Case report of aggressive Mesonephric-like adenocarcinoma of the ovary arising within endometriotic cyst with mucinous borderline tumour.

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Background

Mesonephric-like adenocarcinoma (MLA) is a rare type of carcinoma arising in the uterine corpus and the ovary. It shares the morphological and immunohistochemical features of cervical mesonephric adenocarcinomas[1], but whether they share a common histogenesis remains unclear. Some reports have shown to be associated with other Mullerian lesions suggesting common origin[2,3]. Here we describe an aggressive case of MLA in the ovary arising within endometriotic cyst with adjacent mucinous borderline tumour.

Case presentation

A 55-year-old female with a history of breast cancer, 14 years ago, underwent right salpingo-oophorectomy for a cystic ovarian mass. On gross examination, it measured (21x8x6) cm. It was filled with bloody fluid with focal areas show thick gelatinous material. There was a polypoid growth into the lumen measure (6x6x3) cm with firm yellowish cut section. The rest of the wall was thick and white with a smooth inner surface. On microscopic examination, it showed malignant neoplastic proliferation arranged in a variety of architectural patterns; mainly ductal and tubular structures mixed with solid, papillary and retiform patterns. some tubular structures was filled by luminal dense eosinophilic material. The lining cells have pale overlapping nuclei with frequent nuclear grooving. The degree of cytological atypia was mild to moderate with frequent mitotic figures mainly in the spindled areas. the tumour cells was positive for PAX-8, EMA, CK7, GATA-3, CD10 (luminal), TTF1 (focal weak) and calretinin (focal) and were negative for ER, PR, WT1, napsin-A, Mammoglobin,CK20, CDX2 and SATB2 with wild-type P53. The tumour was seen arising within an endometriotic cyst. There was also nearby mucinous proliferation within the cyst that show focal cellular stratification and focal complexity in the architecture, and was positive for both CK7 (predominant) and CK20 and negative for both ER and PR. She underwent a total abdominal hysterectomy, pelvic lymphadenectomy, and infra-colic omentectomy, and diagnosed with Stage IC1 MLA of the ovary and then received her chemotherapy regimen.

Follow-up

After 18 months, the patient had a recurrent pelvic mass and surgical cyto-reduction was done. A friable right iliac fossa mass was found adherent to the iliac vessels and infiltrating the intestine with tumour nodules on the bladder and the umbilical artery . Tumour recurrence was confirmed microscopically . It showed more spindle cell component with more mitotic activity compared to the primary tumour. GATA-3 expression was only focal with more TTF1 expression.

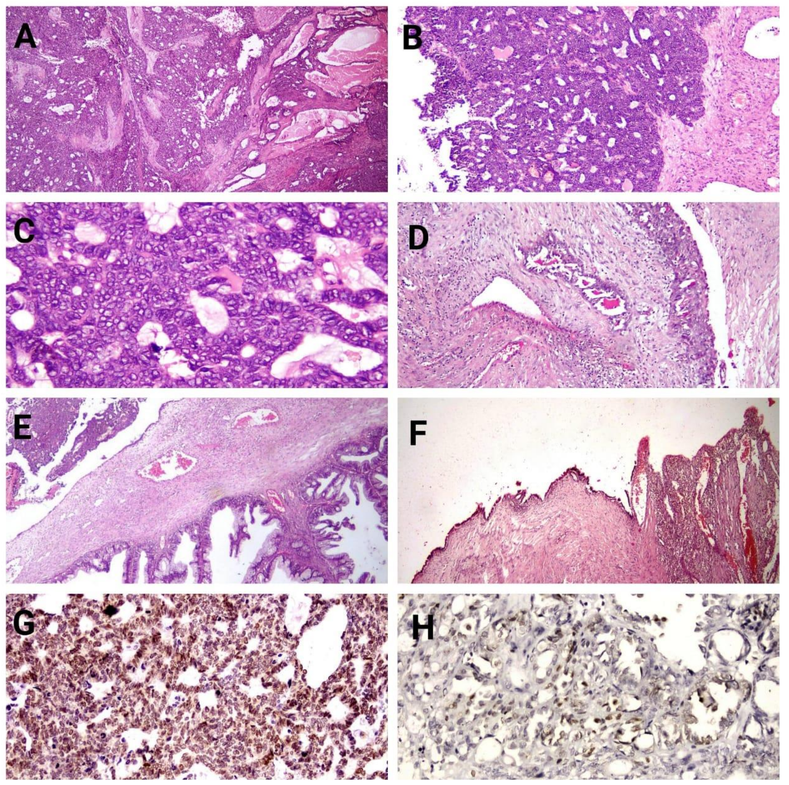

Fig.(1): The primary tumour diagnosed as MLA. **A,B:** the variety of architectural patterns of MLA. **C:** cells have pale overlapping nuclei with frequent nuclear grooving. **D**: luminal dense eosinophilic material in some tubules. **E:** Associated mucinous borderline tumour. **F**: The endometrioitic cyst lining **G:** GATA-3. **H:** TTF1

