

**Fertility-sparing Surgery in Malignant Epithelial Ovarian Tumor: A Case Report**Khatun S¹, Deebea F², Ivy R³, Alam ABMM⁴, Ahsan A⁵

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Abstract

Background: Epithelial ovarian cancer is the most common and lethal ovarian cancer. Fertility preservation is an important issue now a days because of the constant shifting of childbearing age towards higher ages. The increasing incidence of epithelial ovarian cancer in women with active

childbearing potential constitutes a therapeutic dilemma. Fertility sparing techniques are being increasingly incorporated in the therapeutic strategies in early stage of disease. Established organ-preserving techniques in early-stage epithelial ovarian cancer includes preservation of the contralateral ovary and uterus.

Aim: Report the case of a patient with a malignant epithelial ovarian tumor, who had conservative surgery and chemotherapy with a good fertility outcome.

Case presentation: A 31-year-old nulliparous woman with a right sided malignant ovarian mucinous cystadenocarcinoma was treated by right adnexectomy and omentectomy followed by chemotherapy. A 3years follow-up showed no signs of relapse, and she completed a full-term natural pregnancy which was delivered by caesarian section.

Conclusions: Fertility sparing surgery in early-stage malignant epithelial ovarian tumor has good prognosis. However, due to the rarity of the disease in early stages, the fertility outcome for this group of patients is not established.

Keywords: Fertility, Surgery, Mucinous cystadenocarcinoma.

Introduction

Epithelial ovarian cancer is the most common and lethal ovarian cancer¹. Fertility preservation is an important issue now a days because of the constant shifting of childbearing age towards higher ages. The increasing incidence of epithelial ovarian cancer in women with active childbearing potential constitutes a therapeutic dilemma². The abrupt loss of childbearing potential due to the malignant disease is an area of concern both for the patient as well as treating physician. So, alternative treatment options are being sought to preserve a last hope of fertility within the antitumor treatment³.



Maximal tumor reduction by radical surgery is currently the established cornerstone in the management of advanced epithelial ovarian cancer⁴. Fertility sparing techniques are being increasingly incorporated in the therapeutic strategies in early stage of disease⁵. Established organ-preserving techniques in early-stage epithelial ovarian cancer includes preservation of the contralateral ovary and uterus or even in highly specialized cases peritonectomy of the pelvis and uterine serosa to avoid the need of hysterectomy are being recruited^{5,6}. The subsequent “fertility protecting” chemotherapy is being applied under the concomitant ovarian protection.

Case presentation:

A 31-year-old regularly menstruating woman, who was married for three month, with no past personal, familial, or medical history, admitted in the hospital with acute abdominal pain and deterioration of her general status. After a physical examination, she was found to be afebrile with a whole abdominal tenderness but no signs of peritonitis with an ill-defined lump in hypogastrium. On vaginal examination uterus was found to be bulky and a mobile tender mass in the pouch of Douglas which was separated from the uterus. The remaining part of the physical examination was normal. A pelvic ultrasound showed a large 10×9 cm right ovarian thick-walled complex mass with solid and cystic component within it. The mild vascularity was with a RI +0.43.

In view of her acute abdominal pain, she was scheduled for an emergency laparotomy with a provision of frozen section biopsy. A 10 cm right ovarian mass with intact capsule, without any associated ascites or peritoneal implants; the rest of her abdominal cavity appeared normal. A right sided adnexectomy was conducted. The frozen section showed a malignant ovarian tumor. The surgery was completed

by omentectomy, biopsy from contralateral ovary and multiple site of peritoneum. A peritoneal washing was taken after surgery. A final histologic examination showed mucinous cystadenocarcinoma with intact capsule. But other specimen were free from malignancy.

She was then referred to oncologist. The chemotherapy consisting of bleomycin, etoposide, and cisplatin (BEP), with a complete clinical and radiological response after four courses of BEP. Finally, she underwent six well-tolerated injections of BEP.

Two years post-treatment, follow-ups were conducted including physical examinations, radiographic assessment, and tumor markers. All these parameter were negative during all follow-ups and there have been no signs of relapse to this date. She also reported a full-term natural pregnancy, which was delivered by caesarian section, 3years after the completion of the treatment. During her second caesarian section after 3years of first pregnancy, the contra-lateral ovary was removed. Both the pregnancies were spontaneous, no fertility treatment was needed.

Discussion

Oncologic safety

As 70% of epithelial ovarian cancer presented at stage III or IV disease⁷, few cases have been reported in the literature in early-stage disease. As such, the safety of FSS for this disease is accepted but not yet fully clinically supported. Data from the first largest report series by Zanetta et al. in 1997 concerning oncologic outcome after fertility sparing surgery in epithelial ovarian cancer showed it as a safe treatment option for early-stage patients with acceptable oncologic safety profile⁸. In 2010, Satoh et al. attempted to systematically determine selection criteria for fertility-sparing surgery in stage I



epithelial ovarian cancer. On the basis of clinical outcomes of more than 200 stage I patients who underwent fertility-sparing surgery. A relapse rate 8.5% was reported, among the relapsed cases 27% recurrence was exclusively in the remaining ovary without any distant or peritoneal metastases⁹. When collectively evaluating most published results so far, mean relapse rates are estimated to be around 10%, even in patient's cohorts which included also Ic stage disease^{8,9,10}.

Reproductive Outcome

In young cancer survivors' future fertility prospect represents a therapeutic dilemma for both treating physicians and affected patients. Both the operative and systemic treatments consistently compromise the ovarian reserve and often resulting in infertility and premature menopause^{11,12}. Evidence suggests that the rate of women with successful conception approximately 30% of all patients after FSS. On the contrary the women with an intention to conceive and actively tried to conceive, then rates of successful conception are substantially higher from 66% to 100%, which indicating that no relevant reproductive impairment usually exists only for FSS. Assisted reproductive techniques for a successful conception and pregnancy is needed in a small group^{8,9,10}.

Regarding the incidence of spontaneous abortions, the rates range between 11% to 33%, but no conclusions can be extracted about the cause of the abortions and their pathophysiology in the existing data. The rates of congenital malformations or abnormal fetal outcomes have been reported in the current literature is not higher⁹.

The interest of completion of surgery after childbearing age (or after 40 years in patients who have not been pregnant) is still under discussion. Nevertheless, to reduce the risk of recurrence, removal of the

remaining ovary should be considered in women who no longer intend to conceive.

Conclusions

Fertility sparing surgery in early-stage malignant epithelial ovarian tumor has good prognosis. It is usually associated with a good fertility outcome in early stages. However, due to the rarity of the disease in early stages, the fertility outcome for this group of patients is not clear. This lack of data surrounding early stages points to the need for a meta-analysis of all published cases.

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