

Original Article



Current peritonectomy practice during debulking surgery in patients with newly diagnosed advanced ovarian cancer: a Korean Gynecologic Oncology Group Study (KGOG 4004)

Myeong-Seon Kim ,¹ Yoo-Young Lee ,² Soo Jin Park ,³ Hee Seung Kim ,³ Heon Jong Yoo ,⁴ Myong Cheol Lim ,⁵ Yong Jung Song ,⁶ Eun-Ju Lee ⁷

OPEN ACCESS

Received: Apr 23, 2024

Revised: Jul 23, 2024

Accepted: Oct 3, 2024

Published online: Oct 22, 2024

Correspondence to

Eun-Ju Lee

Department of Obstetrics and Gynecology,
Chung-Ang University School of Medicine,
Chung-Ang University Hospital, 102 Heukseok-
ro, Dongjak-gu, Seoul 06973, Korea.
Email: ejlee@cau.ac.kr

© 2025. Asian Society of Gynecologic
Oncology, Korean Society of Gynecologic
Oncology, and Japan Society of Gynecologic
Oncology

This is an Open Access article distributed
under the terms of the Creative Commons
Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>)
which permits unrestricted non-commercial
use, distribution, and reproduction in any
medium, provided the original work is properly
cited.

ORCID iDs

Myeong-Seon Kim
<https://orcid.org/0000-0001-8342-0040>
Yoo-Young Lee
<https://orcid.org/0000-0001-5902-9877>
Soo Jin Park
<https://orcid.org/0000-0002-7382-230X>
Hee Seung Kim
<https://orcid.org/0000-0001-6876-8671>
Heon Jong Yoo
<https://orcid.org/0000-0003-4808-3450>
Myong Cheol Lim
<https://orcid.org/0000-0001-8964-7158>

¹Department of Obstetrics and Gynecology, Chung-Ang University Gwangmyeong Hospital, Chung-Ang University School of Medicine, Seoul, Korea

²Gynecologic Oncology Cancer Center, Department of Obstetrics and Gynecology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

³Department of Obstetrics and Gynecology, Seoul National University College of Medicine, Seoul, Korea

⁴Department of Obstetrics & Gynecology, Chungnam National University Sejong Hospital, Sejong, Korea

⁵Center for Gynecologic Cancer, National Cancer Center, Goyang, Korea

⁶Department of Obstetrics and Gynecology, Pusan National University Yangsan Hospital, Yangsan, Korea

⁷Department of Obstetrics and Gynecology, Chung-Ang University School of Medicine, Chung-Ang University Hospital, Seoul, Korea

ABSTRACT

Objective: Because of the possible therapeutic benefit of removing occult tumor cells, a source of recurrence and chemoresistance, total parietal peritonectomy (TPP) is an alternative treatment for advanced epithelial ovarian/fallopian tube/primary peritoneal cancer. Interventional studies comparing TPP with selective parietal peritonectomy (SPP) are in progress. Since surgeons skilled in TPP are essential for such trials to be conducted, this nationwide survey aimed to examine current peritonectomy practice among gynecologic oncologists in Korea.

Methods: A 17-item questionnaire, developed by a surgery committee and reviewed by the scientific review board of the Korean Gynecology Oncology Group (KGOG), was distributed to 144 KGOG members. The questionnaire was divided into 3 categories: respondent demographics, peritonectomy practice during primary debulking surgery (PDS), and peritonectomy practice during interval debulking surgery (IDS).

Results: We received 88 (61.1%) valid responses. Of the valid respondents, 98.9% and 93.8% performed SPP during PDS and IDS, respectively. Only 4.9% of the respondents performed TPP during IDS. Most respondents performed peritonectomy in cases where optimal postoperative outcomes were expected. Approximately 50.6% of the respondents had performed peritonectomy independently, while the others did so in cooperation with non-gynecologic surgeons. The primary reasons for not performing TPP were concerns about morbidity and uncertainty about the clinical benefits of the procedure.

Conclusion: SPP is the predominant technique used in both PDS and IDS in Korea. A small percentage (4.9%) of gynecologic oncologists have performed TPP during IDS. Accordingly, a study regarding the feasibility of TPP should be conducted before proceeding with a prospective clinical trial.

Keywords: Ovarian Cancer; Debulking Surgical Procedure; Parietal Peritoneum; Survey

Yong Jung Song 
<https://orcid.org/0000-0002-6103-2466>

Eun-Ju Lee 
<https://orcid.org/0000-0001-9446-1059>

Funding

This study was supported by the Basic Science Research Program of the National Research Foundation of Korea (NRF) under grant number 2020R1A2C1003536.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Author Contributions

Conceptualization: L.E.J.; Data curation: K.M.S., L.Y.Y., L.E.J.; Formal analysis: K.M.S.; Funding acquisition: L.E.J.; Investigation: K.M.S., L.Y.Y., P.S.J., K.H.S., Y.H.J., L.M.C., S.Y.J., L.E.J.; Methodology: K.M.S., L.Y.Y., P.S.J., K.H.S., Y.H.J., L.M.C., S.Y.J., L.E.J.; Project administration: L.E.J.; Writing - original draft: K.M.S.; Writing - review & editing: L.Y.Y., L.E.J.

