


CASE REPORT

Open Access



Uterine choriocarcinoma coexistence with endometrioid adenocarcinoma: a case report and literature review

Liping Bai^{1,2}, Yali Chen^{1,2}, Ling Han^{1,2}, Ai Zheng^{1,2*} and Xiaoyu Mo^{1,2*} 

Abstract

Background Choriocarcinoma coexisting with endometrial carcinoma is rare. To the best of our knowledge, only one case of choriocarcinoma coexisting with endometrial carcinoma has been reported.

Case presentation Here, we present this case and provide a literature review. A 38-year-old unmarried nulliparous woman presented to the clinic with a menstrual disorder for more than 3 months. She then underwent a hysteroscopic procedure. The pathological findings were malignant, two types of carcinoma, and no transitional lesions were observed; about 85% of them were choriocarcinoma with smooth muscle infiltration and intravascular investigation of the thrombus; about 15% were highly differentiated endometrioid adenocarcinoma; Immunohistochemistry (endometrioid/choriocarcinoma): Vim (+ + / + + +), P40 (+ ±), CK5/6 multifocal (±), CK7 (±), EMA (+ ±), P16 multifocal (±), P53 (+ / + +), WT-1 (- / + +), hCG (- / + + +), CD138 (- / + + +), Gly-3 (- / -), ER (±), PR (+ ±), Sall-4 (- / -), P21 (- / +), P27 (- / + + +), CyclinE (- / + +), Ki67 positivity rate (10%/95%). We performed a laparoscopic hysterectomy, bilateral adnexectomy, and pelvic and para-abdominal lymph node dissection after five cycles of chemotherapy. She was diagnosed with choriocarcinoma with endometrial cancer, stage IVb choriocarcinoma and stage IA endometrial cancer. Postoperative radiochemotherapy was administered. The patient was disease-free 40 months after the treatment ended.

Conclusion We report a case of choriocarcinoma coexisting with endometrial carcinoma and provide a literature review that may help inspire additional studies in the future.

Keywords Choriocarcinoma, Endometrial carcinoma, Coexist, Case report

Introduction

Choriocarcinomas are composed of mononucleated and multinucleated trophoblasts and are categorized as gestational or non-gestational carcinoma. Gestational choriocarcinoma occurs after a previous gestational event while non-gestational choriocarcinoma occurs in patients with no previous pregnancy history and typically exists as a mixed component of germ cell tumors and carcinomas. Endometrial carcinoma (EC) is the third most common gynecological cancer, tertiary to cervical and ovarian cancers. Approximately 10% of ECs have mixed histology, comprising $\geq 10\%$ of other components, and often occurs in individuals aged > 75 years [1]. To the best of

*Correspondence:

Ai Zheng
aizheng716@163.com
Xiaoyu Mo
xiaoyufico@163.com

¹ Department of Gynaecology and Obstetrics, West China Second Hospital, Sichuan University, 3 Section of People South Street, Chengdu 610041, P. R. China

² Key Laboratory of Birth Defects and Related Diseases of Women and Children, Ministry of Education, Sichuan University, Chengdu, Sichuan 610041, P. R. China



© The Author(s) 2023. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

our knowledge, only one case of choriocarcinoma coexisting with EC has been reported [2], implying its rarity. Here, we present this case and provide a literature review.

Case presentation

A 38-year-old Han Chinese woman underwent a hysteroscopy 49 months ago with abnormal uterine bleeding for the past 3 months. She is an unmarried, sexless, childless, ordinary employee. She usually had dysmenorrhea. There was abnormal uterine bleeding and no other discomfort in the three months prior to the consultation. Uterus enlarged as if more than 3 months pregnant. Previous hysteroscopy revealed a 6×4 cm mass protruding from the anterior uterine wall. The mass was resected, and uterine cavity curettage was performed. The patient then presented after which the patient was transferred to our hospital, and a histopathological examination showed that the mass was a choriocarcinoma (Fig. 1). EC immunohistology showed estrogen receptor (+++), progesterone receptor (+++), and P16(+). The pathological curettage tissue showed choriocarcinoma coexisting with EC with no transition area between the two carcinomas (Fig. 2). Immunohistology showed inhibin A(+) and human chorionic gonadotropin [hCG](+). Ultrasonography showed an enlarged uterus with a slightly more echoic mass of 5.3×5 cm in the uterine myometrium (UM), sufficient blood flow and clear boundary, and the uterine endometrium with uneven thickness and echo. Pulmonary computed tomography (CT) revealed

