



Surgical management of non-epithelial ovarian malignancies: advantages and limitations of laparoscopy



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ABSTRACT

Objective: To compare open and laparoscopic surgery in the management of non-epithelial ovarian malignancies.

Study design: Retrospective study from University Hospital of Clermont-Ferrand, France, of 20 patients undergoing surgery for non-epithelial ovarian malignancies. We compared the outcome of 13 open surgeries and 7 laparoscopic surgeries. The main outcome measures were stage and size of the tumor, surgical procedure, hospital stay, adjuvant treatment, follow-up and fertility.

Results: The mean age of the patients and the type of tumor at the time of diagnosis were similar in the two groups but the tumor size was significantly larger in the laparotomy group (14.0 cm vs. 6.7 cm; $p < 0.05$). Treatment was conservative in 85.6% vs. 61.5% in the laparoscopy and laparotomy groups respectively. Tumor stages were not statistically different in the two groups. The hospital stay was shorter in the laparoscopy group (3.1 days vs. 6.9 days $p = 0.03$) and there were no differences in terms of complications, surgical procedures, number of lymph nodes removed and adjuvant treatment.

Conclusions: Laparoscopy respecting the usual oncologic principles appears to be a good alternative to laparotomy for the initial management of non-epithelial ovarian malignancies. The limiting factors of this technique remain the tumor size, the tumor stages and the surgeon's experience.

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1. Introduction

Non epithelial ovarian malignancies represent approximately 10% of ovarian cancers [1–3]. Two groups have been described in our study: ovarian sex cord-stromal tumors (OSCTs), including granulosa and Sertoli Leydig tumors, and malignant ovarian germ cell tumors (MOGCTs), including dysgerminoma, yolk sac tumors, choriocarcinoma, embryonal carcinoma, immature teratoma and mixed germ cell tumors [4]. Due to their low incidence, no prospective randomized studies have been published, and management of these tumors is based on the results of retrospective studies. Certain specific points need to be highlighted for management of these tumors: firstly, especially for germinal tumors, they are neoplasms with rapid

growth and they can reach voluminous dimensions rapidly. Secondly, the first operation is sometimes carried out in an emergency context (torsion or rupture) by a surgeon not always qualified in oncology. Lastly, they occur most often in young women and it is important to try to preserve these patients' fertility. In young women, conservative surgery (unilateral adnexectomy, exploration of the pelvis and abdominal cavity, peritoneal cytology and biopsies) is usually performed in association with platinum-based chemotherapy [5,6]. Initial surgery is essential since it allows diagnosis, staging and the first treatment [7].

Usually the first oncologic surgery is performed by laparotomy, but for these rare tumors affecting young patients we wondered if laparoscopy could be an alternative to open surgery. In addition to its traditional advantages (painless, cosmetic result, fewer complications, faster return to normal activities, shorter hospital stay), laparoscopy could create fewer post-operative adhesions, which could be essential in this population [8,9]. The aim of the study is to assess the feasibility of the laparoscopic approach and to compare the outcomes of patients treated initially by laparoscopy or by laparotomy.

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2. Materials and methods

This is a retrospective study including all non-epithelial ovarian malignancies, such as ovarian sex cord-stromal tumors (OSCTs) and malignant ovarian germ cell tumors (MOGCTs), indexed in the database of the pathology unit at Clermont-Ferrand University Hospital, France, between 1989 and 2009. Patients were treated in two different units: the Gynecology Unit, and the Children's Surgery Unit. For each patient the following items were manually recorded from their notes: age, symptoms, investigations (imagery and markers), tumor location and size, surgical management (laparotomy or laparoscopy, peritoneal cytology or biopsy, surgical procedure, conservative or radical treatment, lymphadenectomy, omentectomy, FIGO stage), duration of hospital stay, adjuvant treatments (chemotherapy, second look surgery), survey and fertility (menstruation and pregnancy rate). Radical treatment was defined as hysterectomy and bilateral salpingo-oophorectomy and conservative treatment as unilateral salpingo-oophorectomy in order to preserve fertility.

Twenty-two patients were listed, two of whom were excluded for the following reasons: one with lost notes, and a case of gonadoblastoma with 46XY karyotype (which does not relate to the tumors treated in this work because it was a benign tumor). The tumor distribution is described in Table 1. The results obtained are expressed as percentage or mean with standard deviation. The comparison was carried out using the Fisher Exact test because of the small number of patients, and $p < 0.05$ was considered as significant.

