Case report

Malignant Bowel Obstruction Secondary to Advanced Serous Ovarian Carcinoma: Impact of Late Presentation and Delayed Postoperative Chemotherapy - A Case Report

Abstract

Background:

High-grade serous ovarian carcinoma (HGSOC) is the most common and aggressive sub-type of epithelial ovarian cancer, often diagnosed at advanced stages due to non-specific symptoms. Despite advances in surgical and chemotherapeutic strategies, the prognosis remains poor, particularly in late-stage disease. Malignant bowel obstruction (MBO) is a severe complication in advanced ovarian cancer, contributing to significant morbidity and mortality.

Case Presentation:

A 51-year-old nulliparous woman presented with a three-month history of progressive weight loss, abdominal distension, and anorexia. Imaging revealed a 7.8 × 3.9 x 8.0 cm left ovarian mass with liver metastases and ascites. Histopathological examination confirmed stage IVB high-grade serous ovarian carcinoma. The patient underwent staging laparotomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy, and infracolic omentectomy. Postoperatively, chemotherapy was delayed for six weeks due to patient non-compliance. After receiving one cycle of chemotherapy, she defaulted and later presented with malignant bowel obstruction and renal failure. Despite conservative management and dialysis, she died on day 8 of readmission.

Conclusion:

Timely postoperative follow-up and early initiation of chemotherapy are critical in advanced ovarian cancer to prevent disease progression and complications such as malignant bowel obstruction. Delays in treatment significantly worsen outcomes, as demonstrated in this case. This underscores the importance of patient adherence to treatment protocols and the need for close surveillance in managing advanced ovarian cancer.

Key words:

Advanced-stage ovarian cancer, Delayed adjuvant chemotherapy, High-grade serous ovarian carcinoma, Malignant bowel obstruction

Introduction

High-grade serous ovarian carcinoma (HGSOC) is the most common and aggressive sub-type of epithelial ovarian cancer, accounting for approximately 75% of cases [1]. It is often diagnosed at an advanced stage due to vague and non-specific symptoms such as abdominal bloating, gastrointestinal disturbances, and fatigue [2]. Consequently, nearly three-quarters of patients present with stage III or IV disease, leading to poor prognostic outcomes despite advances in surgical and chemotherapeutic strategies [3].

Standard management of advanced ovarian cancer involves cytoreductive surgery followed by adjuvant platinum-based chemotherapy. Timely initiation of post-operative chemotherapy is critical for reducing recurrence risk and improving overall survival [4]. However, logistical challenges, post-operative complications, or health system limitations can contribute to delays in adjuvant therapy, potentially impacting patient outcomes [5]. Malignant bowel obstruction (MBO) is a severe complication of advanced or recurrent ovarian cancer, occurring in up to 50% of late-stage cases [6]. It is associated with high morbidity and signals disease progression. Management of MBO is complex, often requiring a combination of supportive care, surgical intervention, and palliative measures [7].

This case report describes a patient with FIGO stage IVB HGSOC who presented late and experienced a significant delay in the initiation of post-operative chemotherapy. The delay was followed by the development of malignant bowel obstruction and acute renal failure, culminating in the patient's death shortly after re-admission. The case underscores the critical need for early diagnosis and timely postoperative treatment in the management of advanced ovarian cancer to prevent life-threatening complications [8].

Case Presentation

A 51-year-old nulliparous woman presented to our facility with a 3-month history of progressive weight loss and a 1-month history of rapidly increasing abdominal distension accompanied by anorexia. Bowel habits were normal. She had a background history of primary infertility but no family history of ovarian or breast malignancies. On examination, she appeared cachectic, with a grossly distended and tense abdomen (figure 2a), demonstrating the classic "egg-on-stick" appearance. Abdominopelvic ultrasonography/Transvaginal Ultrasound Scan (TVUS) revealed massive ascites, a bulky uterus with multiple fibroids, and a left ovarian mass measuring 7.8 × 3.9 × 8.0 cm. The mass had a nodular wall, mixed echogenicity, and increased vascularity on Doppler interrogation (Figure 1b). The right ovary appeared normal on ultrasound (Figure 1a). Contrast-enhanced CT of the abdomen and pelvis showed hepatomegaly with metastatic nodules, moderate ascites (Figure 1c), and an enlarged uterus measuring 16.3 × 11.5 cm. Both ovaries appeared normal on CT imaging (Figure 1d, arrowheads).Serum CA-125

was markedly elevated at 1000 U/mL, giving a Risk of Malignancy Index (RMI) of 3000. A provisional diagnosis of advanced ovarian carcinoma was made.

