Case Report

Endometrial Carcinoma with Peritoneal Inflammatory Nodules Mimicking Peritoneal Carcinomatosis: A Case Report from Bangladesh

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ABSTRACT

Background: Peritoneal inflammatory nodules are rare, non-neoplastic lesions that can be associated with endometrioid carcinoma of the uterus. Grossly, these lesions may closely resemble peritoneal carcinomatosis, creating significant intra-operative diagnostic dilemmas and risking erroneous upstaging.

Case Presentation: We report a case of a 65-year-old postmenopausal woman with endometrioid carcinoma in whom widespread multiple "seedling-like" pelvic peritoneal deposits were observed intra-operatively and were suspicious for advanced disease. Total abdominal hysterectomy with bilateral salpingo-oophorectomy, pelvic lymphadenectomy, and pelvic peritonectomy were performed. Comprehensive Histopathological examination confirmed endometrioid carcinoma with <50% myometrial invasion and negative pelvic lymph nodes. Peritoneal and omental samples showed inflammatory changes without evidence of tumour deposit, confirming a final pathological stage of pT1aN0. The patient was managed according to early-stage disease and received adjuvant vaginal brachytherapy alone.

Conclusion: Recognizing this benign condition prevents incorrect staging and unnecessary treatment. This case highlights the importance of this distinction.

Key words: *Endometrial carcinoma, malignant Peritoneal nodules, Peritoneal carcinomatosis mimic*

INTRODUCTION

The intraoperative discovery of disseminated peritoneal deposits during surgery for endometrial carcinoma raises immediate concern for advanced disease, influencing staging, prognosis, and adjuvant treatment[1,2]. However, not all such nodules represent metastatic implants[3,4]. Benign inflammatory and reactive conditions including foreign-body granulomas, fibrinous adhesions, and nonspecific inflammatory nodules can grossly mimic carcinomatosis, creating a major diagnostic dilemma[5,6,7].
This distinction carries critical implications, as misinterpreting a benign process as metastatic disease can lead to erroneous surgical upstaging, unnecessary extended surgery, inappropriate systemic chemotherapy, and significant patient distress. Conversely, correct identification allows for accurate staging and conservative, stage-appropriate management[2].

Since visual inspection alone is insufficient, definitive diagnosis relies on histopathological examination. This case highlights the importance of correlating operative findings with histology to ensure accurate staging and appropriate postoperative treatment.

CASE PRESENTATION

A 65-year-old postmenopausal Bangladeshi woman (P2G2, 1NVD+1C/S, menopausal for 15 years) presented in November 2021 with a primary complaint of postmenopausal vaginal bleeding of two weeks' duration. She had hypertension and hypothyroidism, managed medically. She had no history of hormone replacement therapy or diabetes. Obstetric history revealed para 2 (one normal vaginal delivery of twins and one caesarean section).

She had been married for 42 years with ALC 29 years. Past surgical history included one lower uterine caesarean section (LUCS) in 1992.

Clinical examination revealed a soft, non-tender abdomen. A transvaginal ultrasound (23/11/2021) identified a bulky uterus with a thickened, irregular, and echogenic endometrium (13 mm) containing a moderate hemorrhagic collection. An initial cervical Pap smear (22/11/2021) was reported as an atrophic smear, negative for malignancy.

Following multidisciplinary evaluation, the patient underwent a planned total laparoscopic hysterectomy with bilateral salpingo-oophorectomy and frozen section biopsy on 29/11/2021. A frozen section of the endometrial tissue was reported as positive for malignancy.
Upon laparoscopic entry, however, intra-operatively, multiple scattered “seedling-like” deposits were noted over the uterine serosa, bilateral fallopian tubes, pouch of Douglas, pelvic peritoneum, and over the rectum, raising strong suspicion of peritoneal spread (Figure 1A &1B). The bladder wall, liver surface, and undersurface of the diaphragm were described as free of deposits(Figure 2A &2B). In view of these findings, the procedure was converted to laparotomy through pfannenstiel incision. The patient underwent A full staging operation, which was extrafascial hysterectomy, bilateral salpingo-oophorectomy, bilateral pelvic lymphadenectomy, and pelvic peritonectomy. The resected uterus with both adnexa with both sided pelvic lymph nodes, and pelvic peritoneum sent for histopathology.