Synopsis

Selective parietal peritonectomy was performed by 98.9% and 93.8% of Korean gynecologists during primary and interval debulking surgery (IDS), respectively. Only 4.9% of respondents performed total parietal peritonectomy during IDS. Approximately half of the respondents (50.6%) completed the peritonectomy procedure independently.

INTRODUCTION

In the treatment strategy of advanced epithelial ovarian, fallopian tube, or primary peritoneal cancer (EOFPC) maximal debulking surgery followed by platinum-based adjuvant chemotherapy with or without target agents is considered the optimal strategy [1-5]. The success of this approach is heavily dependent on debulking surgery which is a critical therapeutic factor since postoperative residual disease is an independent prognostic factor in EOFPC [2,3,6,7]. Therefore, the aim should be to achieve a minimal residual status. To accomplish this, peritonectomy is essential for removing peritoneal lesions of various sizes to achieve microscopic residual disease. Additionally, peritonectomy may improve disease control by breaking down the nest of cancer cells and eliminating occult tumor cells that may become chemo-resistant [8,9]. However, the most effective peritonectomy technique for optimal therapeutic outcomes has not been established.

Peritonectomy was first introduced for the surgical treatment of peritoneal carcinomatosis [10] and has since been applied for the removal of peritoneal metastatic lesions in patients with EOFPC [3,11]. Selective parietal peritonectomy (SPP) of the tumor-affected tissue has been the standard practice during debulking surgery; however, recent studies suggest that total parietal peritonectomy (TPP) may offer therapeutic benefits. A study on patients with stage IIIC/IV serous ovarian cancer revealed that TPP and SPP during interval debulking surgery (IDS) after neoadjuvant chemotherapy achieved 3-year overall survival (OS) rates of 95% and 70.8%, respectively ($p=0.060$) [12]. Moreover, the parietal peritoneum exhibits a high incidence of residual disease, underscoring the importance of parietal peritonectomy [13]. Another study reported that TPP facilitated the achievement of optimal microscopic residual status during primary debulking surgery (PDS) and significantly increased 3-year OS compared with the survival results reported in previous studies such as the LION trial [14]. Therefore, a well-designed clinical trial is warranted to confirm the efficacy of TPP.

Since an assessment of the expertise and experience of surgeons is critical for undertaking a clinical trial involving TPP, we aimed to conduct a nationwide investigation of the current clinical practice regarding peritonectomy during debulking surgery in Korea. Our findings could guide decision-making regarding the feasibility of a pilot study prior to a prospective clinical trial on TPP.

MATERIALS AND METHODS

1. Study design and participants

We conducted a cross-sectional survey of 144 gynecologic oncologists who were current members of the Korean Gynecology Oncology Group (KGOG) at September 1, 2021. The questionnaire was distributed via email from September 30 to October 30, 2021, and

respondents voluntarily completed the self-administered online questionnaire through Google Forms. No financial or other incentives were provided for completing the survey, and responses were collected anonymously. Responders were instructed to participate only once, and redundant responses were eliminated using statistical software.

2. Definition of peritonectomy

To identify the surgical target in the parietal peritoneum, the parietal peritoneum was divided into sections according to compartments of the abdominal cavity (**Fig. 1**) as follows: right or left subphrenic, flank, anterior abdominal, and pelvic (right and left anterolateral and pararectal, bladder, and posterior cul-de-sac) sections. TPP was defined as the removal of all sections of the parietal peritoneum regardless of tumor involvement. SPP was defined as removal of only the parietal peritoneum that showed tumor involvement. Tumorectomy was defined as removal of the tumor mass without excision of the peritoneum.

3. Development of survey questionnaire

Eight gynecologic oncologists, members of the KGOG surgery committee, collaborated in creating the questionnaire, which was subsequently reviewed by the scientific review board of the KGOG. The questionnaire survey was prepared using Google Forms, and a pilot study was conducted involving 10 respondents to refine the content based on their input. The questionnaire was not formally validated. The survey included 17 questions aimed at collecting demographic information of the respondents as well as details regarding their peritonectomy practice during PDS and IDS (**Appendix 1**).

The questionnaire specifically included items pertaining to the age and clinical experience of the gynecologic oncologist, the number of surgeries conducted at the affiliated institution, preference for neoadjuvant chemotherapy (NAC), and details regarding the practice of peritonectomy. A high-volume hospital was defined as a center with ≥ 24 cases per year, and a high-volume surgeon performed ≥ 12 procedures per year [15-21]. A gynecologic oncologist was defined as a surgeon with a subspecialty who completed ≥ 2 years of fellowship at a department