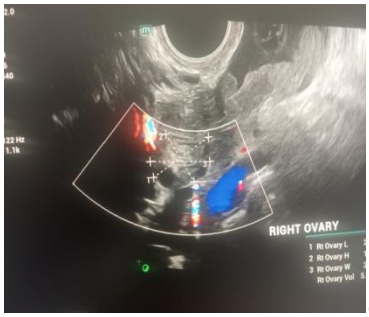
She and her husband were counseled for staging laparotomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy, and infracolic omentectomy, with planned adjuvant chemotherapy. Six days after initial evaluation, she presented to the emergency department with worsening abdominal discomfort, dyspnea, persistent vomiting, and insomnia. On examination, she was in painful distress, tachypneic (RR: 30/min), with oxygen saturation of 94% on room air. Her abdomen remained distended and tensed. She was managed with daily ultrasound-guided paracentesis (maximum 1.5 L/day), IV fluids, analgesics, omeprazole, antiemetics, and prophylactic antibiotics. A total of 7 liters of hemorrhagic ascitic fluid was drained over 8 days, which improved her symptoms. Cytological analysis of the ascitic fluid was performed. Routine pre-operative work-up including full blood count, serum electrolytes, urea, creatinine, chest X-ray, ECG, and viral screening (HIV, HBV, HCV) were all within normal limits. Two units of blood were cross-matched in preparation for surgery.

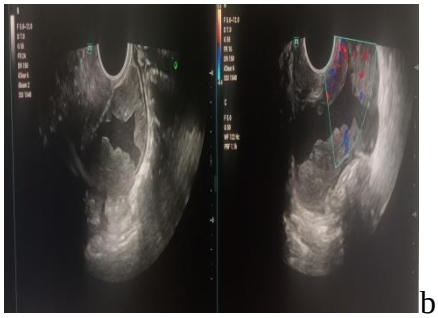
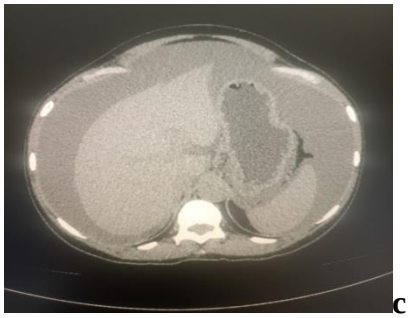
She underwent exploratory laparotomy under general anesthesia with intraoperative findings of 2.8 liters of hemorrhagic ascitic fluid, moderate abdominopelvic adhesions, omental caking with peritoneal seedlings, and hepatic surface nodules suggestive of metastasis. The uterus was markedly enlarged (equivalent to 28 weeks gestation) with multiple fibroids and weighed 2.32 kg (figures 2b & c). The ovaries appeared grossly normal (figure 2c); however, the fallopian tubes were edematous. No signs of rupture or hemorrhage were observed on both ovaries. Estimated intraoperative blood loss was 500 mL.

She underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, and infracolic omentectomy. Postoperative recovery was uneventful. She received IV fluids, antibiotics, thromboprophylaxis, and analgesia, and was discharged on postoperative day 4. Her wound healed satisfactorily, with staple removal on day 10 post-op. Histopathological examination revealed malignant epithelial neoplasm of both ovaries arising from the ovarian surface epithelium with stromal invasion, consistent with high-grade serous carcinoma (Figure 3c). Omental biopsies confirmed widespread metastatic involvement with necrotic foci (Figure 3d). A final diagnosis of FIGO stage IVB serous ovarian carcinoma was made. The need for timely adjuvant chemotherapy was emphasized.

The patient was scheduled to begin chemotherapy in the third postoperative week after being assessed as fit; however, she defaulted and did not return for follow-up despite repeated contact attempts. Six weeks after surgery, she returned and received her first course of chemotherapy (Paclitaxel and Carboplatin). The plan was to administer six cycles at 21-day intervals, but she again defaulted and missed her second cycle.