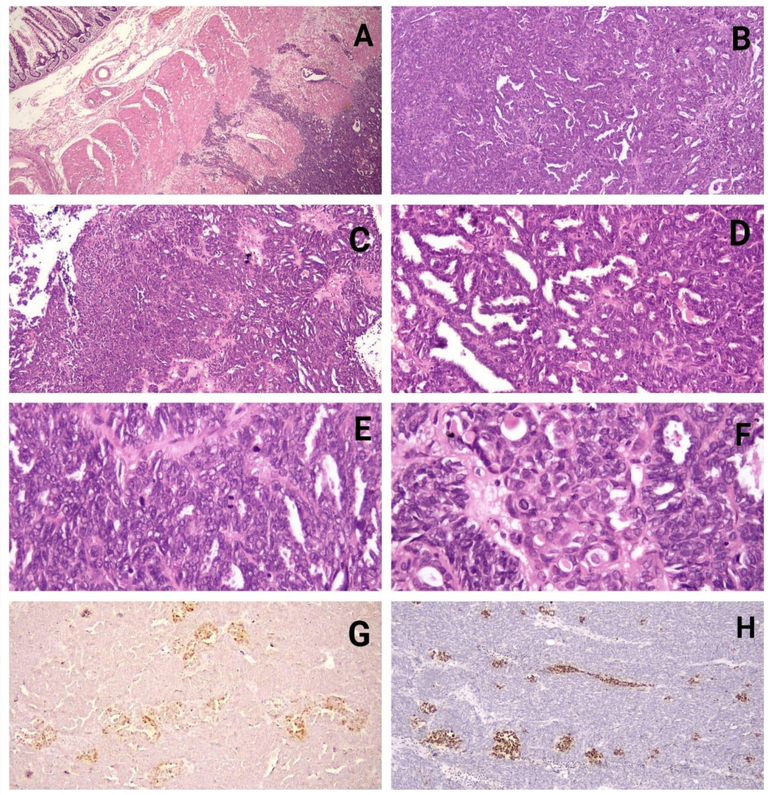

Fig.(2): The recurrent tumour. **A:** Infiltration of the colonic wall by MLA. **B-F:** the architectural and cytological features of MLA with scattered luminal dense eosinophilic material in some tubules. **G:** GATA-3. **H**:TTF1.

Discussion

- MLA is a rare type of endometrial and ovarian carcinomas [1]. Less than 20 cases were reported in the ovary in literature.
- Diagnosis depend on recognition of the multiple merging architectural patterns of MLA with the characteristic cytological features as nuclear overlapping, clearing and grooving similar to nuclear features of papillary thyroid carcinoma. Immuno-histochemical expression of GATA-3 and/or TTF1 with loss of hormone receptors expression facilitates diagnosis [1].
- The main differential diagnosis for this entity is endometrioid carcinoma (all grades). It is important not to apply FIGO grading system for MLA, because they exhibit more aggressive behavior than the overall tumor architecture would imply[1.]
- It was suggested that at least a subset of ovarian and uterine corpus MLAs are of Mullerian origin and differentiate along a mesonephric pathway[2,3]. Our case provides further evidence to this theory.
- Our case demonstrates the importance of recognition of this entity because of its aggressive behaviour. This is in concordance with some reported cases[1,4]. However, Due to the limited number of cases with adequate clinical follow-up, the overall prognosis is difficult to determine.

Conclusion

This case supports the theory that at least a group of MLAs arises from a Mullerian lesion that undergoes differentiation down a mesonephric pathway. It also demonstrates the aggressive behaviour of these tumours and the need for a multidisciplinary approach when determining the treatment protocol for these cases.

References

1. Euscher, E. D., et al (2020). Mesonephric-like carcinoma of the endometrium: a subset of endometrial carcinoma with an aggressive behavior. *The American journal of surgical pathology*, *44*(4), 429-443.
2. McCluggage, W. G., et al (2020). Ovarian combined low-grade serous and mesonephric-like adenocarcinoma: further evidence for a Mullerian origin of mesonephric-like adenocarcinoma. *International Journal of Gynecological Pathology*, *39*(1), 84-92.
3. Chapel, D. B., et al (2018). An ovarian adenocarcinoma with combined low-grade serous and mesonephric morphologies suggests a Müllerian origin for some mesonephric carcinomas. *International Journal of Gynecological Pathology*, *37*(5), 448-459.
4. Seay, K., et al (2020). Mesonephric-like adenocarcinoma of the ovary with co-existent endometriosis: A case report and review of the literature. *Gynecologic Oncology Reports*, 100657.