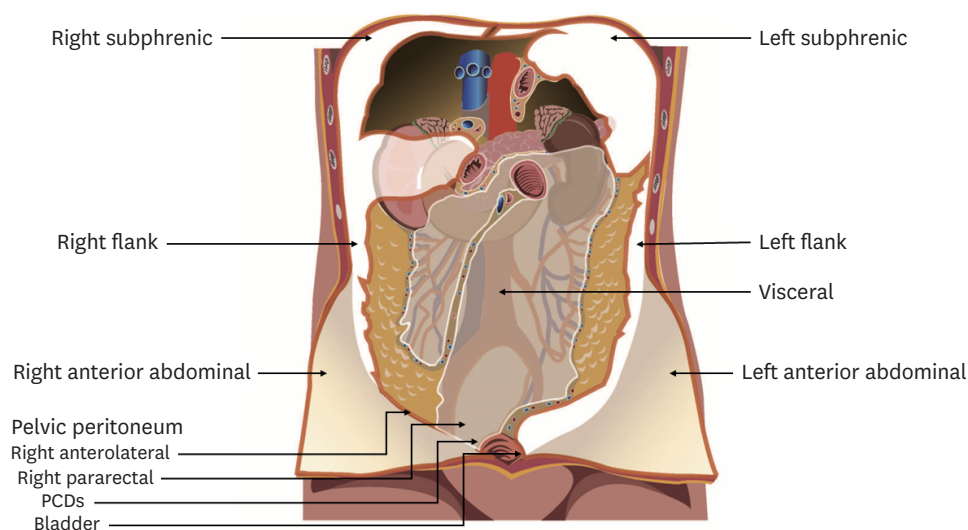


Fig. 1. Sections of the parietal peritoneum.

The parietal peritoneum was divided into 7 sections as follows: right and left subphrenic, flank and anterior abdominal, and pelvic sections. The pelvic sections were composed of the right and left anterolateral and pararectal, bladder, and PCDS sections. PCDS, posterior cul-de-sac.

of gynecologic oncology at a cancer center or university hospital. A fully-experienced gynecologic oncologists was defined as one who had worked in that position for ≥ 10 years.

4. Statistical analysis

Descriptive statistics were used to summarize the number and percentages for each response to the questions. Dichotomous comparisons of demographic variables were performed using the χ^2 test or Fisher's exact test, as appropriate. Since the 2 groups showed equal distributions, between-group comparisons of continuous variables were performed using Student's t-test. All p-values reported are 2-sided, and statistical significance was set at $p < 0.05$. Statistical analyses were performed using IBM SPSS software, version 25 (IBM Corp., Armonk, NY, USA).

RESULTS

1. Characteristics of respondents

Of the 144 gynecologic oncologists who received the survey questionnaire, 88 (61.1%) responded. Of these, 57 (64.8%) were high-volume surgeons, and 64 (72.7%) worked at high-volume hospitals. All 88 respondents were gynecologic oncologists, with 63 (71.6%) being fully experienced (**Fig. 2, Table 1**). The majority of respondents were in their 40s (47.7%) or 50s (37.5%) (**Table 1**).

2. SPP is the predominant surgical technique used during PDS and IDS in Korea

Table 2 summarizes the real-world practice of peritonectomy among Korean gynecologic oncologists. Most respondents performed SPP during PDS (98.9%) and IDS (93.8%). In contrast, 4 respondents had performed TPP during IDS. One respondent (1.1%) did not perform peritonectomy at all. Collectively, our findings revealed that SPP is the predominant peritonectomy technique used in PDS and IDS among Korean gynecologic oncologists.

3. Peritonectomy practice during PDS

Notably, various indications for peritonectomy during PDS were observed (**Fig. 3A, Q1**). The majority of respondents (40.2%) performed peritonectomy in cases where optimal surgical outcomes were expected (residual disease < 1 cm following PDS), while 26.3% of the respondents performed it in cases where no-residual disease was expected following PDS. One third of the respondents performed peritonectomy in all cases regardless of expected surgical outcomes.

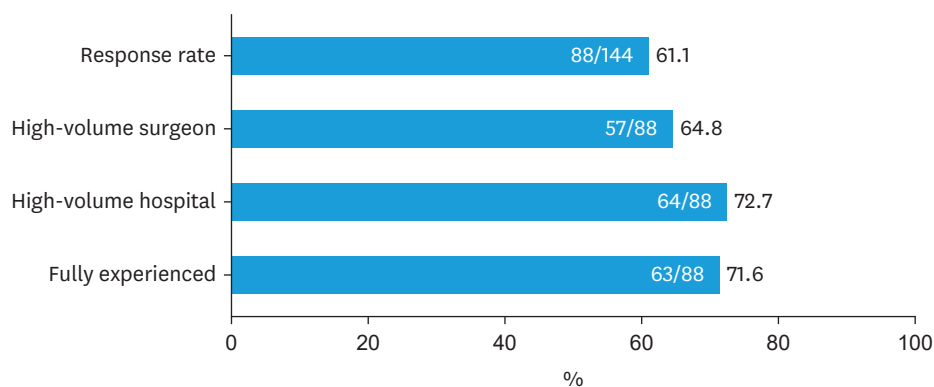


Fig. 2. Characteristics of the respondents.