Seven weeks after her initial chemotherapy session, she presented with recurrent abdominal distension, intractable vomiting, and oliguria. Examination revealed severe cachexia and a firm, tender abdominopelvic mass (equivalent to 24 weeks gestation). Imaging showed intestinal masses (figure 1e) with dilated bowel (figure 1f). She was diagnosed with malignant bowel obstruction (MBO) and managed conservatively with nasogastric decompression, nil per os, and IV fluids. Laboratory results revealed significant azotemia with elevated urea and creatinine. She underwent one session of hemodialysis, and was being worked-up for surgery to relieve the obstruction; however, her condition continued to deteriorate. She was confirmed dead on the 8th day of admission.



a  b  **c**

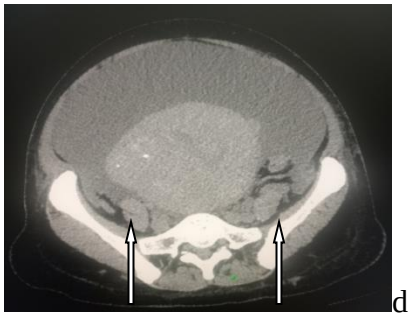
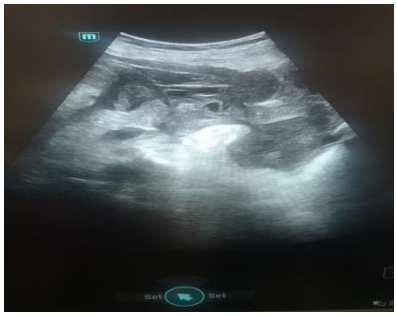
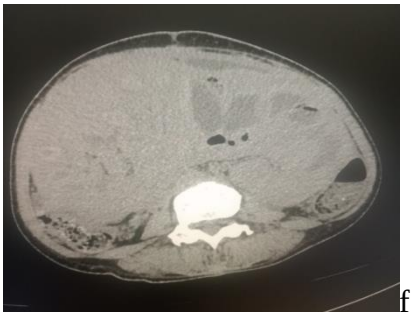
 d  e  f

Figure 1: Imaging: Ultrasound scan showing (a) normal right ovary (b) enlarged left ovary with nodular wall & mixed echogenicity and increased vascularity on Doppler interrogation

(c) Contrast CT showing gross ascites (d) CT showing normal appearing ovaries bilaterally (arrows) (e) ultrasound showing intestinal mass (f) CT showing dilated bowel

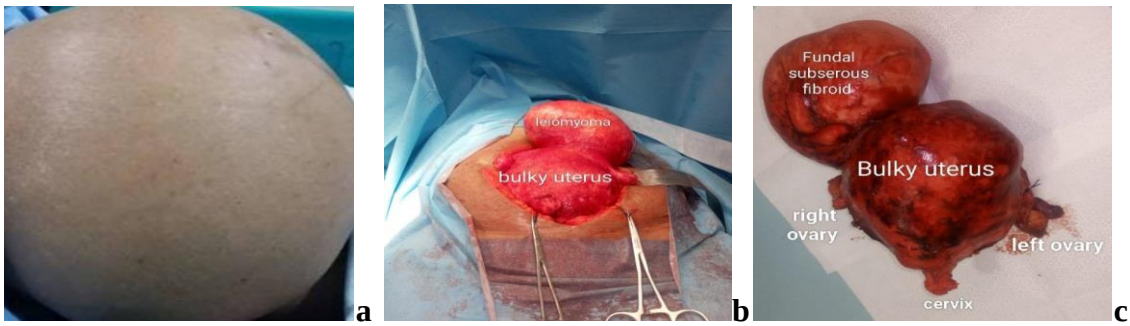


Figure 2: showing (a) Distended abdomen before surgery (b) Bulky uterus on opening the abdomen **(**c) Specimen after surgery

