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Editorial

Borderline ovarian tumor and future fertility

Maintenance of future fertility in women with malignant diseases, especially cancers occurring in the reproductive organs, was often impossible before.[1] However, a recent trend among women of reproductive age has been toward delayed pregnancy,[2] so more and more of these women may request the preservation of their future fertility when they are diagnosed with a malignancy.[3] Therefore, fertility preservation for these women is an important issue. Fortunately, with significantly advanced anti-neoplastic treatments, for example, the use of the multi-modality therapeutic strategy and conservative surgery (organ-preserving surgery), the management of cancers of the female reproductive organs, including early-stage endometrial cancers, cervical cancers and even ovarian cancers, has become possible.[4]

Since organ-preserving treatment can be used in the management of early-stage cancers of the reproductive organs in women, there is no doubt that less invasive types of tumors, for example, borderline ovarian tumor, are also good candidates for conservative treatment with a high possibility of preserving the ovary. Cystectomy may have a better chance of preserving a woman's fertility than adnexectomy (oophorectomy), because of the removal of less ovarian tissue. However, borderline ovarian tumor cannot be considered completely benign, and although rare, there is a consistent percentage of tumor recurrence, which may possibly result in tumor-related death. The 5-year survival for Stage-I and Stage II–III borderline ovarian tumors is about 95–97% and 65–87%, respectively.[5] The 10-year survival for even Stage I borderline ovarian tumors is reported to range from 70–95%.[5] Therefore, the question "how should these patients be treated?" is raised. In this issue, Tsai et al.[6] studied 61 women with borderline ovarian tumor, and found that no patients who were treated with radical surgery had recurrence during the mean follow-up period of 56 months. In contrast, more than 20% of patients who underwent fertility-sparing surgery developed tumor recurrence within 10–56 months, with a median of 25.1 months.

Tsai et al.[6] further analyzed these 7 patients with recurrent diseases and found that up to two-thirds ($n = 5$) were treated with cystectomy only. Therefore, the authors concluded that unilateral salpingo-oophorectomy (USO) must be considered as the first choice. In fact, this finding is not brand new, since Dr. Tinelli also suggested that when borderline ovarian tumors are identified at surgery by intraoperative histology, the recommended conservative treatment should be laparoscopic salpingo-oophorectomy.[7]

Although Dr. Tsai's report demonstrated a relatively clear conclusion regarding the management of borderline ovarian tumors in women, there are still a lot of questions. For example, it is interesting to find the authors concluding that fertility-sparing surgery is an acceptable and safe option for women with borderline ovarian tumors who wish to preserve fertility. It is not rational to reach such a conclusion if none had recurrence in the radical surgery group (fertility-destructive surgery), compared with more than 20% of patients in the fertility-sparing surgery group. Fortunately, all patients with recurrence were free of the tumor because recurrent tumors can be eliminated by the secondary surgery. This finding might support the authors' above-mentioned conclusion. In fact, Lenhard et al.[8] showed similar findings – that 5- and 10-year survival rates of women treated with fertility-sparing surgery ($n = 19$) were 100%, and thus not worse than those of patients undergoing radical operation (5- and 10-year survival, 95.1 and 90.1%).

Furthermore, among 7 women with recurrent disease, 2 developed invasive carcinomas. One woman underwent cystectomy and the other was treated with USO. In fact, it is not appropriate to include these 2 patients – any woman with benign tumors undergoing conservative treatment may face the possibility of malignancy of the same organ in the future. It is not acceptable that a patient with a diagnosis of relatively benign lesions should be treated with complete resection of the entire organ to minimize recurrence. This concept might be similar to the prophylactic oophorectomy or mastectomy in BRCA1 carriers, which is still debated.[9] Therefore, USO might not be better than cystectomy in the management of borderline ovarian tumor because the risk of future malignancy of the residual organs may be similar in both groups, if we consider the possibility of future pregnancy. In contrast, after excluding the 2 invasive tumors, the remaining 5 recurrent cases showed 3 (60%) in the same site (the original site of the borderline ovarian tumor) and 2 (40%) in the opposite site (supporting the new development of a borderline ovarian tumor), suggesting that the remaining ovarian tissue

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might carry a risk of recurrence. These recurrent tumors on the same ovary might be derived from the de novo development of the new lesion, but it is more possible that some borderline ovarian tumor cells were not removed completely during the first operation. In fact, the 3 patients with recurrence of the ipsilateral ovary had rupture during the first operation. Although we do not know what happened to these 3 patients, it is highly suspected that it may be really difficult or even impossible to perform complete resection of ovarian borderline tumors in these patients who wish to preserve their ovary.

Finally, concern about the overuse of lymphadenectomy has always existed and is still a subject of controversy. Almost all patients (96.7%) in the radical surgery group and half of the patients (48.4%) in the fertility-sparing surgery group in Tsai's report underwent lymphadenectomy.[5] Neither univariate analysis for disease-free survival nor multivariate analysis showed any significant value for lymphadenectomy in the management of women with borderline ovarian tumors. In fact, there are a handful of papers showing the limited or lack of value of lymphandenectomy for early-stage borderline ovarian tumors,[3,8,10] although this procedure is still often performed during the complete staging surgery.

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