

Isolated contralateral inguinal lymph node metastasis as the initial extraperitoneal manifestation of high-grade serous ovarian carcinoma

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ABSTRACT

High-grade serous ovarian carcinoma (HGSOC) typically spreads within the peritoneal cavity, with extraperitoneal metastasis being uncommon. Inguinal lymph node involvement as the sole site of extraperitoneal spread at presentation is particularly rare. We report a case of a postmenopausal woman diagnosed with HGSOC of the right ovary who presented with isolated contralateral inguinal lymph node metastasis in the absence of diffuse peritoneal disease. Diagnosis was established through imaging, histopathology, and immunohistochemistry. The patient demonstrated an excellent response to neoadjuvant chemotherapy followed by interval cytoreductive surgery. This case highlights an unusual metastatic pathway of ovarian carcinoma, underscores the importance of comprehensive metastatic evaluation, and contributes to the limited literature on inguinal lymph node metastasis in ovarian cancer.

How to cite this article: Krishna V, Priya M. Isolated Contralateral Inguinal Lymph Node Metastasis as the Initial Extraperitoneal Manifestation of High-Grade Serous Ovarian Carcinoma. *Int J Drug Deliv Technol.* 2026;16(79s): 1275-1279. DOI: 10.25258/ijddt.16.79s.207

BACKGROUND

Epithelial ovarian cancer remains one of the leading causes of death from gynaecological malignancies, largely due to its propensity for late presentation and aggressive biological behaviour. High-grade serous carcinoma (HGSC) is the most prevalent histological subtype and accounts for the majority of ovarian cancer-related mortality worldwide (1,2). The disease is characterised by rapid progression, early dissemination, and a marked tendency for intraperitoneal spread involving the omentum, peritoneal surfaces, and retroperitoneal lymph nodes (2,3). Current international guidelines emphasise accurate staging, multidisciplinary decision-making, and optimal cytoreduction combined with platinum-based chemotherapy as the foundation of management (1–3).

According to the FIGO 2021 staging system, the presence of extra-abdominal lymph node metastasis, including inguinal lymph node involvement, categorizes ovarian cancer as stage IVB disease, irrespective of intraperitoneal disease burden (4). While pelvic and para-aortic lymph node metastases are frequently encountered in HGSC, inguinal lymph node involvement is distinctly uncommon and is usually associated with advanced or recurrent disease (5). Isolated or disproportionate inguinal lymphadenopathy at presentation may therefore obscure the underlying Müllerian origin and pose a diagnostic challenge. Recent literature suggests that atypical metastatic patterns of HGSC, though rare, are increasingly recognized due to improved imaging modalities and heightened clinical awareness (6). Reporting such unusual presentations is important, as they have direct implications for staging, prognosis, and therapeutic planning.

CASE PRESENTATION

A postmenopausal woman in her mid-forties presented with a history of intermittent right iliac fossa pain for three years, with recent aggravation over ten days, accompanied by unintentional weight loss. Her obstetric history included two term vaginal deliveries followed by tubal sterilization. She had a medical history of well-controlled systemic hypertension and type 2 diabetes mellitus. There was no family history of malignancy. On examination, she was clinically stable. Abdominal examination revealed a palpable mass in the right iliac fossa. Gynecological examination showed a healthy cervix and vagina, with a right adnexal mass appreciated on bimanual examination. A firm contralateral inguinal lymph node was palpable.

INVESTIGATIONS

Baseline laboratory investigations, including hematological and biochemical parameters, were within normal limits. Serum tumor markers showed a markedly elevated CA-125 level, while other tumor markers were within normal range. Ultrasonography demonstrated a heterogeneous right adnexal lesion with mild vascularity and multiple enlarged contralateral inguinal lymph nodes. Magnetic resonance imaging revealed an irregular mixed solid–cystic right adnexal mass, with the right ovary not visualized separately. Positron emission tomography–computed tomography (PET-CT) showed fluorodeoxyglucose-avid right adnexal disease and metabolically active contralateral inguinal lymph nodes (Figure 1). Ultrasound-guided biopsy of the inguinal lymph node revealed metastatic adenocarcinoma with papillary architecture. Immunohistochemistry was positive for PAX8, WT-1, p16, and oestrogen receptor, and negative for Napsin-A, supporting a diagnosis of serous carcinoma of ovarian origin.