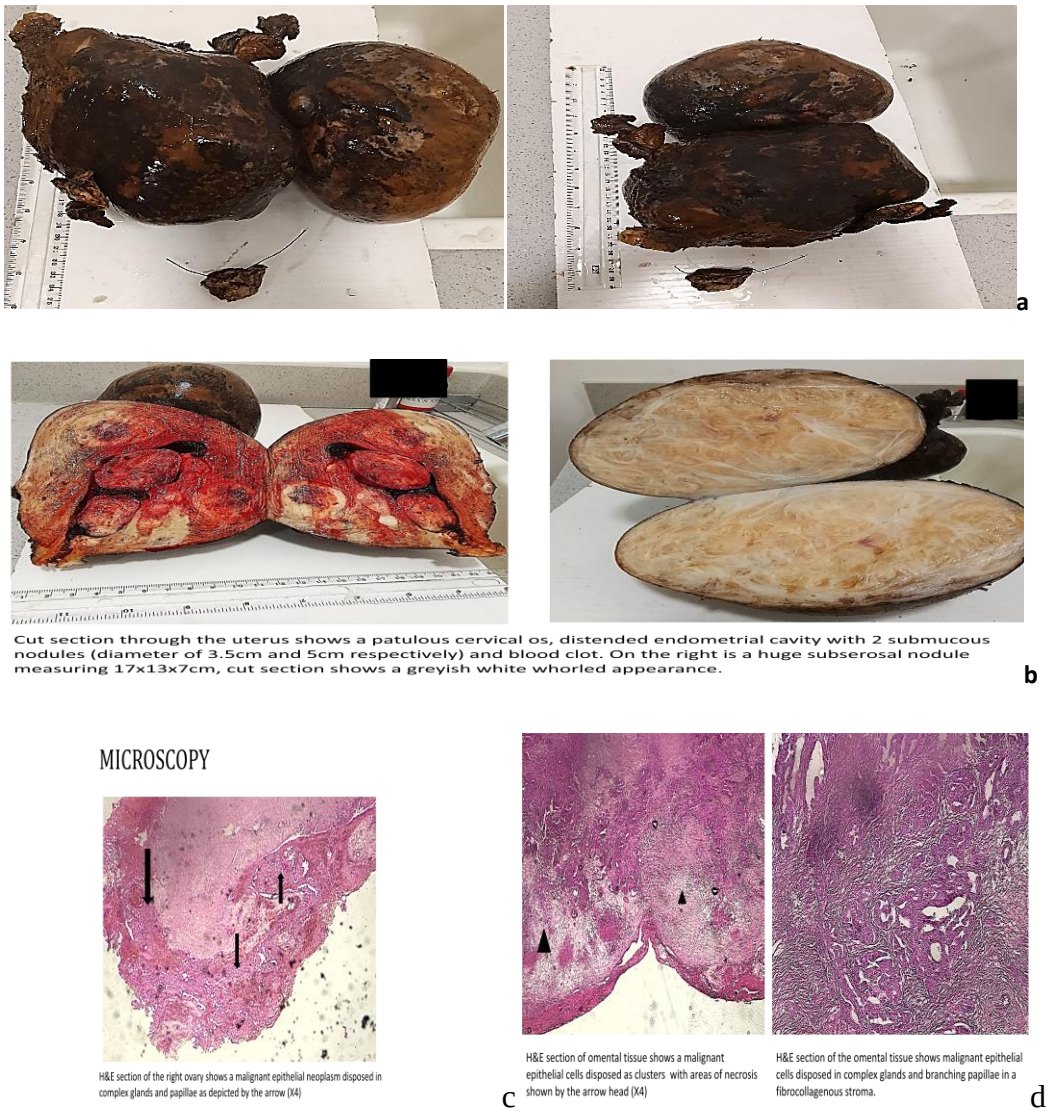


Figure 3: Histopathology (**a)** A distorted TAH specimen that measures 18x13x10cm and weighs 2500g with a tagged fibrofatty omental tissue.

b) Cut section through the uterus shows a patulous cervical os, distended endometrial cavity with 2 submucous nodules (diameter of 3.5cm and 5cm respectively) and blood clot. On the right is a huge subserosal nodule measuring 17x13x7cm, cut section shows a greyish white whorled appearance.

c) H&E section of the left ovary shows a malignant epithelial neoplasm disposed in complex glands and papillae as depicted by the arrow (X4)

d) H&E section of omental tissue shows a malignant epithelial cells disposed as clusters with areas of necrosis shown by the arrow head (X4) (left) & H&E section of the omental tissue shows malignant epithelial cells disposed in complex glands and branching papillae in a fibrocollagenous stroma (right)

Discussion

Ovarian cancer is the most lethal gynecological malignancy, with the majority of cases diagnosed at advanced stages due to non-specific and subtle early symptoms [9]. In this case, the patient presented with classic features of advanced disease, including progressive abdominal distension, weight loss, anorexia, and ascites which are common, yet often overlooked signs that contribute to diagnostic delays [10].

