CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3334268

Available online at: http://www.iajps.com *Research Article*

# STAGING CLASSIFICATION FOR CANCER OF THE OVARY, FALLOPIAN AND PERITONEUM.

**[1]Dr Farah Malik,[2]Dr Hafiza Arooj Fatima,[3]Dr Faiqa Azhar**

[1]WMO, BHU Sultan Pur Hammer,Multan, [2]WMO, THQ Hospital Burewala,
[3]WMO, DHQ Hospital Vehari.

**Article Received:** May 2019 **Accepted:** June 2019 **Published:** July 2019

**Summary:**

*The Gynecologic Oncology Committee of FIGO in 2014 revised the staging of ovarian cancer, incorporating ovarian, fallopian tube, and peritoneal cancer into the same system. Most of these malignancies are high-grade serous carcinomas (HGSC). Stage IC is now divided into three categories: IC1 (surgical spill); IC2 (capsule ruptured before surgery or tumor on ovarian or fallopian tube surface); and IC3 (malignant cells in the ascites or peritoneal washings). The updated staging includes a revision of Stage IIIC based on spread to the retroperitoneal lymph nodes alone without intraperitoneal dissemination. This category is now subdivided into IIIA1 (i) (metastasis ≤10 mm in greatest dimension), and IIIA1 (ii) (metastasis >10 mm in greatest dimension). Stage IIIA2 is now "microscopic extra pelvic peritoneal involvement with or without positive retroperitoneal lymph node" metastasis.*

**Corresponding author:**

**Dr. Farah Malik,**

*WMO, BHU Sultan Pur Hammer,Multan.*

QR code

*Please cite this article in press Farah Malik et al.,* ***Staging Classification For Cancer Of The Ovary, Fallopian And Peritoneum.,*** *Indo Am. J. P. Sci, 2019; 07[07].*

## INTRODUCTION:

The Gynecologic Oncology Committee of FIGO revised the staging to incorporate ovarian, fallopian tube, and peritoneal cancer in the same system. Changing the staging system required extensive international consultation. The primary site (i.e. ovary, fallopian tube, or peritoneum) is designated, where possible. When it is not possible to clearly delineate the primary site, these should be listed as "undesignated".[1,2] It has been presumed that fallopian tube malignancies were rare.[2] However, histologic, molecular, and genetic evidence shows that as many as 80% of tumors that were classified as high-grade serous carcinomas of the ovary or peritoneum may have originated in the fimbrial end of the fallopian tube.[3–8] Therefore, the incidence of fallopian tube cancers may have been substantially underestimated. These new data support the view that high-grade serous ovarian, fallopian tube, and peritoneal cancers should be considered collectively, and that the convention of designating malignancies as having an ovarian origin should no longer be used, unless that is clearly the origination site. It has been suggested that extra uterine tumors of serous histology arising in the ovary, fallopian tube, or peritoneum might be described collectively as "Müllerian carcinomas"[1,2] or "pelvic serous carcinomas".[9] The latter tumor designation is controversial because some peritoneal tumors might arise in extrapelvic peritoneum. Therefore, the simple term "serous carcinoma" is preferred, and most of these are high-grade serous carcinomas (HGSC). Although there has been no formal staging for peritoneal cancers, the FIGO staging system is used with the understanding that it is not possible to have a Stage I peritoneal cancer.

**Primary Site**: Ovarian epithelial tumors may arise within endometriosis or cortical inclusions of Müllerian epithelium, likely a form of endosalpingiosis. These include low-grade endometrioid carcinomas, clear cell carcinomas, borderline and low-grade serous carcinomas, and mucinous carcinomas. These tumors are thought to evolve slowly from lower-grade precursor conditions (endometriotic cysts, cyst adenomas, etc.) and are classified as type I tumors.[5] Fallopian tube carcinomas arise in the distal fallopian tube and the majority of these are high-grade serous carcinomas. These are thought to evolve rapidly from more obscure precursors and are designated as type II tumors.[5, 6] this latter group encompasses high-grade endometrioid carcinomas and carcinosarcomas. All of these high-grade carcinomas are nearly always associated with mutations in the TP53 gene.

**Lymphatic and lymph node drainage**: The lymphatic drainage of the ovaries and fallopian tubes is via the utero-ovarian, infundibulopelvic, and round ligament pathways and an external iliac accessory route into the following regional lymph nodes: external iliac, common iliac, hypogastric, lateral sacral, para-aortic lymph nodes and, occasionally, to the inguinal nodes.[1] The peritoneal surfaces can drain through the diaphragmatic lymphatics and hence to the major venous vessels above the diaphragm.