Table 1. Results of survey on respondent characteristics

Question	Answer	No. of respondents (%)
What is your age?	31–40	10 (11.4)
	41–50	42 (47.7)
	51–60	33 (37.5)
	61–70	3 (3.4)
	Subtotal	88 (100.0)
How long have you been working in this specialty since completing your fellowship?	<5 years	8 (9.1)
	≥5 and <10 years	17 (19.3)
	≥10 and <15 years	26 (29.5)
	≥15 and <20 years	17 (19.3)
	≥20 and <25 years	15 (17.0)
	≥25 years	5 (5.7)
	Subtotal	88 (100.0)
How many cases of debulking surgery per year have you done?	<12 cases (on average less than 1 case/month)	31 (35.2)
	12–23 cases (more than 1 case/month, less than 2 cases/month)	29 (33.0)
	24–51 cases (more than 2 cases/month, less than 1 case/week)	23 (26.1)
	52–100 cases (more than 1 case/week)	2 (2.3)
	>100 cases	3 (3.4)
	Subtotal	88 (100.0)
How many cases of debulking surgery per year have been done at your hospital?	<12 cases (on average less than 1 case/month)	8 (9.1)
	12–23 cases (more than 1 case/month, less than 2 cases/month)	16 (18.2)
	24–51 cases (more than 2 cases/month, less than 1 case/week)	38 (43.2)
	52–100 cases (more than 1 case/week)	9 (10.2)
	>100 cases	17 (19.3)
	Subtotal	88 (100.0)

Table 2. Current practice for peritoneal metastatic lesions by Korean gynecologic oncologists

Practice	PDS (n=88)	IDS (n=81)
TPP	0 (0.0)	4 (4.9)
SPP	87 (98.9)	76 (93.8)
Tumorectomy	1 (1.1)	1 (1.2)

Values are presented as number (%).

PDS, primary debulking surgery; IDS, interval debulking surgery; TPP, total parietal peritonectomy; SPP, selective parietal peritonectomy.

Approximately half of the respondents (50.6%) completed the peritonectomy procedure independently, while the remaining half cooperated with non-gynecologic surgeons, particularly for the procedures involving the upper abdominal area, including the subphrenic section, liver mobilization, and splenectomy. Gynecologic oncologists effectively managed the pelvic peritoneum, including the bladder and posterior cul-de-sac area as well as the abdominal wall peritoneum (**Fig. 3A**, Q2–3).

4. Peritonectomy practice during IDS

Interval debulking surgery after neoadjuvant chemotherapy (NAC-IDS) had been utilized by 81 (92.0%) respondents. Of these, 52 respondents selected NAC-IDS based on the patient's condition and disease status without any preference. Eleven respondents preferred NAC-IDS, whereas 18 favored PDS (**Fig. 3B**, Q1–2). Additionally, most Korean gynecologic oncologists performed NAC-IDS for less than half of the cases involving advanced-stage disease (**Fig. 3B**, Q3).

Regarding peritoneal factors, the primary disease status that led to the selection of NAC-IDS was metastatic disease at the right subphrenic (30.4%), left subphrenic (26.6%), and visceral peritoneum (72.2%) (**Fig. 3B**, Q4). This decision may have been based on the experienced surgeon's assessment that complete resection of these regions is challenging, making them a common site for residual disease after debulking surgery.

