Endometrial stromal sarcoma arising from polypoid endometriosis: Case report and literature review

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\textbf{ABSTRACT}

\textbf{BACKGROUND:} Polypoid endometriosis (PE) is a rare and uncommon variant of endometriosis that may present as a polypoid mass that simulates a malignant neoplasm. Typically, PE develops locally as a large benign pelvic mass. However, it may sometimes conceal a malignant disease in its context.

\textbf{CASE PRESENTATION:} A 53 years old, nulliparous lady, had been treated over a 10-year period for recurrent and symptomatic polypoid endometriosis of the pelvis. During this time, she underwent four surgical resections, the final one being a total pelvic exenteration, with histology demonstrating the presence of a rare myxoid low grade Endometrial Stromal Sarcoma (ESS) that had arisen in PE.

\textbf{CONCLUSION:} PE is a rare variant growth pattern of endometriosis which may involve different pelvic organs and can mimic a malignant mass in the pelvis. It mostly affects women in their peri- or post-menopausal age and it is not always related to hormonal therapy. Malignances, such as Endometrial Stromal Sarcoma in this case, can arise in the context of PE and their diagnosis can be challenging. Surgical excision may constitute radical multi-organ resection, particularly for recurrent and symptomatic cases. However, the recurrence rates after surgery can be significant.

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1. Background

Polypoid endometriosis (PE) is a rare and uncommon variant of endometriosis that may present as a polypoid mass that simulates a malignant neoplasm. Usually PE develops locally as a large benign pelvic mass. However, it may sometimes conceal a malignant disease in its context.

We present the case of a 53-year old lady with a 10-year history of recurrent PE of the pelvis, from which eventually the presence of an Endometrial Stromal Sarcoma (ESS) was found to have arisen in polypoid endometriosis. ESS is a rare type of mesenchymal tumor of gynecological nature, generally starting from the uterus and rarely from other anatomical sites. The characterization of these lesions is often challenging in the preoperative setting, leading to a state of unclarity about the management.

A few cases of PE have been described in the literature. However, it still remains uncertain whether this entity can constitute a background for the onset of malignancies. We herein report this rare case with a brief review of the literature on this rare gynecological condition. The work has been reported in line with the SCARE criteria [1].

2. Case presentation

A 53 years old, nulliparous lady, had been treated at our institute over a 10-year period for recurrent polypoid endometriosis of the pelvis. During this time, she underwent four surgical resections, with the final one demonstrating the presence of a rare myxoid low grade Endometrial Stromal Sarcoma (ESS) that had arisen in polypoid endometriosis.

In April 2009, she was first diagnosed with a 10 × 5 cm sized soft tissue mass involving the left ovary, with the presence of ascites. CA125 was 476 U/mL. The other tumour markers CA19-9, CA15-3 and CEA were 209 U/mL, 34 U/mL and 1 U/L, respectively. She was
and muscularis propria. No features of atypical endometriosis or malignancy was present.

A year later in 2018, surveillance MRI demonstrated a de novo cystic lesion of 4.7 × 2.4 cm, abutting the rectosigmoid stump, extending to left internal iliac vessels and in close proximity to the sciatic foramen. This appeared suspicious for malignant disease. Histological diagnosis was attempted by executing a trucut biopsy vaginally, which again revealed endometriosis without any signs of cellular atypia. Resection of the pelvic mass from the left pelvic side wall was performed, along with reversal of the end colostomy to re-establish bowel continuity and formation of a covering loop ileostomy. The histology of the mass was again found to be PE, and seven months later, her ileostomy was reversed as well.

After having requested second opinions from other specialists in the field of complex endometriosis, the decision of the multidisciplinary team (MDT) was to continue a regular, close follow-up for which she also underwent a 3–6 monthly pelvic MRI between September 2018 and July 2019. Her symptoms of abdominal suprapubic discomfort and lower back pain recurred in June 2019, and MRI demonstrated regrowth of a soft tissue mass in the left pelvic side wall from 2.3 cm maximum diameter to 13.9 × 10.9 × 21.9 cm (Fig. 2). The left ureter was encased and occluded, with associated left hydroureteronephrosis. No distant metastasis was evident.

Following a new MDT discussion, a surgical removal of this mass was planned. The strong adherence of the mass to the surrounding structures necessitated a total pelvic exenteration with ligation of the left internal iliac artery, fashioning of a permanent endocolostomy and formation of an ileal conduit. An en bloc removal of the specimen was achieved (Fig. 3), which included the rectal stump, sigmoid, descending colon, top of vagina, bladder, distal ureters bilaterally, left pelvic side-wall with its fascia, left internal iliac artery, left pelvic wall fascia, part of obturator internus muscle, part of the left piriformis muscle and the top of the anal canal.

The histopathological analysis revealed this time a low-grade sarcoma that had arisen in endometriosis with myxoid mesenchymal proliferation (Fig. 4). Any subclassification was considered difficult as the differential diagnoses included a rare myxoid low grade Endometrial Stromal Sarcoma (ESS) and a Müllerian adenosarcoma. Despite some unusual features - given the resemblance to endometrial stromal cells and the positive immunoprofile for CD10, WT1, ER and PR - the findings were suggestive of a rare myxoid low grade ESS arising from PE. The positive expression for...
CD34 in this lesion was however, unusual as it is typically negative in low grade ESS.

