LOW MALIGNANT POTENTIAL TUMORS: SHOULD THEY BE STAGED?
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Introduction: Recently the world health organization removed tumors of low malignant potential (LMP) or borderline ovarian tumors from the category of invasive ovarian carcinomas. LMP tumors make up to 15% of epithelial ovarian tumors and contribute approximately 3000 case of ovarian tumor annually(1). Patients diagnosed with LMP tumors tend to have an excellent prognosis even when diagnosed with advanced stage disease. The 5 year survival rate for stage I and II LMP tumors is essentially 100% and is approximately 80% for advanced stage tumors(2,3). The recurrence rate of LMP tumors is typically low and in patients that experience recurrences the time to recurrence is often 10 to 15 years from the time of the original diagnosis. The management of LMP tumors is mostly surgical and chemotherapy is indicated in only a few cases. Patients presenting with LMP tumors tend to be slightly older than those presenting with benign disease but younger than patients presenting with ovarian malignancies. Approximately 20% of patient with LMP tumors will present with advanced stage disease(4). The surgical management of these patients should be the same as for those patients presenting with invasive ovarian cancer.

Pathology: LMP tumors include histologic features consisting of any of the epithelial ovarian cancer subtypes. The most common are the serous, mucinous and endometrioid histologic subtypes. The histologic components that distinguish LMP tumors from invasive carcinomas are mainly architectural feature such as pushing borders rather than destructive invasion. Some of the histologic criteria used to describe LMP tumors include epithelial papilla, complexity of the architecture, cellular stratification, mitotic activity and lack of stromal invasion. LMP tumors are classified as LMP tumor, LMP tumors with non-invasive implants, LMP tumors with invasive implants and micropapillary LMP tumors.

Surgical management: In general the surgical management for patients diagnosed with a LMP tumor on intraoperative frozen section includes hysterectomy with bilateral salpingooophorectomy. The current guidelines for LMP tumors are the same as the recommendation for invasive ovarian malignancy and include full surgical staging with pelvic and periaortic node dissection, omentectomy, multiple peritoneal biopsies, diaphragmatic cytology and washings. However, the benign course that LMP tumors of the ovaries follow allow for a wide option for the surgical management for this disease and there is some controversy as to whether full surgical staging is necessary. Many of these tumors will be diagnosed in patients that continue to desire future fertility or who may continue to benefit from the hormonal contribution the ovary provides in the premenopausal age group. For patients with stage I disease many gynecologist agree that conservative management is an option for these patients. Analysis of GOG 72 revealed patients that underwent conservative surgery with unilateral oophorectomy had higher recurrence rates than what was experienced in patients treated with hysterectomy and bilateral oophorectomy. However, the survival rate was equivalent in the two groups(2). The use of cystectomy for the treatment of LMP tumors is also controversial. Intuitively the rate of recurrence would be higher for these patients but there is no evidence to show a difference in overall survival. For patients with advanced stage disease (stage II, III, and IV) in most cases a hysterectomy with bilateral salpingooophorectomy and tumor debulking or full surgical staging is recommended. The natural history of LMP tumors of all stages is that of a benign clinical course. Therefore, many physicians question the value of surgical staging in this disease. Approximately 50 to 70% of serous and 75 to 100% of mucinous LMP tumors appear to be confined to the ovary and are stage I disease(2,3). However, patients with apparent stage I disease who undergo full surgical staging will be upstage in 20% to 47% of cases(4,5). More importantly proponents of surgical staging argue that intraoperative frozen section may not reveal an invasive component within an LMP tumor that is found at the time of permanent sections. Depending on the institution LMP tumors are upgraded to an invasive carcinoma in 6% to 27% of cases(5-7). In these cases the true surgical stage would be unknown leading to a potential second surgery or unnecessary chemotherapy.

Patients with LMP tumors with non invasive implants will benefit from aggressive surgical debulking. About 30% of these patients will develop recurrent or progressive disease. The median time to recurrence is just over 7 years. In a report by Gershenson et al. seventy percent of patients that had their tissue sampled at the time of their recurrence had a low grade serous carcinoma and 30% had a recurrence of their LMP tumor(8). Despite the
increase in recurrence and the progression to invasive cancer this patient group did not benefit from adjuvant chemotherapy after their initial diagnosis(8). Patients with LMP tumors with invasive implant have a similar out come as patients with non invasive implants. They have a recurrence rate of 31%, a large number of which are low grade invasive tumors(9). Their time to recurrence was two years, five years earlier than patients with non invasive implants. Likewise these patients did not seem to benefit from adjuvant chemotherapy after their initial surgery(9). Micropapillary LMP tumors present an even greater dilemma than LMP tumors with invasive implants. These tumors have a high recurrence and progression rate and are often associated with invasive implants. The treatment of both LMP tumors with invasive implants and micropapillary tumors with adjuvant chemotherapy continues to be controversial. However, many gynecologic oncologist will agree that patients with micropapillary tumors will benefit from adjuvant chemotherapy.

Summary: The surgical management of LMP tumors of the ovary is controversial. In women desiring future fertility conservative surgery has not been shown to decrease survival rates in these patients. Women who present with advanced stage disease will benefit from a surgery characteristic to that which is recommended for patients with invasive ovarian cancer. Whether fertility sparing surgery is performed or not full surgical staging is indicated seeing that up to 50% of patients will be up staged and up to 30% of tumors will be upgraded to invasive ovarian malignancies.

Reference