Peritonectomy pattern during debulking surgery

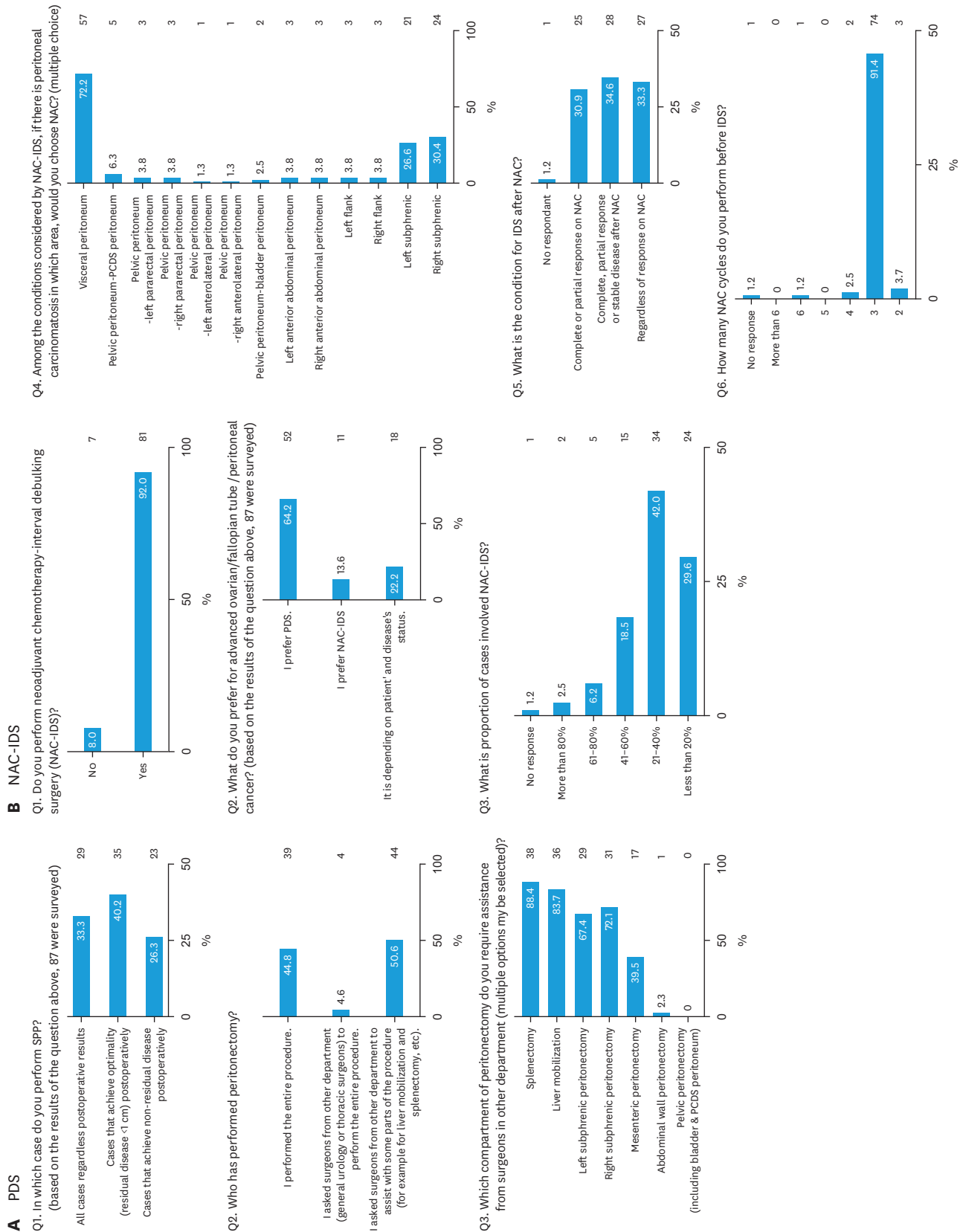


Fig. 3. Response results of questionnaires regarding the peritonectomy pattern in (A) PDS and (B) IDS. PDS, primary debulking surgery; IDS, interval debulking surgery; SPP, selective parietal peritonectomy; PCDS, posterior cul-de-sac; NAC, neoadjuvant chemotherapy; IDS, interval debulking surgery.

Table 3. Opinions regarding the clinical benefit of peritonectomy

Question	Answer	No. (%)
What is your opinion on total or selective parietal peritonectomy of the peritoneum with indistinct gross lesions during surgery (PDS or IDS) in patients with advanced ovarian/fallopian cancer? (multiple choice)	In PDS, it will lead to improved survival/recurrence	20 (22.7)
	In PDS, it will result in increased morbidity	29 (33.0)
	In IDS, it will lead to improved survival/recurrence	17 (19.3)
	In IDS, it will result in increased morbidity	20 (22.7)
	Regardless of PDS or IDS, it will improve survival/recurrence	33 (37.5)
	Regardless of PDS or IDS, it will not improve survival/recurrence	25 (28.4)

Values are presented as number (%).

PDS, primary debulking surgery; IDS, interval debulking surgery.

One-third of the respondents performed IDS in cases of a complete or partial response following NAC, while about one-third performed IDS in cases of a complete response, partial response, and stable disease. The remaining one-third of respondents performed IDS regardless of the clinical response to NAC (**Fig. 3B**, Q4). Most respondents considered 3 cycles of NAC to be acceptable (**Fig. 3B**, Q5–6).

5. No consensus about the clinical benefit of peritonectomy for indistinct gross lesions

Responses to the question regarding peritonectomy in cases where the peritoneum displayed indistinct gross lesions were evenly distributed, indicating no consensus (**Table 3**). This reflects concerns regarding morbidity and uncertainty about the clinical benefit of TPP, which may explain why TPP was rarely performed.

DISCUSSION

Our findings suggest that SPP is the predominant peritonectomy technique used during PDS and IDS in real-world clinical practice, with a minority (4.9%) of Korean gynecologic oncologists performing TPP during IDS. These findings suggest that Korean gynecologic oncologists may have limited experience with TPP, and therefore a feasibility study may be necessary before conducting a prospective randomized clinical trial involving TPP.

The finding that TPP was rarely performed may be attributed to several factors. First, the therapeutic benefit of TPP is unclear, given the absence of a large-scale prospective randomized clinical trial. Hence, there is no established evidence to support its implementation. Second, concerns regarding increased morbidity may exist because TPP is a more extensive and invasive procedure. A single-arm prospective multicenter study on TPP reported a 90-day mortality rate of 2%, with an acceptable grade 3–4 complication rate of 11 out of 50 cases (22%) [13]. Additionally, a retrospective study reported one death and 15 out of 16 cases with grade 3–5 complications, including ileus, intra-abdominal abscess, pancreatic fistula, and temporary kidney failure among patients who underwent TPP [14]. Third, the complexity of the surgical procedure may limit the applicability of TPP. Specifically, accessing the subphrenic space, which is visually obstructed by the liver and spleen, is particularly challenging, but essential for TPP. The difficulty in performing the technique may necessitate the assistance of non-gynecologic surgeons, which may not be available to some gynecologic oncologists. Considering these factors, it is evident that SPP is the preferred technique given the absence of a clear benefit of TPP.