**Other metastatic sites**: The peritoneum, including the omentum and pelvic and abdominal viscera, is the most common site for dissemination of ovarian and fallopian tube cancers. This includes the diaphragmatic and liver surfaces. Pleural involvement is also seen. Other extraperitoneal or extrapleural sites are relatively uncommon, but can occur.[1, 10–12] after systematic pathologic analysis has excluded a tubal or ovarian site of origin, and malignancies that appear to arise primarily on the peritoneum have an identical spread pattern, and frequently may involve the ovaries and fallopian tubes secondarily. These "peritoneal" tumors are thought to arise in endosalpingiosis.

## CLASSIFICATION RULES:

Although CT scans can delineate the intra-abdominal spread of disease to a certain extent, ovarian, fallopian tube, and peritoneal cancers should be staged surgically. Operative findings determine the precise histologic diagnosis, stage, and therefore the prognosis, of the patient.[1,9,10,12] In selected patients with advanced-stage disease, it may be appropriate to initiate chemotherapy prior to surgical intervention, and in these cases, there should be histologic or cytologic confirmation of the diagnosis priorto starting neoadjuvant chemotherapy. Chest radiograms may serve as a screen for pleural effusions. As distant metastases are infrequent, there is no requirement for other radiological evaluation unless symptomatic. Serum CA125 levels may be useful in determining response to chemotherapy, but they do not contribute to staging.

**Fallopian Tube Involvement:** Fallopian tube involvement can be divided into three categories. In the first, an obvious intraluminal and grossly apparent fallopian tube mass is seen with tubal intraepithelial carcinoma (carcinoma in situ) that is presumed to have arisen in the fallopian tube. These cases should be staged surgically with a histologic confirmation of disease. Tumor extension into the submucosa or muscularis and to and beyond the serosa can therefore be defined. These features, together with the laterality and the presence or absence of ascites,

should all be taken into consideration.[1, 3, 6, and 7] In the second scenario, a widespread serous carcinoma is associated with a tubal intraepithelial carcinoma. A visible mass in the endosalpinx may not be seen but the histologic findings should be noted in the pathology report since they may indicate a fallopian tube primary. Tumors obliterating both fallopian tube and ovary may belong to this group but whether a presumptive assignment of a tubal origin can be made in such cases is controversial given that tubal intraepithelial carcinoma cannot be confirmed. In the third scenario— risk-reducing salpingo-oophorectomy— tubal intraepithelial carcinoma may be the only finding. It should be reported as originating in the fallopian tube and managed accordingly. The majority of early serous cancers detected are found in the fallopian tube, irrespective of genetic risk.

**FIGO staging:** The updated, revised FIGO staging system combines the classification for ovarian, fallopian tube, and peritoneum cancer. It is based on findings made mainly through surgical exploration (as outlined above). Table presents the 2014 FIGO staging classification for cancer of the ovary, fallopian tube, and peritoneum. The equivalents within the Union for International Cancer Control (UICC) TNM classification are presented in Table 1. In addition to these changes, several other modifications of the former staging system have been made to better prospectively capture the data. Stage IC is now divided into three categories: IC1 (surgical spill); IC2 (capsule ruptured before surgery or tumor on ovarian or fallopian tube surface); and IC3 (malignant cells in the ascites or peritoneal washings). Stage IIC has been eliminated. The updated staging includes a revision of the Stage IIIC based on spread to the retroperitoneal lymph nodes alone without intraperitoneal dissemination, because an analysis of these patients indicates that their survival is significantly better than those who have intraperitoneal dissemination.This category is now subdivided into IIIA1(i) (metastasis ≤10 mm in greatest dimension), and IIIA1(ii) (metastasis >10 mm in greatest dimension). Stage IIIA2 is now "microscopic extrapelvic peritoneal involvement with or without positive retroperitoneal lymph node" metastasis. The wording of Stage IIIB has been modified to reflect the lymph node status. Stage IVB now includes metastases to the inguinal lymph nodes.

