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PRIMARY FALLOPIAN TUBE CARCINOMA: A CASE REPORT AND CLINICAL REVIEW

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ABSTRACT

Primary fallopian tube carcinoma (PFTC) is a rare gynecological malignancy that shares clinical behavior and molecular origins with high-grade serous ovarian carcinoma [1, 2]. Due to its non-specific clinical presentation and frequent overlap with primary ovarian masses, preoperative diagnosis remains exceptionally challenging [2, 3]. We present the clinical case of a 62-year-old female admitted for the evaluation of chronic, intermittent left lower quadrant pelvic pain. While initial ultrasonography suggested a suspicious ovarian mass, multi-parametric pelvic magnetic resonance imaging (MRI) demonstrated a solid tissue mass within a dilated left fallopian tube, demonstrating heterogeneous T2 signal intensity, restricted diffusion, and prominent post-contrast enhancement. This report highlights the key multi-parametric MRI features capable of identifying primary intra-fallopian tube neoplasms prior to surgical exploration, emphasizing the critical role of advanced imaging in guiding tailored primary surgical staging [3, 4].

KEYWORDS

Fallopian tube; Carcinoma; Ovarian cancer mimicry; Oncology.

MAIN ARTICLE

INTRODUCTION

Primary fallopian tube carcinoma (PFTC) accounts for less than 1% of all female genital tract malignancies, making it one of the rarest gynecological cancers [1]. Historically grouped under the broader umbrella of epithelial ovarian cancer, contemporary oncological pathology recognizes that a significant proportion of pelvic high-grade serous carcinomas (HGSCs) actually originate in the mucosal epithelium of the fallopian tube—frequently beginning as serous tubal intraepithelial carcinomas (STIC) [1, 2].

Preoperative diagnosis remains uniquely challenging [3]. Early-stage disease is frequently insidious or asymptomatic. While advanced presentations may occasionally manifest with Latzko's triad (colicky pain, adnexal mass, and intermittent watery vaginal discharge), these classical signs are non-specific and absent in the vast majority of patients [2]. Consequently, many cases are discovered unexpectedly either intraoperatively or via post-surgical pathology [2]. Advanced medical imaging, particularly multi-parametric magnetic resonance imaging (MRI), plays an essential role in differentiating tubal neoplasms from primary ovarian lesions prior to surgery, ensuring appropriate surgical planning and oncological management [3, 4]. This article presents a documented clinical case of a suspected advanced PFTC in a 62-year-old patient, detailing her clinical presentation, multi-parametric MRI diagnostic features, and the relevant literature [1–5].

CLINICAL PRESENTATION

A 62-year-old postmenopausal female presented with chronic, intermittent, mild left lower quadrant and pelvic pain lasting several months, with no associated fever, abnormal vaginal discharge, or acute distress. Initial transvaginal pelvic ultrasonography revealed a left adnexal lesion suspicious for an ovarian mass. For further characterization, multi-parametric pelvic MRI was performed using dedicated sequences (Figures 1–3). Axial, coronal and sagittal T2-weighted images (Figure 1) demonstrated a dilated, sausage-like tubular structure in the left uterine adnexa containing a solid endoluminal mass separate from the left ovary, exhibiting heterogeneous T2 signal intensity. Axial diffusion-weighted imaging (DWI) (Figure 2) revealed marked high signal intensity within the solid intraluminal component on high ***b***-value sequences, reflecting high architectural cellularity. Following intravenous gadolinium

administration, axial contrast-enhanced T1 FatSAT (Figure 3) showed prominent, heterogeneous contrast enhancement of the solid endoluminal tissue, strongly suggesting a primary intra-fallopian tube neoplasm. The masse was staged Figo Ia and the patient subsequently underwent surgery, with left salpingo-oophorectomy. Postoperative histopathological examination of the tubal mass confirmed primary fallopian tube carcinoma.