Previous studies have suggested the therapeutic benefit of TPP in IDS, and 4 respondents in our study were probably aware of these benefits. Two retrospective studies explored the clinical benefits of TPP. One study reported that TPP tends to improve the 3-year OS

in patients with stage IIIC/IV serous ovarian cancer compared with SPP (95% vs. 70.8%, respectively; $p=0.060$) [12]. The other study demonstrated that the TPP group had less recurrence within 6–12 months than the SPP group (6.1% vs. 19.4%, respectively; $p=0.090$). Second, peritoneal changes after NAC may impede the surgeon from identifying the true pathologic lesion. The negative predictive value on visual inspection of peritoneal lesions after NAC is only 19%, indicating that approximately 80% of normal-looking peritoneum possessed pathological lesions [22]. This further underscores the need for complete excision of the peritoneum regardless of the visual findings. Third, occult pathologic lesions on the peritoneum after NAC contain chemo-resistant cells, which contribute to disease recurrence [8,12]. Consequently, TPP could potentially overcome this significant impediment to successful treatment by removing occult tumor cells on the peritoneum. Therefore, a well-designed clinical study is required to further evaluate the therapeutic benefits of TPP.

Interestingly, one respondent did not perform peritonectomy at all. They had assumed that chemotherapy would be sufficient to control the residual disease, and that peritonectomy would increase the risk of postoperative complications. Although other gynecologic oncologists may have the same concerns about postoperative complications, peritonectomy is frequently necessary to achieve a status of no residual disease after debulking surgery. We believe that the benefits of peritonectomy mentioned in the previous paragraph outweigh the complications.

A limitation of the present study is the inherent systemic bias associated with a survey study. Respondents with an interest in peritonectomy were more likely to complete the survey than non-respondents, which automatically skews the results of the findings toward being more optimistic. Another limitation is the external validity of our finding. Specifically, our findings may not be generalizable to other countries due to differences in health care systems. Additionally, we utilized self-reported questionnaires, which do not guarantee an accurate reflection of daily clinical practice. Despite these limitations, a survey study is adequate for assessing clinical practice among Korean gynecologic oncologists, given that direct observations, although ideal were not feasible due to time and budgetary constraints. Since most survey studies have an expected response rate of approximately 60% [23], the response rate in our study (61.1%) indicates that our findings may be acceptable. Furthermore, by focusing on expert gynecologic oncologists, we gained further insight into peritonectomy and obtained an overview of real-world practice in Korea.

We believe that these results could provide essential and critical information for the implementation of peritonectomy in future clinical trials.

REFERENCES

1. Yun BS, Park EH, Ha J, Lee JY, Lee KH, Lee TS, et al. Incidence and survival of gynecologic cancer including cervical, uterine, ovarian, vaginal, vulvar cancer and gestational trophoblastic neoplasia in Korea, 1999-2019: Korea Central Cancer Registry. *Obstet Gynecol Sci* 2023;66:545-61. [PUBMED](#) | [CROSSREF](#)
2. Gadducci A, Cosio S, Zizioli V, Notaro S, Tana R, Panattoni A, et al. Patterns of recurrence and clinical outcome of patients with stage IIIC to stage IV epithelial ovarian cancer in complete response after primary debulking surgery plus chemotherapy or neoadjuvant chemotherapy followed by interval debulking surgery: an Italian multicenter retrospective study. *Int J Gynecol Cancer* 2017;27:28-36. [PUBMED](#) | [CROSSREF](#)
3. Harter P, Hahmann M, Lueck HJ, Poelcher M, Wimberger P, Ortmann O, et al. Surgery for recurrent ovarian cancer: role of peritoneal carcinomatosis: exploratory analysis of the DESKTOP I trial about