**T1-N0-M0**
**IA:** tumor limited to one ovary (capsule intact) or fallopian tube; no tumor on ovarian or fallopian tube surface; no malignant cells in the ascites or peritoneal washings **T1a-N0-M0**
**IB:** tumor limited to both ovaries (capsules intact) or fallopian tubes; no tumor on ovarian or fallopian tube surface; no malignant cells in the ascites or peritoneal washings **T1b-N0-M0**
**IC:** tumor limited to one or both ovaries or fallopian tubes, with any of the following: IC1: surgical spill **T1c1-N0-M0**
**IC2:** capsule ruptured before surgery or tumor on ovarian or fallopian tube surface **T1c2-N0-M0**
**IC3:** malignant cells in the ascites or peritoneal washings **T1c3-N0-M0**

**Stage II:** Tumor involves one or both ovaries or fallopian tubes with pelvic extension (below pelvic brim) or primary peritoneal cancer
**T2-N0-M0**
**IIA:** extension and/or implants on uterus and/or fallopian tubes and/or ovaries **T2a-N0-M0**
**IIB:** extension to other pelvic intraperitoneal tissues **T2b-N0-M0**

**Stage III:** Tumor involves one or both ovaries or fallopian tubes, or primary peritoneal cancer, with cytologically or histologically confirmed spread to the peritoneum outside the pelvis and/or metastasis to the retroperitoneal lymph nodes.
**T1/T2-N1-M0**
**IIIA1:** positive retroperitoneal lymph nodes only (cytologically or histologically proven):
**IIIA1(i):** Metastasis up to 10 mm in greatest dimension
**IIIA1(ii):** Metastasis more than 10 mm in greatest dimension
**IIIA2:** microscopic extrapelvic (above the pelvic brim) peritoneal involvement with or without positive retroperitoneal lymph nodes **T3a2-N0/N1-M0**
**IIIB:** macroscopic peritoneal metastasis beyond the pelvis up to 2 cm in greatest dimension, with or without metastasis to the retroperitoneal lymph nodes **T3b-N0/N1-M0.**
**IIIC:** macroscopic peritoneal metastasis beyond the pelvis more than 2 cm in greatest dimension, with or without metastasis to the retroperitoneal lymph nodes (includes extension of tumor to capsule of liver and spleen without parenchymal involvement of either organ) **T3c-N0/N1-M0**

**Stage IV:** Distant metastasis excluding peritoneal metastases

**IVA:** pleural effusion with positive cytology Stage.
**IVB:** parenchymal metastases and metastases to extra-abdominal organs (including inguinal lymph nodes and lymph nodes outside of the abdominal cavity)
**Any T, any N, M1**

**TABLE 1**: Cancer of the ovary, fallopian tube and peritoneum: FIGO staging (2014) compared with TNM classification.

| FIGO (designate primary: Tov, Tft, Tp, or Tx) | UICC T | N | M |
|---|---|---|---|
| Stage | | | |
| IA | T1a | N0 | M0 |
| IB | T1b | N0 | M0 |
| IC | T1c | N0 | M0 |
| IIA | T2a | N0 | M0 |
| IIB | T2b | N0 | M0 |
| IIIA | T3a | N0 | M0 |
| | T3a | N1 | M0 |
| IIIB | T3b | N0 | M0 |
| | T3b | N1 | M0 |
| IIIC | T3c | N0–1 | M0 |
| | T3c | N1 | M0 |
| IV | Any T | Any N | M1 |
| Regional nodes (N) | | | |
| Nx | Regional lymph nodes cannot be assessed | | |
| N0 | No regional lymph node metastasis | | |
| N1 | Regional lymph node metastasis | | |
| Distant metastasis (M) | | | |
| Mx | Distant metastasis cannot be assessed | | |
| M0 | No distant metastasis | | |
| M1 | Distant metastasis (excluding peritoneal metastasis) | | |

**Regional lymph nodes (N):** NX: Regional lymph nodes cannot be assessed. 2. N0: No regional lymph node metastasis. 3. N1: Regional lymph node metastasis.

**Distant metastasis (M):** MX: Distant metastasis cannot be assessed. 2. M0: No distant metastasis. 3. M1: Distant metastasis (excluding peritoneal metastasis).

## HISTOPATHOLOGIC CLASSIFICATION:

The majority of cases of ovarian cancer are of epithelial origin. FIGO endorses the WHO histologic typing of epithelial ovarian tumors. It is recommended that all ovarian epithelial tumors be subdivided according to the classification given below. The histologic classification of ovarian, fallopian tube, and peritoneal neoplasia is as follows: 1. Serous tumors. 2. Mucinous tumors. 3. Endometrioid tumors. 4. Clear cell tumors. 5. Brenner tumors. 6. Undifferentiated carcinomas (this group of malignant tumors is of epithelial structure, but they are too poorly differentiated to be placed in any other group). 7. Mixed epithelial tumors (these tumors are composed of two or more of the five major cell types of common epithelial tumors. The types are usually specified). 8. Cases with high-grade serous carcinoma in which the ovaries and fallopian tubes appear to be incidentally involved and not the primary origin can be labeled as peritoneal carcinoma or serous carcinoma of undesignated site, at the discretion of the pathologist. Epithelial tumors of the