Currently, the patient is asymptomatic and her 4th-month follow-up MRI and CT scan did not reveal any sign of recurrence.

3. Polypoid Endometriosis: a variant of endometriosis mimicking malignancy. Clinical and pathological aspects

PE is a distinct and rare variant growth pattern of endometriosis with histological features simulating those of an endometrial polyp that frequently forms a nodular polypoid mass, which sometimes can mimic a malignant tumour at presentation, with the possibility of recurrence after surgical excision [2]. Whilst usual endometriosis often affects women in their reproductive age, PE usually occurs in peri- or postmenopausal women and can affect different pelvic organs, such as rectosigmoid colon, adnexa, uterine serosa, cervix, vagina, ureters and omentum.

The etiology of PE is not entirely clear. Only one series has been reported [3] and although some case reports have suggested an association with estrogenic stimulation by unopposed exposure to hormonal treatment, such as Tamoxifen or (phyto)estrogen, this is not always the case [4]. which was also reflected in the here described case as it continued to grow, even after the interruption of hormonal therapy. PE causes symptoms related to a pelvic mass with other non-specific symptoms such as dysmenorrhea, abdomino-pelvic pain and/or occasional vaginal bleeding. Some of the most common presentations consist of a pelvic mass, vaginal polypoid mass(es), vaginal spotting, abdominal pain, large bowel obstruction, haematuria with ureteric obstruction on imaging, adrenal mass, ovarian cyst and/or urinary urgency/frequency [3].

The management of PE can sometimes be a challenge as it can be mistaken for malignancy, both radiologically and histologically. Parker et al. [3] reported their clinicopathologic analysis of 24 cases of PE. 11/24 cases were referred due to problems in differential diagnosis of an adenosarcoma, low-grade adenocarcinoma and Ser-toli cell tumour. The age of affected females in their series ranged from 23 years to 78 years, with 60% of the patients being above 50 years of age. The typical endometriosis was expressed in less than 5% of the post-menopausal females.

Imaging in the form of an MRI can help distinguish the diagnosis suggestive of PE by highlighting features such as of a T2 hyperintense polypoid mass with signal characteristics similar to endometrium, T2 hypointense peripheral rim, contrast enhancement pattern reflecting enhancement of the endometrium, and a lack of diffusion restriction [5].

The lesions can frequently involve multiple sites in the same patient, including serosal and mucosal surfaces. The rectosigmoid colon seems to be the most frequently involved [3]. Macroscopically, PE is very variable. However, its main feature is to grow as a polypoid mass with inconstant degrees of cystic and hemorrhagic aspects, growing on serosal surfaces, mucosal surfaces or both. Histopathologically, it consists of endometrial glands and inactive or proliferative stroma with a wide variety of architectural patterns of cytologic atypia. Metaplastic changes found can be tubal, mucinous, squamous or papillary syncitial [3]. Other histologic
findings can consist of a stromal haemorrhage with haemosiderin laden macrophages, stromal decidualisation and/or focal periglandular cuffs with slightly increased cellularity. The two challenging differential diagnoses are of the Müllerian (mesodermal) adenosarcoma and the low-grade ESS with a glandular differentiation. Stromal papillae or broad polypoid frowds that project into glandular spaces and/or mild stromal atypia with periglandular cellular stromal cuffs are suspicious for adenosarcoma [6]. Mitoses can be low in adenosarcoma, but a high mitotic count would support malignancy [7]. The presence of glands, both in endometriosis and in PE, may mask the presence of ESS with glandular differentiation, even when the characteristics of the latter are to have a tongue-like permissive pattern invasion and vascular inva-
sion.

Synchronous endometriosis of usual type is often found in the PE samples. Malignant potential of PE is no different to typical endometriosis and hyperestrinism could cause the growth of malignancies on its background. Tumours that may arise are endometrioid carcinoma, clear cell carcinoma, seromucinous tumours and rarely a sarcoma [2]. However, PE as an individual entity is still typically associated with a benign course.

4. Conclusions

Polypoid Endometriosis (PE) is a rare variant growth pattern of endometriosis which may involve different pelvic organs and can mimic a malignant mass in the pelvis. It mostly affects women in their peri- or post-menopausal age and it is not always related to hormonal therapy. Malignancies, such as Endometrial Stromal Sarcoma in this case, can arise in the context of PE and their diag-
nosis can be challenging. Surgical excision may constitute radical multi-organ resection, particularly for recurrent and symptomatic cases. However, the recurrence rates after surgery can be signifi-
cant.

Declaration of Competing Interest

None of the authors have conflicts of interest to declare.

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Ethical approval

This research was conducted following good ethical and scien-
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Consent

Written informed consent was obtained from the patient for collecting and using personal informations and images for research intent in anonymous form.

Author contribution

- Fabio Carbone: conception and design, collection and assembly of data, data analysis and interpretation, manuscript writing;
- Manou Manpreet Kaur: manuscript review, data analysis and interpretation;
- Aik Yong Chok: manuscript review, data analysis and interpreta-
tion;
- Christos Kontovounios: data analysis and interpretation, administrative support, final approval of manuscript;
- Thomas Ind: surgeon involved in the care of the patient, final approval of the manuscript;
- Shahnawaz Rasheed: surgeon involved in the care of the case, final approval of the manuscript.

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