- risk factors, surgical implications, and prognostic value of peritoneal carcinomatosis. *Ann Surg Oncol* 2009;16:1324-30. [PUBMED](#) | [CROSSREF](#)
4. Chang SJ, Bristow RE, Chi DS, Cliby WA. Role of aggressive surgical cytoreduction in advanced ovarian cancer. *J Gynecol Oncol* 2015;26:336-42. [PUBMED](#) | [CROSSREF](#)
5. Chang SJ, Hodeib M, Chang J, Bristow RE. Survival impact of complete cytoreduction to no gross residual disease for advanced-stage ovarian cancer: a meta-analysis. *Gynecol Oncol* 2013;130:493-8. [PUBMED](#) | [CROSSREF](#)
6. Benedetti Panici P, Giannini A, Fischetti M, Lecce F, Di Donato V. Lymphadenectomy in ovarian cancer: is it still justified? *Curr Oncol Rep* 2020;22:22. [PUBMED](#) | [CROSSREF](#)
7. Di Donato V, Giannini A, D'Oria O, Schiavi MC, Di Pinto A, Fischetti M, et al. Hepatobiliary disease resection in patients with advanced epithelial ovarian cancer: prognostic role and optimal cytoreduction. *Ann Surg Oncol* 2021;28:222-30. [PUBMED](#) | [CROSSREF](#)
8. Tate S, Nishikimi K, Kato K, Matsuoka A, Kambe M, Kiyokawa T, et al. Microscopic diseases remain in initial disseminated sites after neoadjuvant chemotherapy for stage III/IV ovarian, tubal, and primary peritoneal cancer. *J Gynecol Oncol* 2020;31:e34. [PUBMED](#) | [CROSSREF](#)
9. Vos LM, van Driel WJ, Sonke GS, van Baal JO, van de Vijver KK, van Noorden CJ, et al. Solitary ovarian cancer cells in the peritoneum: what happens below the surface? *Adv Cancer Biol Metastasis* 2022;6:100049. [CROSSREF](#)
10. Sugarbaker PH. Peritonectomy procedures. *Ann Surg* 1995;221:29-42. [PUBMED](#) | [CROSSREF](#)
11. Chi DS, Eisenhauer EL, Zivanovic O, Sonoda Y, Abu-Rustum NR, Levine DA, et al. Improved progression-free and overall survival in advanced ovarian cancer as a result of a change in surgical paradigm. *Gynecol Oncol* 2009;114:26-31. [PUBMED](#) | [CROSSREF](#)
12. Sinukumar S, Rajan F, Mehta S, Damodaran D, Zaveri S, Kammar P, et al. A comparison of outcomes following total and selective peritonectomy performed at the time of interval cytoreductive surgery for advanced serous epithelial ovarian, fallopian tube and primary peritoneal cancer - a study by INDEPSO. *Eur J Surg Oncol* 2021;47:75-81. [PUBMED](#) | [CROSSREF](#)
13. Bhatt A, Kammar P, Sinukumar S, Parikh L, Jumle N, Shaikh S, et al. Total parietal peritonectomy can be performed with acceptable morbidity for patients with advanced ovarian cancer after neoadjuvant chemotherapy: results from a prospective multi-centric study. *Ann Surg Oncol* 2021;28:1118-29. [PUBMED](#) | [CROSSREF](#)
14. Yokosu K, Tanabe H, Nomura S, Ozone H, Saito M, Takano H, et al. Total parietal peritonectomy in primary debulking surgery for advanced ovarian cancer. *Gynecol Oncol Rep* 2021;37:100805. [PUBMED](#) | [CROSSREF](#)
15. Gogoi RP, Urban R, Sun H, Goff B. Evaluation of Society of Gynecologic Oncologists (SGO) ovarian cancer quality surgical measures. *Gynecol Oncol* 2012;126:217-9. [PUBMED](#) | [CROSSREF](#)
16. Querleu D, Planchamp F, Chiva L, Fotopoulou C, Barton D, Cibula D, et al. European Society of Gynaecologic Oncology quality indicators for advanced ovarian cancer surgery. *Int J Gynecol Cancer* 2016;26:1354-63. [PUBMED](#) | [CROSSREF](#)
17. Bristow RE, Palis BE, Chi DS, Cliby WA. The National Cancer Database report on advanced-stage epithelial ovarian cancer: impact of hospital surgical case volume on overall survival and surgical treatment paradigm. *Gynecol Oncol* 2010;118:262-7. [PUBMED](#) | [CROSSREF](#)
18. Bristow RE, Zahurak ML, Diaz-Montes TP, Giuntoli RL, Armstrong DK. Impact of surgeon and hospital ovarian cancer surgical case volume on in-hospital mortality and related short-term outcomes. *Gynecol Oncol* 2009;115:334-8. [PUBMED](#) | [CROSSREF](#)
19. Vernooij F, Heintz AP, Coebergh JW, Massuger LF, Witteveen PO, van der Graaf Y. Specialized and high-volume care leads to better outcomes of ovarian cancer treatment in the Netherlands. *Gynecol Oncol* 2009;112:455-61. [PUBMED](#) | [CROSSREF](#)
20. Bristow RE, Chang J, Ziogas A, Randall LM, Anton-Culver H. High-volume ovarian cancer care: survival impact and disparities in access for advanced-stage disease. *Gynecol Oncol* 2014;132:403-10. [PUBMED](#) | [CROSSREF](#)
21. Fotopoulou C, Concin N, Planchamp F, Morice P, Vergote I, du Bois A, et al. Quality indicators for advanced ovarian cancer surgery from the European Society of Gynaecological Oncology (ESGO): 2020 update. *Int J Gynecol Cancer* 2020;30:436-40. [PUBMED](#) | [CROSSREF](#)
22. Costantini B, Rosati A, Vargiu V, Gallitelli V, Di Ilio C, Moroni R, et al. Visual peritoneal evaluation of residual disease after neoadjuvant chemotherapy in advanced ovarian cancer patients: the VIPER study. *Ann Surg Oncol* 2023;30:2319-28. [PUBMED](#) | [CROSSREF](#)
23. Fincham JE. Response rates and responsiveness for surveys, standards, and the Journal. *Am J Pharm Educ* 2008;72:43. [PUBMED](#) | [CROSSREF](#)