Pathological Findings

The final histopathology report of all submitted specimen provided the critical diagnostic clarification. It confirmed moderately differentiated endometrioid carcinoma, (FIGO grade II), confined to the uterine corpus. The tumor invaded less than 50% of the myometrial thickness The cervix and lower uterine segment were uninvolved. Lymphovascular invasion was not identified. Both adnexa were free of tumour (pT1a). A total of nine pelvic lymph nodes the right external iliac, right internal iliac, and left iliac basins were free of metastatic carcinoma (pN0).
Most significantly, the submitted specimen of pelvic peritoneum, representative of the intraoperatively suspicious deposits, was histologically "Free of metastasis." Microscopic examination revealed focal areas of increased inflammatory cell infiltration but no evidence of viable malignant cells. The ovarian surfaces and adnexa were also uninvolved (Figure 3).

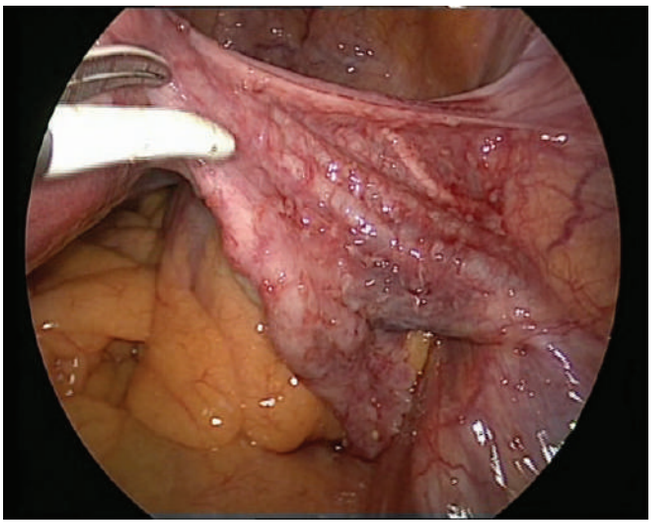

Figure 1(A): Pelvic peritoneal surface & tube showing multiple small, whitish “seedling-like” nodules suspicious for peritoneal deposits.

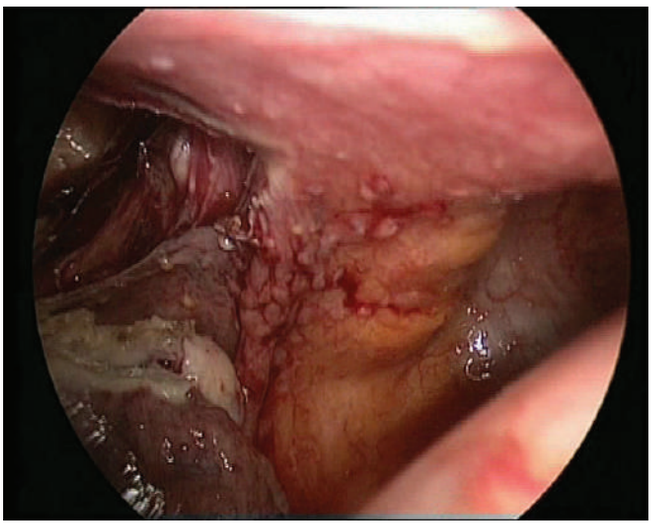

Figure 1(B): Rectouterine pouch (pouch of Douglas)/pelvic peritoneum demonstrating clustered nodular lesions suspicious for deposits.

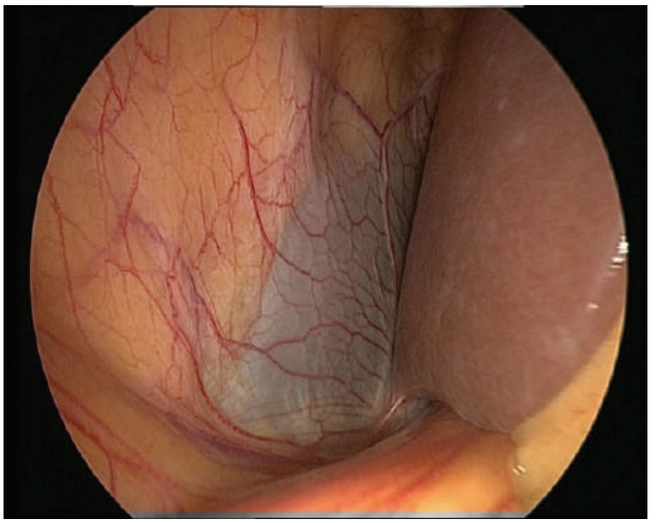

Figure 2(A): Peritoneal surface of Liver and upper abdominal wall appears smooth without visible nodules

