

## TREATMENT STRATEGIES OF THE BORDERLINE OVARIAN TUMORS

Carlo Bulletti MD<sup>1,3</sup>, Alessia Albonetti MD<sup>1</sup>, Teresa Talamo PhD<sup>1</sup>, Letizia Bacchi Reggiani PhD<sup>2</sup>, Evaldo Giacomucci MD<sup>1</sup>, Stefania Alfieri MD<sup>1</sup>, Carlo Flamigni MD<sup>1</sup>.

<sup>1</sup> Unit of Special Pelvic Surgery, Operative Laparoscopy and Hysteroscopy, 1st Institute of Obstetrics and Gynecology, University of Bologna . Via Massarenti, 13. 40138 Bologna, Italy.

<sup>2</sup> Institute of Cardiology, University of Bologna

### TABLE OF CONTENTS

1. Abstract
2. Introduction
3. Materials and methods
4. Results
5. Discussion
6. Acknowledgments
7. References

### 1. ABSTRACT

The present study was undertaken to establish the role of surgical procedures, histotype, and stage of the tumor on the survival rate of patients with borderline ovarian tumors in a 5 to 15 years of follow-up. Data reported in the literature have shown the low malignancy of this cancer and that only the stage, but not the pathological diagnosis, is significantly influencing the survival rate of the patients. After 5 years, the survival rate of patients with tumors of stage I to stage II is 98.2% (n=567) and 81.4% (n=46), respectively, with no statistical difference. After 5 years, survival rate between tumors of stage I to stage III is 98.2% (n=567) and 79.1% (n=96), respectively ( $p < 0.05$ ). The data shows that for borderline ovarian tumors, a minimally invasive surgery is warranted.

### 2. INTRODUCTION

One in seventy women develop ovarian cancer in their lifetime (1) and the borderline ovarian tumors constitute 15% of all epithelial ovarian cancers (2). Borderline ovarian tumors are neoplasms which exhibit cellular proliferative changes greater than those seen in the benign form of the same type of tumor, but not showing the destructive invasion of the ovarian stroma (3). Tumors with epithelial proliferation, nuclear abnormalities and mitotic activity of intermediate degree and no obvious invasion of the stroma are placed in a group between

clearly benign neoplasms and malignant tumors and are designated as tumors of low malignant potential (4).

The introduction of laparoscopy or other minimally invasive surgical procedures in the management of pelvic masses require evaluation of the adequacy of these procedures in the treatment for the ovarian cancers at an early stage and with low malignant potential. The purposes of the present study was to verify:

- if the type of surgical procedure may influence survival of patients with borderline tumors;
- if the histologic type of tumor and stage influences the survival rate;
- if laparoscopy is reliable in the management of borderline tumors.

Meta-analysis of data reported in studies on ovarian borderline tumors published in the recent literature was used to answer to the above questions.

### 3. MATERIALS AND METHODS

The histologic grade, stage of the disease and the type of surgery were studied in 1113 patients who had borderline tumors and which were included in 9 studies published between 1971 and 1993 and reported in the Medline data bases of the National Library of Medicine (3-11). Patients had a follow-up between 5 to 15 years. Meta-analysis of the survival rates was done by Kaplan-Meier life-table on serous and mucinous borderline ovarian tumors.

### 4. RESULTS

Fifty two percent (n=578) of cases were serous, 44% (n=491) were mucinous, 18% (n=20) were endometrioid and 2.2% (n=24) mixed. The

Received 9/16/96; Accepted 10/15/96

<sup>3</sup> To whom correspondence should be addressed, at Unit of Special Pelvic Surgery, Operative Laparoscopy and Hysteroscopy, 1st Institute of Obstetrics and Gynecology, University of Bologna . Via Massarenti, 13., 40138 Bologna, Italy. Tel. 39.51.6364372; Fax 39.51.345826. E-mail: bulletti@alma.unibo.it