DISCUSSION

The clinical presentation and diagnostic workup of this patient highlight the critical role of multi-parametric pelvic magnetic resonance imaging (MRI) in identifying Primary Fallopian Tube Carcinoma (PFTC) prior to surgical intervention [1, 3]. Contemporary pathological frameworks establish that a significant proportion of pelvic high-grade serous carcinomas (HGSCs) previously classified as primary ovarian cancers actually originate in the distal tubal mucosa [1, 2]. Establishing a high diagnostic suspicion prior to laparotomy is paramount, as it allows for tailored primary surgical planning by a gynecologic oncologist rather than an incomplete benign adnexal resection [5].

Preoperatively differentiating PFTC from primary ovarian malignancies or benign tubal conditions (such as hydrosalpinx, chronic salpingitis, or tubo-ovarian abscess) remains notoriously difficult [2, 3]. Clinical symptoms such as Latzko's triad are non-specific and present in fewer than 15–20% of cases [2]. Consequently, multi-parametric MRI serves as the key diagnostic arbitrator [3, 4].

Characteristic MRI features of PFTC include a sausage-shaped tubular adnexal mass separate from the ipsilateral ovary, mural nodularity, or endoluminal solid components [3, 4]. High signal intensity on high b-value diffusion-weighted imaging (DWI) paired with corresponding apparent diffusion coefficient (ADC) restriction—as observed in this patient—reflects the hypercellular architectural density characteristic of malignant tubal proliferation [4]. Dynamic contrast-enhanced (DCE) sequences further delineate the solid intraluminal component by demonstrating early, intense enhancement compared to adjacent normal tissue [3, 4].

When these specific imaging parameters are identified, comprehensive surgical staging—including total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, and retroperitoneal lymphadenectomy—is indicated, as PFTC carries a recognized affinity for early lymphatic dissemination to pelvic and para-aortic lymph nodes even in tumors with minimal primary bulk [2, 5].

CONCLUSION

Primary fallopian tube carcinoma should be considered in the differential diagnosis of postmenopausal women presenting with unexplained chronic pelvic pain and adnexal lesions [2, 3]. Multi-parametric pelvic MRI—utilizing T2-weighted, diffusion-weighted, and dynamic contrast-enhanced sequences—is an essential imaging modality capable of detecting intraluminal tubal masses and distinguishing them from primary ovarian neoplasms [4]. High pre-operative suspicion on MRI ensures prompt referral for comprehensive surgical staging and tailored oncological management [5].

FIGURES:

Figure 1: (Axial, Coronal and Sagittal T2-weighted MRI): Demonstrates a dilated tubular left adnexal structure harboring a solid endoluminal lesion with heterogeneous T2 signal intensity, clearly distinct from the ipsilateral ovary.