Although the exact etiology of ovarian cancer remains unclear, several risk factors have been established. These include a family history of ovarian or breast cancer [11] BRCA 1 and 2 mutations, p53 gene alterations, [12] nulliparity, and infertility [13]. In our patient, while there was no known family history, she was nulliparous with a history of primary infertility which are both recognized risk factors. [13] Her markedly elevated CA-125 level (1000 U/mL) and a Risk of Malignancy Index (RMI) of 3000 strongly suggested a malignant process. Imaging confirmed widespread disease, including liver metastases, consistent with FIGO stage IVB ovarian cancer. She was appropriately counseled regarding her diagnosis, prognosis, and the need for surgical staging and subsequent chemotherapy [14]. Surgical findings confirmed extensive peritoneal disease, omental caking, and hepatic metastases. Consistent with the pre-operative CT finding (figure 1d), both ovaries appeared grossly normal, a rare occurrence in approximately 1% of cases.[15] Similar findings have been reported in previous literature, where high-grade serous carcinoma may not present with overt ovarian enlargement despite extensive metastases [16]. Ultrasound (especially TVUS) provides better resolution for adnexal structures and is the first-line imaging tool for evaluating suspected ovarian pathology. CT scans, on the other hand, are better at evaluating disease spread (e.g., peritoneal carcinomatosis, omental caking, hepatic metastases) but can miss small or isodense ovarian lesions, especially in postmenopausal women or in the presence of large pelvic masses/distortion. This may explain while a combined abdomino-pelvic/TVS scan in our patient was able to detect pathology in the left ovary (figure 1b) while CT findings in the ovaries appeared normal (figure 1d).

The current standard for managing advanced epithelial ovarian cancer includes maximal cytoreductive surgery followed by adjuvant chemotherapy, typically with a platinum–taxane combination. The primary goal of postoperative chemotherapy is to eradicate residual disease, delay recurrence, and improve survival outcomes. Our patient was scheduled to begin chemotherapy in the third postoperative week, consistent with international guidelines recommending early initiation to optimize outcomes [17]. However, she defaulted and delayed treatment initiation by three additional weeks. Delay in chemotherapy following surgery is associated with increased risk of disease progression and reduced overall survival, especially in aggressive subtypes like high-grade serous carcinoma [17].

After receiving only the first cycle of chemotherapy, the patient again defaulted, returning seven weeks later with features of malignant bowel obstruction (MBO), a common and life-threatening complication of advanced and recurrent ovarian cancer. MBO occurs in approximately 50% of patients with recurrent ovarian malignancy and is associated with a poor prognosis and limited therapeutic options. [6]

The management of MBO focuses primarily on symptom palliation and maintaining quality of life. Conservative measures include bowel rest, nasogastric decompression, IV hydration, antiemetics, analgesics, and antisecretory agents. Surgical interventions such as bowel resection, stoma creation, or stenting may be considered in selected patients with favorable performance status. Palliative chemotherapy may also be beneficial in select cases. In this case, our patient was managed conservatively and evaluated for possible surgical intervention; however, her clinical status rapidly deteriorated, precluding operative management. Despite a trial of hemodialysis for acute renal impairment, she succumbed to complications on the 8th day of admission.

The prognosis following MBO is generally poor, with studies reporting median survival ranging from 65 to 105 days post-diagnosis in patients with recurrent disease.[18, 19] While exceptional outcomes have been reported, including cases of prolonged survival following aggressive multimodal treatment, even in stage IV disease, these are uncommon and typically rely on early and consistent intervention.[20, 21]

In our patient, the delayed commencement and subsequent default from chemotherapy likely contributed significantly to disease progression, development of MBO, and eventual renal failure. Earlier initiation of adjuvant chemotherapy may have mitigated disease spread, prevented obstructive complications, and potentially prolonged survival. This case underscores the critical importance of timely postoperative care, adherence to treatment protocols, and patient education regarding the implications of treatment delays in advanced ovarian cancer.

Conclusion

Timely postoperative follow-up and early initiation of chemotherapy as soon as wound healing is achieved and patient is clinically fit are critical to achieving optimal outcomes, even in advanced-stage ovarian cancer. Delays in treatment can lead to rapid disease progression, complications such as malignant bowel obstruction, and significantly reduced survival. This case underscores the importance of patient adherence to treatment schedules and the need for close surveillance to maximize therapeutic benefit.

References

[1] Ovarian Center Research Alliance. High-Grade Serous Carcinoma. 2021

[2] Acheson N, Chan KK. Epithelial ovarian cancer. In: Shafi MI, Luesley DM, Jordan JA, editors. Handbook of Gynaecological Oncology, London:Churchill Livingstone;2001. Pp. 231-241.

