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The navel knows: Unmasking umbilical metastasis after cytoreduction

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Abstract
Umbilical metastasis, classically referred to as a Sister Mary Joseph nodule, is a rare manifestation of intra-abdominal malignancies and indicates advanced disease. Delayed isolated umbilical recurrence following optimal cytoreductive surgery for ovarian carcinoma is uncommon, particularly in the presence of normal CA-125 levels. A middle-aged postmenopausal woman presented with bilateral inguinal lymphadenopathy without any symptoms suggestive of primary malignancy. Exploratory laparotomy revealed metastatic deposits over the anterior abdominal wall and peritoneal surfaces. She underwent optimal primary cytoreductive surgery. Histopathology confirmed endometrioid carcinoma of ovarian origin, FIGO stage IVB. She received adjuvant chemotherapy and was maintained on surveillance with persistently normal CA-125 levels. Two years later, she presented with a solitary, firm, purplish umbilical swelling. Biopsy confirmed metastatic recurrence consistent with ovarian carcinoma. The lesion was excised and she was initiated on systemic chemotherapy for recurrent disease.This case highlights the limitations of relying solely on tumour markers during follow-up, as biochemical remission does not necessarily correlate with absence of active disease. Careful clinical examination remains essential in surveillance, and any new focal lesion warrants prompt evaluation irrespective of tumour marker status to facilitate early diagnosis and appropriate management.

Keywords: Ovarian carcinoma, metastasis, chemotherapy, CA-125, recurrence, cytoreduction

Introduction
Umbilical metastasis, also known as Sister Mary Joseph nodule, is a rare manifestation of intra-abdominal malignancies. In ovarian carcinoma, umbilical involvement indicates advanced or disseminated disease. Delayed and isolated umbilical recurrence following optimal cytoreduction and adjuvant chemotherapy is uncommon. Normal CA-125 levels may fail to detect disease recurrence.

Case Summary
A 51-year-old postmenopausal woman, homemaker with no co-morbidities, presented with swelling in both groin regions since 2 weeks, not associated with pain. There was no history of symptoms suggestive of primary malignancy. Local examination revealed multiple bilateral superficial inguinal lymph nodes that were non-tender, non-mobile, firm in consistency, with the largest measuring approximately 2 × 2 cm. Systemic examination including per-vaginal and per-rectal examination was normal.
A provisional diagnosis of advanced carcinoma ovary was made. On laparotomy, uterus was normal, bilateral tubes and ovaries appeared grossly normal, and metastatic deposits were identified in the anterior abdominal wall, perirectal fat, rectouterine folds, and uterine serosa. She underwent primary cytoreductive surgery which included TAH with BSO, infracolic omentectomy, excision of perirectal and abdominal deposits, pelvic and para-aortic lymph node dissection, and bilateral inguinal lymph node debulking.
Final histopathological examination of the surgical specimen confirmed endometrioid carcinoma of ovarian origin and was staged as FIGO stage IVB ovarian carcinoma. Patient received 3 cycles of adjuvant systemic chemotherapy. During surveillance in our institute, serum CA-125 levels remained within normal limits.
Two years after completion of treatment, patient presented with umbilical swelling since 2 weeks, associated with pain and no discharge. On examination, solitary, well defined, purplish umbilical swelling measuring 3*2.5 cm, firm to hard, non-tender, non-reducible, and fixed to underlying tissues, with no signs of inflammation. Cough impulse was noted at the previous scar site. (Fig 1).

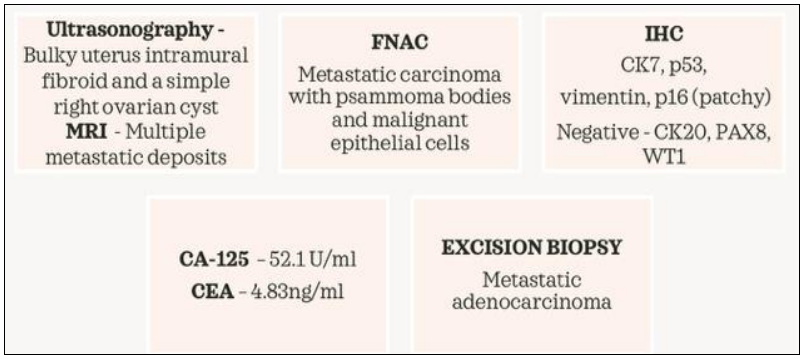

Fig 1: Sister Mary Joseph's nodule

FNAC showed metastatic deposits. Further, radiological investigations did not reveal primary source.
Umbilical Nodule was excised and sent for histopathological examination, additionally, anatomical hernia repair was undertaken (Fig 2).