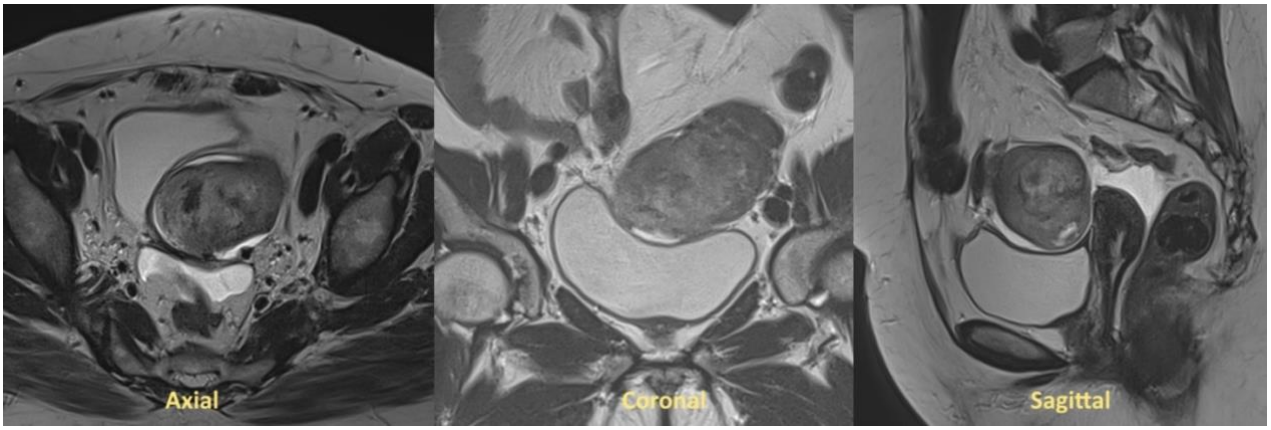


Figure 2 : (Axial Diffusion-Weighted MRI): High b-value DWI displays pronounced hyperintensity of the intraluminal tissue.

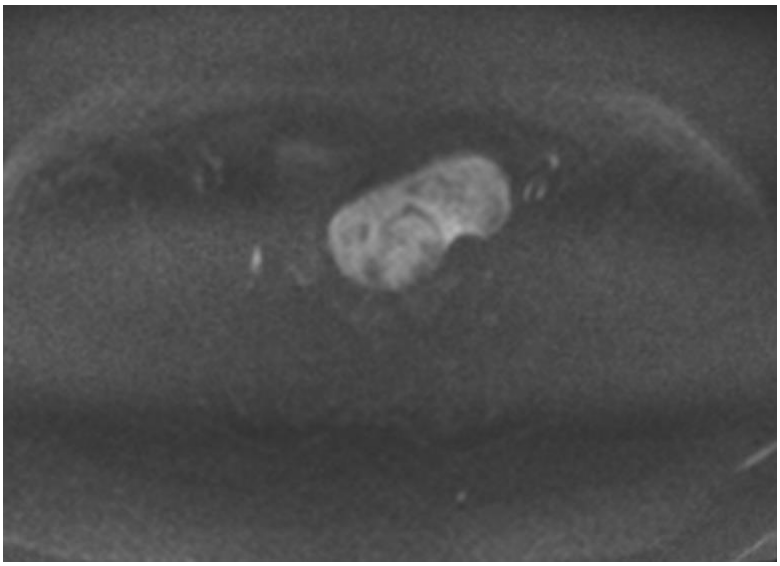
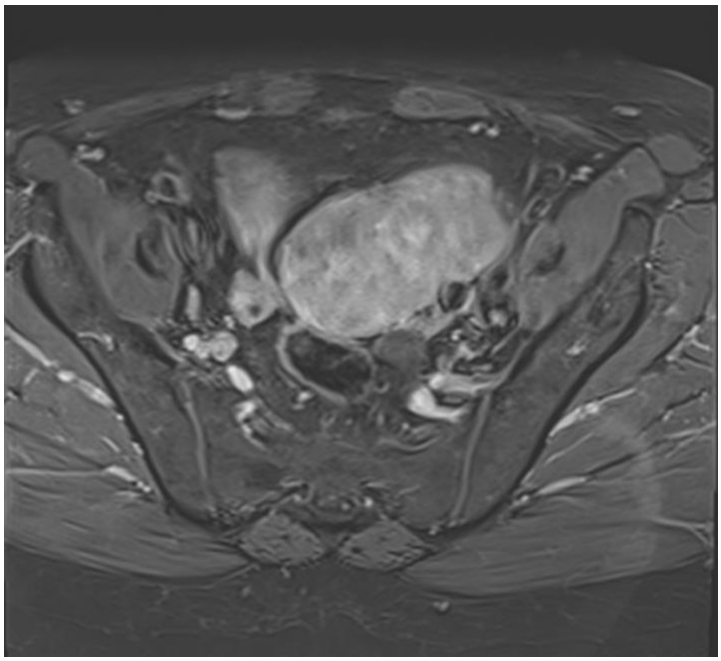


Figure 3 (Axial Post-Contrast Fat-Saturated MRI): Demonstrates substantial, heterogeneous enhancement of the intraluminal solid tissue component following contrast administration.



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