the lack of vaginal track because the two patients were virgins, and in 2 cases for breach of large dermoid cysts to prevent the risk of secondary peritonitis and to ensure proper toilet. No vascular, digestive or infectious complications were observed. The mean duration of the operative procedure was 115 minutes, with extremes ranging from 60 to 170 min. The extraction of the specimen was done using a bag inserted through the trocar of 10 mm. The average hospital stay was 3 days with extremes ranging from 2 to 6 days. The details are given in **Tables 1 and 2.**

Pathological examination of the surgical specimens revealed

1. A serous cystadenoma in 33 cases.
2. A mucinouscystadenoma in 10 cases.
3. A dermoid cyst in 10 cases.
4. An endometriotic cyst in 5 cases.
5. A borderline tumor in 1 case.

Ovarian cysts are a very common disease. The place and role of laparoscopy in this pathology have been demonstrated by prospective randomized trials that confirmed the superiority of laparoscopy versus laparotomy [2,3]. Laparoscopic procedure is nowadays the gold standard for treatment of benign ovarian lesions. However, the role of laparoscopy in the management of large benign ovarian cysts is known to be limited [4]. Some authors have reported their experience in the laparoscopic management of such cysts, but the series concerned a limited

Table 1 General characteristics the study population.

Mean age	38 years (33-58)
BMI	28 (20-34)
Parity	3 (0-5)
Circumstances of discovery of the cyst	
* Pelvic pain	60%
* Bleeding	15%
* Increased abdominal girth	15%
* Accidentally	10%
Surgical History	10.30%
Ultrasound	
* Cyst size	12 cm (10-15)
* Partition	20%
* Unilocular	80%
* Solid component	10 cases
* Right side	63%
* Left side	35%
Menopause	25%
Pre-menopause	40%

Table 2 Characteristics of the procedure.

Variables	Cases
Open laparoscopy	20 cases
Insufflation in left hypochondrium	13 cases
Umbilical insufflation	9 cases
Pre-operative Hb	10.8
Post-operative Hb	9.5
Cystectomy	42%
Adnexectomy	58%
Laparoscopic conversion	19 cases (32.7%)

number of cases except for the study conducted by El-Tabbakh [5] that included 33 cases. First steps in laparoscopy adapt to each situation. Its goals are to enable proper evaluation of the lesion and peritoneum and to avoid blind puncture of the cyst. The usual technique of laparoscopy (creation of the pneumoperitoneum and implementation of the first trocar in the umbilicus) is only used for lesions with less than 7 cm diameter. In case of lesions larger than 10 cm, the pneumoperitoneum needle and a 5 mm trocar are introduced into the left hypochondrium using a 5 mm laparoscope. If the lesion is more than 15 cm, open laparoscopy is required, sometimes in the left hypochondrium [6]. El-Tabbakh used an open laparoscopy routinely in all his patients managing cysts with a mean diameter of 13 cm. In our experience, 6 patients underwent open laparoscopy initially. The other patients had a blowing in the left hypochondrium and 10 mm trocar introduced between the umbilicus and the xiphoid process; the other trocars were inserted under direct vision. The number, size and location of the other trocars during the intervention depended on the size and nature of the lesion and on the patient adiposity. The more voluminous is the lesion, the higher should the trocars be inserted on the anterior abdominal wall. The laparoscopic investigation must be thorough and should cover all the regions of the abdomen, pelvis, abnormal ovary and contralateral ovary. Peritoneal cytology is systematically performed [7]. The decision of the puncture of the cyst needs to be well considered by the surgeon and not just a habit or a reflex, because of all its potential risks of peritoneal spread. The primary puncture of the cyst does not appear to be a standard before inserting the first trocar. It is not actually perfectly sealed. Given their size, cyst contents aspiration can directly be done by a 5 mm trocar with a conical mandrel. Once the trocar inserted into the cyst, the mandrel is replaced by the suction device that allows a cyst wash and an intra-cystic inspection [8]. Such technique helps reducing the size of the cyst to have a better and a complete peritoneal exploration. Authors agree that a conservative management of large benign ovarian cysts is more difficult for small ones, but the volume of the lesion does not imply radical treatment. The very large cysts are usually surrounded by a functional ovarian parenchyma that must be preserved [9]. Similarly, the resection of the protruding part of the cyst can shorten the procedure but the time saved is not worth the functional ovarian parenchyma unnecessarily destroyed and lost forever. Parietal implants may occur after laparoscopic management of benign or malignant ovarian cysts. In fact, a case of endometriosis of the abdominal wall has been reported after intraperitoneal cystectomy. All surgical specimens should be extracted while protecting the edges of the cutaneous incisions by using endoscopic bags. Sutures are not useful in more than 90% on the remaining ovary, but if needed, they should be absorbable and non-visible on the surface of the ovary because its cortical tissues are very adhesive [10,11].

Conclusion

When rigorously used, the laparoscopy is a safe and reliable first choice in the management of large benign ovarian cysts. It is considered by many trained surgeons to be easier and faster than laparotomy while achieving the same results. We emphasize on the necessity for a good preoperative selection of patients especially concerning the presumed benign nature of the lesions mainly based on the determination of CA 125 and a good ultrasound morphological study of the cysts.

Conflict of Interest

The authors declare that they have no conflict of interest that competes with any of the contents of the manuscript.

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