Fig 2: Post-operative picture (S/P excision of umbilical nodule with incisional hernia repair).

Biopsy confirmed metastatic disease consistent with recurrent carcinoma (Fig 3).She subsequently received systemic chemotherapy for recurrent ovarian cancer.

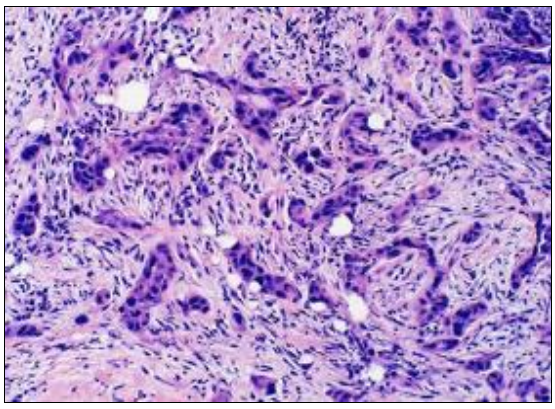

Fig 3: Histopathology of Sister Mary Joseph nodule showing adenocarcinoma with desmoplastic stroma

Discussion

Umbilical metastasis in ovarian carcinoma, classically referred to as Sister Mary Joseph's nodule, represents a manifestation of advanced intra-abdominal malignancy and is most frequently associated with epithelial ovarian cancer among gynecologic primaries. The pathophysiology of umbilical involvement is multifactorial and reflects the complex anatomic connections of the umbilicus. Tumour cells may reach the umbilicus via:

- Lymphatic spread through para-aortic, pelvic, and periumbilical lymphatic channels.
- Hematogenous dissemination through venous networks communicating with the portal and systemic circulation.
- Direct transperitoneal implantation, facilitated by peritoneal fluid circulation, especially in the presence of ascites.
- Spread along embryologic remnants such as the urachus, obliterated umbilical vein (ligamentum teres), or vitelline duct remnants.

In ovarian carcinoma, transcoelomic spread is the dominant route of dissemination. The umbilicus, being a fibrous scar with rich vascular and lymphatic connections, may serve as a receptive site for tumour implantation. Consequently, most cases of umbilical metastasis present at the time of initial diagnosis or during widespread peritoneal carcinomatosis, typically corresponding to FIGO stage III or IV disease.
This scenario also underscores limitations in surveillance strategies. Serum CA-125, although widely used in follow-up, has imperfect sensitivity and specificity. Biochemical remission does not invariably equate to complete eradication of microscopic or localized disease. Certain patterns of recurrence, particularly small-volume peritoneal or cutaneous metastases, may not produce sufficient tumour burden to elevate CA-125 levels significantly. Additionally, tumour biology may evolve over time, altering marker expression. Therefore, exclusive reliance on tumour markers risks delayed detection of clinically meaningful recurrence.
Careful, systematic clinical examination remains indispensable in follow-up care. Imaging modalities such as contrast-enhanced CT or PET-CT further assist in delineating the extent of disease when recurrence is suspected clinically, even in the context of normal tumour markers.
Early recognition of localized recurrence, including isolated abdominal wall or umbilical metastasis, may allow consideration of secondary cytoreductive surgery in appropriately selected patients, especially when disease is limited and the patient maintains good performance status. In certain cases, surgical excision combined with systemic therapy may contribute to improved disease control and potentially prolong progression-free survival. Conversely, detection of umbilical metastasis as part of disseminated relapse carries a poorer prognosis and typically necessitates systemic therapy.
Overall, this case reinforces several key principles in advanced ovarian cancer management: recurrence may occur through atypical pathways; tumour markers alone are insufficient for surveillance; and meticulous clinical assessment remains fundamental. Integration of biochemical monitoring, clinical examination, and judicious imaging provides the most comprehensive approach to detecting and managing recurrent disease.

Conclusion

Delayed isolated umbilical recurrence following optimal cytoreductive treatment for advanced ovarian carcinoma is rare Normal CA-125 levels do not reliably exclude disease recurrence emphasizing the need for continued clinical vigilance. Any new focal lesion detected during follow-up should prompt immediate evaluation, regardless of tumour marker status, to facilitate early diagnosis and appropriate management.

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