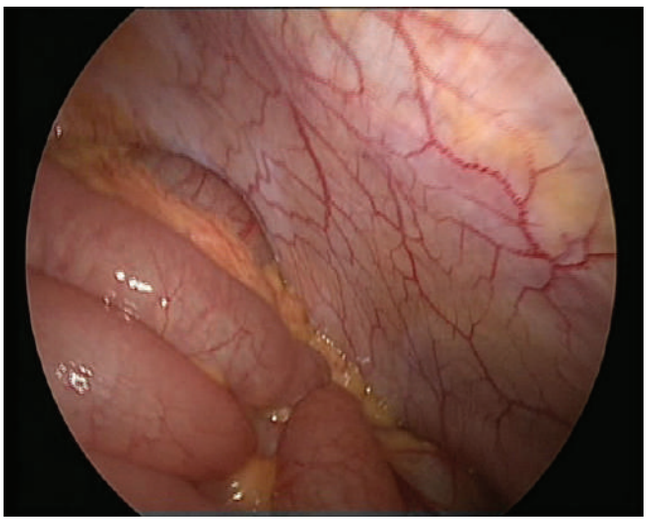

Figure 2(B): smooth peritoneal surface/organ serosa with normal vascular pattern; again No gross peritoneal deposits seen in the exta-pelvic portion of abdomen.

Overall, the findings supported early-stage disease (pT1aN0; FIGO IA) with no histologic evidence of peritoneal metastasis despite the suspicious intra-operative appearance.

Subsequent treatment decision and follow-up

Because peritoneal metastasis was excluded on histopathology and the final stage remained FIGO IA (grade II), the patient was managed according to early-stage risk-adapted treatment rather than advanced disease. The patient successfully completed adjuvant vaginal vault brachytherapy using a cylinder applicator, 7 Gy × 3 fractions (total 21 Gy)

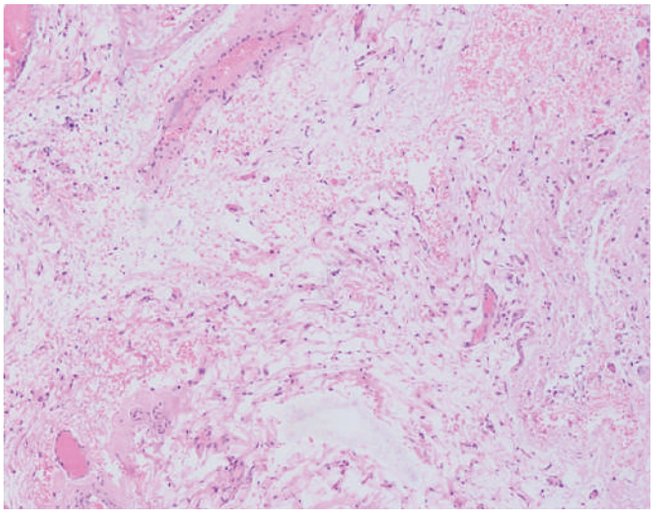

Figure 3: Microscopic view of Omental tissue suspicious for tumour deposit on Laparoscopy: Free of tumour showing focal increase infiltration of inflammatory cells.

delivered between 03/02/2022 and 16/02/2022 and tolerated treatment without major complications.

The patient was placed on a standard surveillance protocol for early-stage endometrial carcinoma, adhering to the consensus schedule of clinical evaluations every 3–4 months for the first two years, transitioning to every 6 months thereafter. At each visit, a detailed symptom history was obtained and a physical examination including a speculum and bimanual pelvic exam to evaluate the vaginal vault was performed. A post-treatment surveillance FDG PET-CT scan, obtained in January 2022, showed no evidence of metastatic disease. Findings were limited to postoperative inflammatory changes in the operative bed and a non–FDG-avid subpleural pulmonary nodule, the latter being managed with interval imaging follow-up. In addition, serial vault smear cytology has been consistently negative for malignant cells from January 2022 through the most recent follow-up in April 2025.