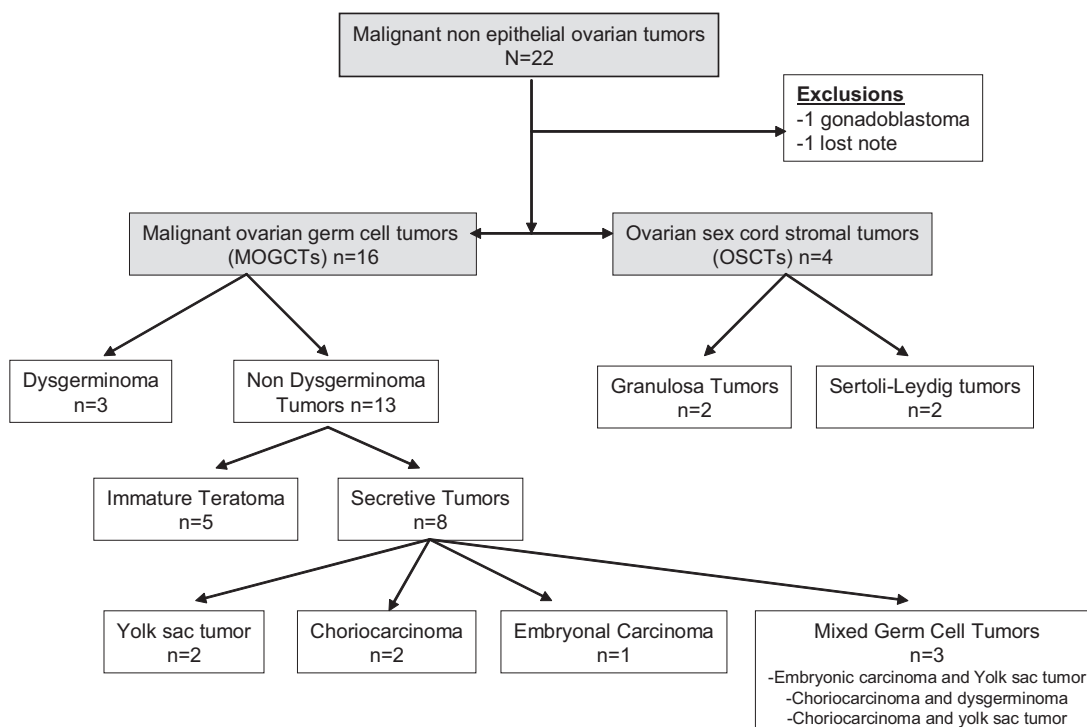
3. Results

Twenty patients were treated surgically for non-epithelial ovarian malignancies, amongst whom sixteen presented a MOGCT (80%), and four an OSCT (20%) (Table 1). According to the FIGO

classification of epithelial ovarian tumors, there were 11 stage I (55%), 5 stage II (25%), 2 stage III (10%) and 2 stage IV (10%) tumors. Fifty-five percent of the tumors were located on the left side, 35% on the right side and 10% were bilateral. The mean age of patients at the time of diagnosis was 29.1 ± 19.1 years [min:6–max:70], including 4 pre-pubescent girls, 4 menopausal women, and 12 women of childbearing age.

All the patients in the study underwent surgical treatment, 13 via laparotomy (two of them after laparoconversion) and 7 via exclusive laparoscopy (Table 2). In the laparoscopy group, 5 tumors were MOGCTs and 2 were OSCTs: finally, five of these tumors were stage I according to the FIGO classification. The average size of lesions was 6.7 ± 3.2 cm, and the mean age of patients was 32.3 ± 17.1 years. Six women had conservative treatment at the time of the initial surgery, including one who finally required radical surgery due to non-response to the chemotherapy. The only radical treatment concerned a 60 year old patient. All the patients underwent abdominal and pelvic exploration with peritoneal cytology, 3 had peritoneal biopsies, 2 had an omentectomy, and one a pelvic and aortic lymphadenectomy because of frozen sectioning of peritoneal biopsies positive for adenocarcinoma. The average hospital stay was 3.1 ± 1.5 days and there were no per-operative complications. The mean duration of follow-up was 3.4 ± 2.3 years. Five patients received platinum-based chemotherapy. Three patients had a second-look surgery, 1 stage II tumor for findings on imaging after chemotherapy (biopsies were positives), and 2 stage I tumors for young women who wished for pregnancy. Two of these surgeries proved to be negative, and the third was positive requiring radical treatment. Regarding complications, one patient developed a trocar site metastasis. Management was surgical and at the time of writing the patient is alive with no evidence of disease. Finally one patient died and the others are alive without recurrence at 2 years. The patient who died had a stage IV choriocarcinoma with lung and cerebral metastasis, and her death was due to the cerebral

Table 1
Tumor distribution.



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