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The Hidden Culprit: A Rare Case of Primary Fallopian Tube Carcinoma

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1. Abstract

1.1. Background

Primary fallopian tube carcinoma (PFTC) is an exceptionally rare gynecologic malignancy, accounting for less than 2% of all female genital tract cancers. Its diagnosis is often delayed due to nonspecific clinical and imaging findings.

1.2. Case Presentation

We report the case of a 53-year-old multiparous woman presenting with postmenopausal bleeding. Imaging revealed a right adnexal mass, and hysteroscopy excluded endometrial pathology. The patient underwent total hysterectomy with bilateral salpingo-oophorectomy. Histopathological analysis identified a high-grade endometrioid carcinoma confined to the right fallopian tube. Immunohistochemistry showed strong estrogen receptor expression and heterogeneous progesterone receptor staining. Staging surgery confirmed the absence of extra-tubal spread, classifying the tumor as FIGO stage IA. The patient received adjuvant platinum-based chemotherapy and tolerated treatment well.

1.3. Discussion

PFTC often mimics ovarian or uterine pathologies, with definitive diagnosis typically made postoperatively. Although serous histology predominates, endometrioid subtypes are rare. MRI aids in assessment but lacks specificity. Early-stage disease, though uncommon, carries a favorable prognosis when managed with complete surgical staging and adjuvant chemotherapy.

1.4. Conclusion

This case highlights the diagnostic and therapeutic challenges of PFTC and underscores the importance of considering this rare entity in the differential diagnosis of postmenopausal bleeding. A multidisciplinary approach is crucial for optimal management and improved outcomes.

2. Introduction

Fallopian tube tumors are rare compared to other gynecological malignancies, with an incidence ranging from approximately 0.14% to 1.80% [1]. Their preoperative diagnosis is often delayed or missed due to the absence of specific signs and symptoms. In the early stages, these tumours are typically asymptomatic, contributing to underdiagnosis. The most common histological type is fallopian tube adenocarcinoma, often associated with risk factors such as nulliparity, subfertility, and pelvic inflammatory disease [2]. Due to the rarity of these tumours and the lack of standardized guidelines, optimal management remains uncertain [3].

We report here a rare case that highlights the diagnostic and therapeutic challenges associated with primary fallopian tube carcinoma (PFTC).

3. Case Report

A 53-year-old woman presented to our department with postmenopausal bleeding. She was G6P6 (six vaginal deliveries), with no family history of neoplasia and a medical history of type 2 diabetes managed with oral antidiabetic medications. Initial transvaginal ultrasound revealed an endometrial thickness of 4.4 mm and a right latero-uterine anechoic structure measuring 30 × 50 mm with peripheral vascularization. Hysteroscopy ruled out endometrial cancer.

Pelvic MRI identified a right latero-uterine oval mass measuring 40 × 50 mm with moderate contrast enhancement. Due to persistent symptoms, the patient underwent a total hysterectomy with bilateral salpingo-oophorectomy. Histopathological examination revealed a high-grade carcinoma limited to the right fallopian tube, morphologically consistent with a high-grade endometrioid carcinoma. The left fallopian tube and both ovaries were of normal morphology, with no evidence of tumour involvement.

Immunohistochemistry showed intense and diffuse estrogen receptor expression and heterogeneous progesterone receptor staining. The patient subsequently underwent a second laparoscopic surgery, which included peritoneal cytology and biopsies, infracolic omentectomy, appendectomy, and pelvic and para-aortic lymphadenectomy. Histological analysis showed no malignancy in the appendix or lymph nodes. The tumour was staged as FIGO stage IA for fallopian tube carcinoma [4]. The patient was referred to the Salah Aziez Institute for adjuvant chemotherapy. At the time of writing, the patient had completed two chemotherapy cycles and was tolerating treatment well.

4. Discussion

Primary fallopian tube carcinoma is a rare malignancy, accounting for less than 2% of all female genital tract cancers[3]. Its clinical presentation often mimics more common gynecologic conditions. The classic symptom triad-pelvic pain, abnormal vaginal bleeding, and a pelvic mass-is present in only a minority of cases, making early diagnosis difficult [5]. In our case, the patient presented with postmenopausal bleeding, initially raising suspicion of endometrial pathology. Imaging suggested an adnexal mass, and final diagnosis was made postoperatively through histopathology.

PFTC shares histologic and molecular features with ovarian and endometrial cancers. Most cases are serous carcinomas, while endometrioid histology, as seen in our patient, is much less frequent [2]. Risk factors include nulliparity, infertility, chronic inflammation, and genetic predispositions such as BRCA mutations [6].

MRI is a helpful tool in evaluating adnexal masses, but lacks specificity for fallopian tube carcinoma [7]. Definitive diagnosis relies on histopathological analysis, often after surgery initially intended for presumed ovarian or uterine disease. Immunohistochemistry aids in tumour subtyping and planning adjuvant therapy.

The FIGO staging system for ovarian, tubal, and peritoneal cancers is used for PFTC, with stage IA indicating a tumour limited to one fallopian tube with no surface involvement or extra-tubal spread [4]. Early-stage detection is uncommon but associated with better outcomes.

Standard treatment includes surgical staging followed by platinum-based chemotherapy, particularly for high-grade tumours regardless of stage [8]. Our patient received complete staging and was referred for chemotherapy in accordance with current practice.

This case illustrates the diagnostic difficulty of PFTC and emphasizes the importance of considering rare pathologies in postmenopausal bleeding. A multidisciplinary approach is key to improving outcomes.

5. Conclusion

Primary fallopian tube carcinoma is a rare, often underdiagnosed malignancy. Its nonspecific clinical features delay diagnosis and complicate management. Multidisciplinary care, including complete staging and adjuvant therapy, is essential. Increased awareness may lead to earlier detection and improved prognosis.

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