With over 50 months (approximately 4 years) of follow-up since surgery, the patient remains asymptomatic and clinically well, with no evidence of local recurrence or distant metastasis.

DISCUSSION

Peritoneal "seedling-like" deposits seen during staging surgery for endometrial carcinoma are understandably concerning, as they may suggest extrauterine spread and can immediately influence operative strategy and adjuvant treatment planning[8,9]. In our patient, multiple deposits were described over the uterine serosa, fallopian tubes, pouch of Douglas, pelvic peritoneum, and rectal surface, creating a strong intraoperative impression of peritoneal involvement.

However, the final histopathology told a different story: the uterine primary was endometrioid carcinoma, FIGO grade II with <50% myometrial invasion, no LVSI, negative pelvic nodes, and the pelvic peritoneum was free of metastasis. Furthermore, the omental tissue sampled from a suspicious area showed only focal inflammatory cell infiltration without malignant cells, supporting a benign inflammatory/reactive process. Taken together, the comprehensive findings reinforced the disease being early-stage disease (pT1aN0; FIGO IA)

This mismatch between the gross laparoscopic appearance and histology highlights an important practical point for both surgeons and pathologists: peritoneal and omental nodules are not always metastatic, and histopathological confirmation remains essential when deposits are encountered. In such situations, a helpful approach is to obtain targeted biopsies from representative sites for permanent section analysis, particularly when deposits are widespread[3,4,5], but the remainder of the abdomen appears uninvolved.

The etiology of such inflammatory peritoneal reactions associated with endometrial carcinoma remains incompletely interpreted. While the classic description involves keratin granulomas in tumors with squamous differentiation[10,11], our case demonstrated that non-specific inflammation—characterized histologically by a focal increase in inflammatory cells without granuloma formation or keratin debris— produced an identical macroscopic picture. This inflammatory response may be related to local tissue irritation (including postoperative/-foreign-material–related reaction) and, in some cases, an immune-mediated (hypersensitivity) mechanism[4,12]. Regardless of the precise mechanism, the clinical challenge is identical: the surgeon's visual assessment is unreliable for distinguishing these benign lesions from true metastatic implants.

The management pathway in this case demonstrates the application of risk-adapted approach, where treatment intensity was guided by the final pathology-confirmed stage and risk factors. Following the confirmation of Stage IA disease, adjuvant treatment was appropriately de-escalated to vaginal brachytherapy alone, rather than systemic therapy-[8,13,14]. The tumor board's recommendation for vaginal brachytherapy alone—based on the presence of Grade II histology and tumor necrosis—aligns with contemporary guidelines that avoid overtreatment in low-risk, early-stage disease. The patient's excellent long-term outcome, with no evidence of recurrence, even after four years, validates this tailored approach and confirms that the intraoperative findings were negative for an aggressive disease.

In conclusion, this case serves as a critical reminder for surgeons, oncologists, and pathologists. Benign peritoneal inflammatory reactions can be perfect macroscopic mimics of carcinomatosis. The definitive stage of endometrial cancer is a pathological, not a surgical, diagnosis. A disciplined reliance on histopathological confirmation of suspicious extra-uterine lesions is essential to avoid erroneous upstaging and the consequent cascade of overtreatment. Our patient had a excellent long-term outcome, with no evidence of recurrence over 50 months following surgery and tailored adjuvant brachytherapy, validates the multidisciplinary decision to forego systemic chemotherapy. This favorable course confirms that the inflammatory peritoneal reaction was a false mimic of aggressive biology and reinforces the principle that treatment intensity must be guided by pathological, not visual, staging. Heightened awareness of this entity ensures patients receive the most accurate prognosis and the most appropriate, evidence-based therapy.

CONCLUSION

Peritoneal deposits seen during surgery for endometrial carcinoma may resemble metastasis, yet they can be benign. Final staging should be based

on histopathology rather than operative appearance alone. In this case, peritoneal/omental sampling showed inflammatory changes without tumour, allowing accurate staging and appropriate adjuvant treatment. This underscores the importance of confirming suspected peritoneal disease on tissue diagnosis before changing management, to avoid overtreatment and ensure care is matched to the true extent of disease.

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