ovary and fallopian tube are further subclassified by histologic grading, which can be correlated with prognosis. This grading system does not apply to nonepithelial tumors. Two grading systems are applied. For non-serous carcinomas (most endometrioid and mucinous), grading is identical to that used in the uterus, based on architecture with a one-step upgrade if there is prominent nuclear atypia, as follows: 1. GX: Grade cannot be assessed. 2. G1: Well differentiated. 3. G2: Moderately differentiated. 4. G3: Poorly differentiated. Serous carcinomas are the most common in both the ovary and tube. More than 90% of fallopian tube carcinomas are serous or highgrade endometrioid adenocarcinoma. Other cell types have been reported but are rare. Serous carcinomas are graded in a twograde system befitting their biology. High-grade serous carcinomas, including both classic appearing and those with SET features (solid, endometrioid-like, and transitional) carry a high frequency of mutations in TP53.Low-grade serous carcinomas are often associated with borderline or atypical proliferative serous tumors, often contain mutations in BRAF and KRAS and contain wild-type TP53. Most "moderately differentiated" serous carcinomas carry mutations in TP53 and should be combined with the high-grade tumors. Nonepithelial cancers, although uncommon, are extremely important.These include granulosa celltumors, germ celltumors, sarcomas, and lymphomas. They are discussed below as separate entities. Metastatic neoplasms to the ovary, such as tumors arising in the breast, lower reproductive tract sites (cervix or uterine carcinomas) and gastrointestinal tract (signet ring cell [Krukenberg] carcinomas, low grade appendiceal or pancreaticobiliary mucinous tumors and other neoplasms) are graded and staged in accordance with their respective sites of origin.

## REFERENCES:


1. Berek JS, Friedlander M, Hacker NF. Epithelial ovarian, fallopian tube, and peritoneal cancer. In: Berek JS, Hacker NF, eds. Berek and Hacker's Gynecologic Oncology, 6th edn. Philadelphia: Lippincott Williams and Wilkins; 2015:464–529.
2. Scully RE, Young RH, Clements PB. Tumors of the Ovary, Maldeveloped Gonads, Fallopian Tube, and Broad Ligaments. Atlas of Tumor Pathology. Third series. Washington, DC: Armed Forces Institute of Pathology; 1998.
3. Kindelberger DW, Lee Y, Miron A, Hirsch MS, Feltmate C, Medeiros F, et al. Intraepithelial carcinoma of the fimbria and pelvic serous carcinoma: Evidence for a causal relationship. Am J Surg Pathol. 2007;31:161–169.
4. Callahan MJ, Crum CP, Medeiros F, Kindelberger DW, Elvin JA, Garber JE, et al. Primary fallopian tube malignancies in BRCApositive women undergoing surgery for ovarian cancer risk reduction. J Clin Oncol. 2007;25:3985–3990.
5. Kurman RJ, Shih IM. Pathogenesis of ovarian cancer: Lessons from morphology and molecular biology and their clinical implications. Int J Gynecol Pathol. 2008;27:151–160.
6. Crum CP, Drapkin R, Miron A, Ince TA, Muto M, Kindelberger DW, et al. The distal fallopian tube: A new model for pelvic serous carcinogenesis. Curr Opin Obstet Gynecol. 2007;19:3–9.
7. Carlson JW, Miron A, Jarboe EA, Parast MM, Hirsch MS, Lee Y, et al. Serous tubal intraepithelial carcinoma: Its potential role in primary peritoneal serous carcinoma and serous cancer prevention. J Clin Oncol. 2008;26:4160–4165.
8. Aziz S, Kuperstein G, Rosen B, Cole D, Nedelcu R, McLaughlin J, et al. A genetic epidemiological study of carcinoma of the fallopian tube. Gynecol Oncol. 2001;80:341–345.
9. Levanon K, Crum C, Drapkin R. New insights into the pathogenesis of serous ovarian cancer and its clinical impact. J Clin Oncol. 2008;26:5284–5293.
10. Deffieux X, Morice P, Thoury A, Camatte S, Duvillard P, Castaigne D. Anatomy of pelvic and para-aortic nodal spread in patients with primary fallopian tube carcinoma. J Am Coll Surg. 2005;200:45–48.
11. . Baekelandt M, Jorunn NesbakkenA, Kristensen GB, Trope CG,Abeler VM. Carcinoma of the fallopian tube. Cancer. 2000;89:2076–2084.
12. Burghardt E, Girardi F, Lahousen M, Tamussino K, Stettner H. Patterns of pelvic and paraaortic lymph node involvement in ovarian cancer. Gynecol Oncol. 1991;40:103–106.