## Borderline ovarian tumors

survival rate after 5 years for serous tumor cases was 96.5% (n=558) and for mucinous cases 92.8% (n=455), with rate difference of 5.1 that is not statistically significant (p=NS). The survival rate after 10 years for the serous tumor patients was 94.7% (n=547) and for mucinous cases was 90.6% (n=444), with rate difference of 4.6% (p=NS). The survival rates after 5 years of patients between tumors of stage I and stage II were 98.2% (n=567) and 81.4% (n=46), respectively with no statistical difference. The survival rates after 5 years of patients with tumors of stage I and stage III is 98.2% (n=567) and 79.1% (n=96), respectively (p< 0.05).

## 5. DISCUSSION

Meta-analysis provides a systematic and quantitative approach to the summary of results from randomized studies. The main objective of this analysis was to obtain the information about survival data that could not be obtained from any of the studies alone. The data reported here show that the histologic type of the borderline ovarian tumors does not influence the survival rate at 5 and 10 years of follow-up. On the other hand, the stage of this cancer seems to play a crucial role in the survival rate. Potential problems in the laparoscopic management of pelvic masses include inappropriate surgical procedures, incomplete surgical staging, inadequate patient preparation, and delays in definitive therapy. The data reported here suggest that for the borderline ovarian tumors, minimally invasive surgical procedure is the appropriate therapeutic approach. Ovariectomy is preferred to cystectomy since establishing the diagnosis of a borderline ovarian tumor requires histological evaluation of the stroma.

## 6. ACKNOWLEDGMENTS

Supported by the Italian National Council of Research grant #940840

## 7. REFERENCES

1. M. Maimand. Laparoscopic Removal of the Adnexal Mass: the case for caution. *Clin Obstet Gynecol* 38 (2) 370-379, 1995.
2. PH. J. Di Saia, W.T. Creasman. Borderline malignant epithelial ovarian neoplasms. *Clinical Gynecologic Oncology. Second edition* 272-273, 1984.
3. J.T. Chambers, M.J. Merino, E.I. Kohorn, P.E. Schwartz. Borderline ovarian tumors. *Am. J Obstet Gynecol* 159:1088-1094, 1988.
4. D. Barnhill, P. Heller, P. Brzozowski, H. Advani, D. Gallup, R. Park. Epithelial ovarian carcinoma of

low malignant potential. *Obstet Gynecol* 65: 53-59, 1985.

5. L. Kliman, R.M. Rome, D.W. Fortune. Low malignant potential tumors of the ovary: a study of 76 cases. *Obstet Gynecol* 68: 338-344, 1986.

6. J. Koern, C.G. Tropé, V.M. Abeler. A retrospective study of 370 borderline tumors of the ovary treated at the Norwegian Radium Hospital from 1970 to 1982. *Cancer* 71: 1810-1820, 1993.

7. D.G. Bostwick, H.D. Tazelaar, S.C. Ballon, M.R. Hendrickson, R.L. Kempson. Ovarian epithelial tumors of borderline malignancy. A Clinical Pathologic Study of 109 cases. *Cancer* 58: 2052-2065, 1986.

8. J.C. Aure, K. Hoeg, P. Kolstad. Clinical and histologic studies of ovarian carcinoma. Long-term follow-up of 990 cases. *Obstet and Gynecol* 37: 1-9, 1971.

9. L.W. Rice, R.S. Berkowitz, S.D. Mark, D.L. Yavner, J.M. Lage. Epithelial ovarian tumors of borderline malignancy. *Gynecol Oncol* 39: 195-198, 1990.

10. N. Nikrui. Survey of clinical behavior of patients with borderline epithelial tumors of the ovary. *Gynecol Oncol* 12: 107-119, 1981.

11. N. Nakashima, T. Nagasaka, N. Oiwa, Y. Nara, S. Fukata, T. Fukatsu, J. Takeuchi. Ovarian epithelial tumors of borderline malignancy in Japan. *Gynecol Oncol* 38: 90-98, 1990.