[3] International Agency for Research on Cancer. Global cancer statistics. 2012

[4] Alegbeleye OJ, Biyi-Olutunde O. Adjuvant Chemotherapy Delay After Primary Debulking Surgery for Advanced Ovarian Cancer at a Teaching Hospital in Southern Nigeria. J Gynecol Women's Health 2023: 25(2): 556159.

[5] Lombe DC, Mwamba M, Msadabwe S, Bond V, Simwinga M, Ssemata AS, et al. Delays in seeking, reaching and access to quality cancer care in sub-Saharan Africa: a systematic review. BMJ Open. 2023 Apr 13;13(4):e067715.

[6] Obita GP, Boland EG, Currow DC, Johnson MJ, Boland JW. Somatostatin Analogues Compared With Placebo and Other Pharmacologic Agents in the Management of Symptoms of Inoperable Malignant Bowel Obstruction: A Systematic Review. J Pain Symptom Manage. 2016 Dec;52(6):901-919.e1.

[7] Perri T, Korach J, Ben-Baruch G, Jakobson-Setton A, Ben-David HL, Kalfon S, et al. Bowel obstruction in recurrent gynaecologic malignancies: defining who will benefit from surgical intervention. Eur J Sur Oncol. 2014;40(7):899-904.

[8] Elias KM, Guo J, Bast RC Jr. Early Detection of Ovarian Cancer. Hematol Oncol Clin North Am. 2018 Dec;32(6):903-914.

[9] Jayson GC, Kohn EC, Kitchener HC, Ledermann JA. Ovarian cancer. Lancet. 2014;384:1376-1388.

[10] Acheson N, Chan KK. Epithelial ovarian cancer. In: Shafi MI, Luesley DM, Jordan JA, editors. Handbook of Gynaecological Oncology. London: Churchill Livingstone; 2001. pp. 231–41. [Google Scholar]

[11] Cancer statistics, 2020. Siegel RL, Miller KD, Jemal A. CA Cancer J Cln. 2020;70:7-30.

[12] Ovarian cancer statistics, 2018. Torre LA, Trabert B, DeSantis CE, Miller KD, Samimi G, Runowicz CD, et al. CA Cancer J Cln. 2018;68:284-296.

[13] Brinton LA, Lamb EJ, Moghissi KS, Scoccia B, Althuis MD, Mabie JE, et al. American Society for Reproductive Medicine. 2004; 82(2):405-414.

[14] Marchetti C, Pisano C, Facchini G, Bruni GS, Magazzino FP, Losito S, et al. "First-line treatment of advanced ovarian cancer: current research and perspectives". *Expert Review of Anticancer Therapy*.2010;**10** (1): 47–60. doi:10.1586/era.09.167. PMID 20014885. S2CID 40586650.

[15] Feuer CA, Shevchuk M, Calanog A. Normal-sized ovary carcinoma syndrome. Obstet Gynecol. 1989;73(5 Pt 2):786-792.

[16] Yong SL, Dahian S, Ramlam AH, Kang M. The diagnosis challenge of ovarian carcinoma in normal-sized ovaries: a report of two cases. Horm Mol Biol Clin Investig. 2018;35(1):1-5.

[17] Tewari KS, Java JJ, Eskander RN, Monk BJ, Burger RA. Early initiation of chemotherapy following complete resection of advanced ovarian cancer associated with improved survival: NRG Oncology/Gynecologic Oncology Group study. Ann Oncol. 2016 Jan;27(1):114-21.

[18] Hoppenot C, Peters P, Cowan M, Moore ED, Hurteau J, Lee NK, et al. Malignant bowel obstruction due to uterine or ovarian cancer: Are there differences in outcomes? Gynecol Oncol 2019;154:177-182.

[19] Chobanian N, Dietrich CS. Ovarian Cancer. Surg Clin North America.2008;88:285-299.

[20] Huang Z, Yan H, Chevan D, Yang X, Zhang Y, Song K, et al. Effective treatment of a patient with stage IV ovarian cancer: A case report. Oncol Lett 15;588-591.

[21] Nagano H, Mizutani K, Sawa K, Ozaki Y, Murakami A. Stage IV ovarian clear cell adenocarcinoma treated effectively by chemotherapy with Etoposide and Cisplatin(EP). Int J Clin Oncol. 1998;3:330-333.