DIFFERENTIAL DIAGNOSIS

In a postmenopausal woman presenting with an adnexal mass accompanied by clinically and radiologically evident inguinal lymphadenopathy, the differential diagnosis must be approached systematically and with caution. From a gynecologist's perspective, the initial concern is to determine whether the inguinal lymph node represents metastatic disease from a gynecological primary, a non-gynecological malignancy, or a primary nodal pathology. Primary vulvar malignancy is an important consideration, as the vulva drains directly to the superficial inguinal lymph nodes. However, careful local examination did not reveal any vulvar lesion, and the presence of a dominant adnexal mass with serous morphology made this diagnosis unlikely. Cutaneous malignancies such as melanoma can also present with isolated groin lymphadenopathy, but the absence of any suspicious skin lesions and the subsequent histopathological findings did not support this possibility.

Lymphoma remains a key differential in patients presenting with nodal enlargement, particularly when nodes are bulky or multiple. In this case, however, the lymph node biopsy demonstrated metastatic adenocarcinoma rather than lymphoid malignancy, effectively excluding this diagnosis. Metastatic adenocarcinoma from gastrointestinal or urinary tract primaries can occasionally involve inguinal nodes, but cross-sectional imaging did not identify a primary lesion in these systems, and the immunohistochemical profile was not supportive of such origins. Among gynaecological malignancies, endometrial and cervical carcinomas can metastasize via lymphatic pathways, but inguinal involvement as a dominant or early feature is rare. The presence of a right adnexal mass, serous histology, and immunohistochemical positivity for PAX8 and WT-1 strongly favored a Müllerian origin, leading to the final diagnosis of high-grade serous ovarian carcinoma with atypical lymphatic spread.

TREATMENT

Following multidisciplinary tumor board discussion, the patient was planned for neoadjuvant chemotherapy. She received four cycles of paclitaxel and carboplatin, which were well tolerated. Post-chemotherapy PET-CT demonstrated significant reduction in metabolic activity and size of both the adnexal lesion and inguinal lymph node, along with normalization of CA-125 levels (Table 1). The patient subsequently underwent interval cytoreductive surgery comprising total abdominal hysterectomy with bilateral salpingo-oophorectomy, infracolic omentectomy, bilateral pelvic lymph node dissection, and contralateral inguinal lymph node dissection (Figure 2).

OUTCOME AND FOLLOW-UP

Histopathological examination revealed high-grade serous carcinoma of the right ovary with marked chemotherapy response (CRS 3). The omentum showed regression-associated fibro-inflammatory changes without residual tumour. Metastatic deposits were identified in the contralateral inguinal lymph nodes. Final staging was consistent with FIGO stage IVB disease. The postoperative period was uneventful. The patient continues on oncological follow-up with no evidence of disease recurrence at the latest review.

DISCUSSION

High-grade serous ovarian carcinoma typically spreads by transcoelomic dissemination within the peritoneal cavity, and extraperitoneal metastasis is considered an uncommon and usually late event in the disease course (2,3). Inguinal lymph node metastasis as a prominent or initial manifestation of HGSC is therefore exceptionally rare, with only a small number of cases reported in the recent literature (6,9,10). This unusual pattern of spread has important implications for staging, prognosis, and management. One proposed mechanism for inguinal lymph node involvement is lymphatic spread along the round ligament of the uterus, which drains into the superficial inguinal lymph nodes. This anatomical pathway may

allow tumour cells to bypass the conventional pelvic and para-aortic nodal chains, resulting in early or disproportionate inguinal nodal disease, including contralateral involvement (11). Recognition of this pathway is clinically relevant, as inguinal lymph nodes are classified as non-regional nodes for ovarian cancer and their involvement automatically upstages the disease to FIGO stage IVB (4).

Accurate disease mapping is therefore essential in such presentations. Current European radiological guidelines support the use of contrast-enhanced CT as the primary staging modality, with FDG-PET/CT playing a valuable adjunctive role in clarifying equivocal extra-pelvic nodal disease and guiding biopsy (5). Histopathological confirmation, supported by immunohistochemistry, remains central to establishing the diagnosis and excluding non-Müllerian primaries when inguinal lymphadenopathy is the initial diagnostic clue (6,9). From a therapeutic standpoint, the management of advanced HGSC continues to rely on a combination of systemic chemotherapy and cytoreductive surgery. Neoadjuvant chemotherapy followed by interval debulking surgery is an accepted approach in patients where optimal primary cytoreduction is unlikely (1–3). Recent real-world studies suggest that outcomes are more closely related to achieving minimal residual disease and chemotherapy responsiveness than to minor variations in treatment sequencing (12,13). The favourable radiological, biochemical, and pathological response observed in this patient, including a high chemotherapy response score, underscores the effectiveness of this strategy (14).