Appendix 1. Survey questionnaire

General

1. What is your age?
 - a. <30 years
 - b. 31–40 years
 - c. 41–50 years
 - d. 51–60 years
 - e. 61–70 years
 - f. >70 years
2. For how long have you been working in this specialty since completing your fellowship?
 - a. <5 years
 - b. 5–10 years
 - c. 10–15 years
 - d. 15–20 years
 - e. >20 years
3. How many cases of debulking surgery per year have you done?
 - a. <12 cases
 - b. 13–24 cases
 - c. 25–52 cases
 - d. 53–100 cases
 - e. >100 cases
4. How many cases of debulking surgery per year have been done at your hospital?
 - a. <12 cases
 - b. 13–24 cases
 - c. 25–52 cases
 - d. 53–100 cases
 - e. >100 cases

Peritonectomy during PDS

5. Which type of peritonectomy do you perform during PDS?
 - a. TPP including non-disease area
 - b. SPP for disease area
 - c. I don't do it
- *If 'a' was selected, go to questions 6 and 8. If 'b', go to question 7. If 'c', go to question 11.
6. If 'a' was selected for question 5: In which cases do you perform TPP?
 - a. Cases that achieve non-residual disease postoperatively
 - b. Cases that achieve optimality (residual disease <1 cm) postoperatively
 - c. All cases regardless of postoperative results
 7. If 'b' was selected for question 5: In which cases do you perform SPP?
 - a. Cases that achieve non-residual disease postoperatively
 - b. Cases that achieve optimality (residual disease <1 cm) postoperatively
 - c. All cases regardless of postoperative results
 8. If 'a' was selected for question 5: Which compartment do you remove during TPP?
 - a. Right subphrenic
 - b. Left subphrenic
 - c. Right flank
 - d. Left flank
 - e. Right anterior abdominal peritoneum
 - f. Left anterior abdominal peritoneum
 - g. Visceral peritoneum
 - h. Pelvic peritoneum - Bladder peritoneum
 - i. Pelvic peritoneum - Right anterolateral peritoneum
 - j. Pelvic peritoneum - Left anterolateral peritoneum
 - k. Pelvic peritoneum - Right pararectal peritoneum
 - l. Pelvic peritoneum - Left pararectal peritoneum
 - m. Pelvic peritoneum - PCDS peritoneum
 9. Who performed peritonectomy?
 - a. I performed the entire procedure
 - b. I asked surgeons from other departments (general urology or thoracic surgeons) to perform the entire procedure
 - c. I asked surgeons from other departments to assist with some parts of the procedure (for example for liver mobilization and splenectomy, etc.)

*If your answer is 'a', go to question 11. If not, go to question 10.

(continued to the next page)

Appendix 1. (Continued) Survey questionnaire

10. For which compartment of peritonectomy do you require assistance from surgeons in other departments (multiple options may be selected)?

- a. Right subphrenic
- b. Left subphrenic
- c. Right flank
- d. Left flank
- e. Right anterior abdominal peritoneum
- f. Left anterior abdominal peritoneum
- g. Visceral peritoneum
- h. Pelvic peritoneum - Bladder peritoneum
- i. Pelvic peritoneum - Right anterolateral peritoneum
- j. Pelvic peritoneum - Left anterolateral peritoneum
- k. Pelvic peritoneum - Right pararectal peritoneum
- l. Pelvic peritoneum - Left pararectal peritoneum
- m. Pelvic peritoneum - PCDS peritoneum

11. If 'c' was selected for question 5: Do you perform NAC-IDS?

- a. Yes, I do
- b. No, I don't

*If 'a' was selected, go to question 12. If 'b', go to question 16.

Peritonectomy during IDS

12. If 'a' was selected for question 11: What do you prefer for advanced ovarian/fallopian tube/peritoneal cancer?

- a. I prefer PDS
- b. I prefer NAC-IDS
- c. It is dependent on the patient and disease status

13. What proportion of cases involved NAC-IDS?

- a. <20%
- b. 21%–40%
- c. 41%–60%
- d. 61%–80%
- e. >80%

14. What is the condition for IDS after NAC?

- a. Complete or partial response to NAC
- b. Complete, partial response, or stable disease after NAC
- c. Regardless of response to NAC

15. Which type of peritonectomy do you do during IDS?

- a. TPP including the non-disease area
- b. SPP for the disease area
- c. I don't do it

*If 'a' or 'b' was selected, go to question 17. If 'c', go to question 16.

16. If 'c' was selected for question 15: What is the reason for not performing peritonectomy?

- a. Because peritonectomy is not a big deal in prognosis
- b. Because chemotherapy will be sufficient to control residual disease.
- c. Because peritonectomy is going to increase the risk of postoperative complications
- d. Because peritonectomy increases operation time
- e. Because I am not skilled in the procedure
- f. Because we do not have the support of surgeons in other departments
- g. If there are other reasons, please state: _____

17. What do you expect to be the result of peritonectomy including non-diseased areas (multiple options may be selected)?

- a. It could provide a survival benefit in the case of PDS.
- b. It could increase morbidity in the case of PDS.
- c. It could provide a survival benefit in the case of NAC-IDS.
- d. It could increase morbidity in the case of NAC-IDS.

PDS, primary debulking surgery; TPP, total parietal peritonectomy; SPP, selective parietal peritonectomy; PCDS, posterior cul-de-sac; NAC, neoadjuvant chemotherapy; IDS, interval debulking surgery.