This case highlights the importance of maintaining a high index of suspicion for atypical metastatic patterns in ovarian cancer and reinforces the need for comprehensive metastatic evaluation and multidisciplinary management in rare and diagnostically challenging presentations (6,10,15).

LEARNING POINTS/TAKE HOME MESSAGES 3-5 *bullet points*

- High-grade serous ovarian carcinoma can rarely present with isolated inguinal lymph node metastasis.
- Comprehensive metastatic evaluation, including PET-CT, is essential in atypical presentations.
- Inguinal lymph node involvement represents extraperitoneal disease and alters FIGO staging.
- Multidisciplinary management with neoadjuvant chemotherapy and interval cytoreduction can yield favourable outcomes.

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FIGURE/VIDEO CAPTIONS

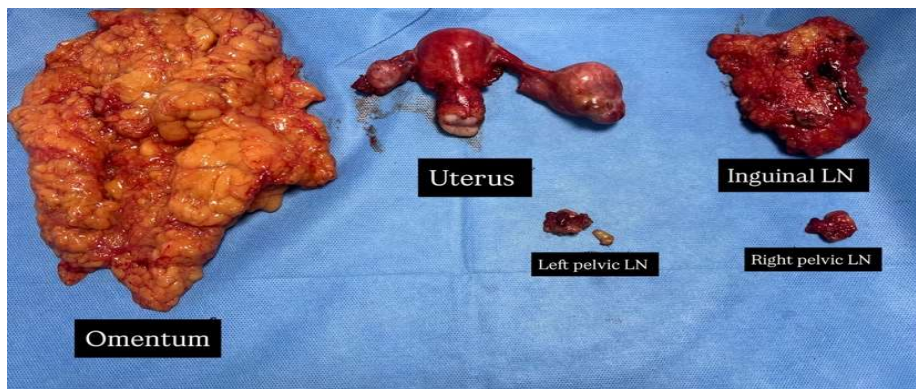


Figure 1. Total abdominal hysterectomy with bilateral salphingoopherectomy

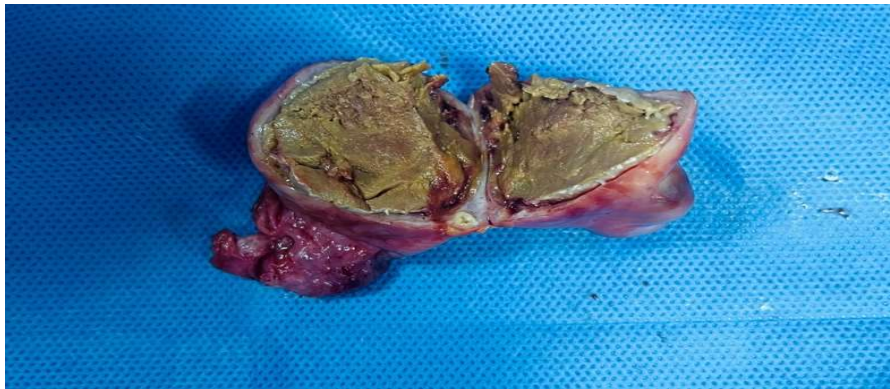


Figure 2. Specimen retrieved for histopathological examination

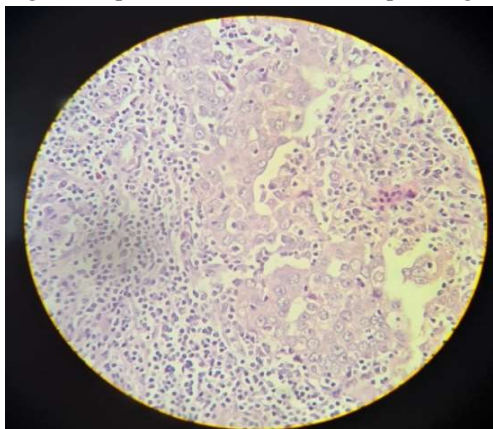


Figure 3. Microscopic image of High grade serous carcinoma of right ovary