five scattered 0.2–0.4 nodules, suspected to be metastatic carcinoma. Cranial, pelvic, and abdominal CTs showed no abnormal findings. The serum β -hCG level was 36,774.5 mIU/mL and EMA-CO (etoposide, methotrexate, actinomycin D, cyclophosphamide, and vincristine) was administered to the patient. After five cycles of therapy, the β -hCG level decreased to 35.3 mIU/mL. Pulmonary CT revealed that the nodules had disappeared. Furthermore, the ultrasound showed a 5.0×3.8×4.9 cm mass in the UM with reduced blood flow. She developed liver function abnormalities after her third chemotherapy treatment. AST (Aspartate aminotransferase) was elevated to 199 U/L. After treatment, AST was reduced to 62 U/L. We performed a laparoscopic hysterectomy, bilateral adnexectomy, and pelvic and para-abdominal lymph node dissection. Pathological examination after surgery showed no obvious abnormal uterine lesions (Fig. 3). Microscopically, there were two different types of carcinomas: endometrioid carcinoma infiltrating <50% of the UM (Fig. 4), and choriocarcinoma (Fig. 5) with post-chemotherapy change located at the UM and metastasized to the left pelvic surgical margin, left ovary, right mesosalpinx, and right pelvic lymph node. Postoperatively, the serum β -hCG level decreased to the normal range. Four cycles of EMA-CO and 33 cycles of radiochemotherapy (The total radiation dose was 51.7 Gy) were administered after laparoscopic surgery. The patient was followed-up for 40 months with no relapse. The timeline is as follows (Fig. 6).

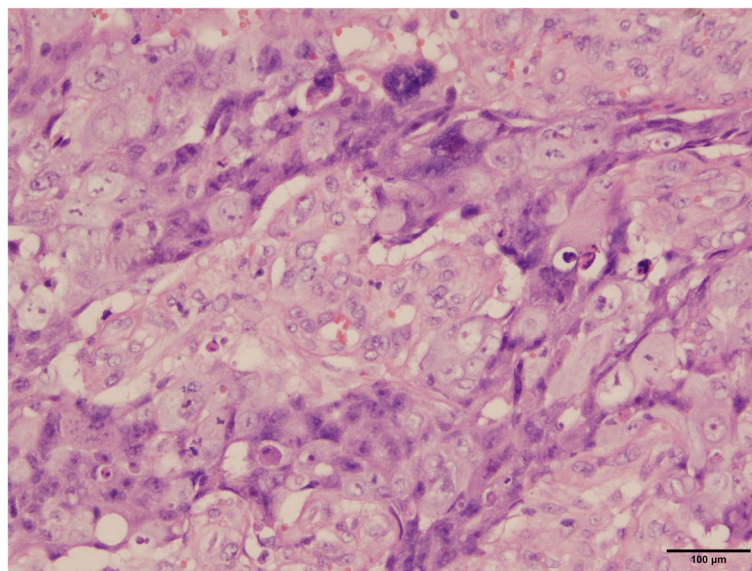


Fig. 1 Histopathological results identified the mass as choriocarcinoma (200×)

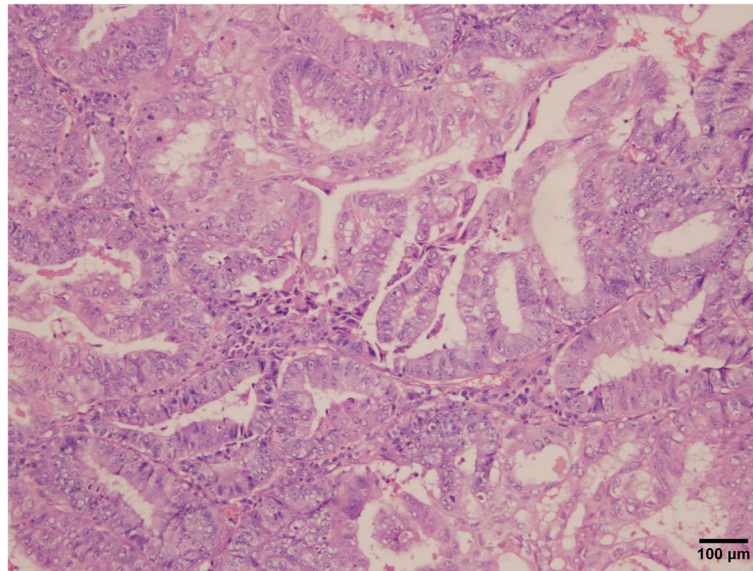


Fig. 2 The curettage tissue pathological results indicated endometrioid carcinoma (100×)



Fig. 3 Gross surgical specimen of the uterus showed no obvious lesions after chemotherapy

Discussion

Trophoblastic differentiation rarely exists in other organs, such as stomach and breast, and in gynecological cancer [3–5]. Since Civantos first reported uterine carcinoma with trophoblastic differentiation in 1972, only 24 cases have been reported to date [6]. In 1987, Savage et al. first reported ECs with trophoblastic differentiation [7]. Since then, ten cases of EC with trophoblastic differentiation have been reported, which is the most common non-trophoblastic component [6]. Other types

such as adenocarcinoma, dedifferentiated EC, clear cell carcinoma, endometrial serous carcinoma, and carcinosarcoma have also been reported. Gao et al. reported the first case of choriocarcinoma coexisting with EC. Our case involved two independent carcinomas with no transitional zone between the two, and, therefore, considered ascoexisting.

EC with trophoblastic differentiation is a rare disease characterized by rapid tumor growth, early metastasis, and resistance to chemotherapy. It is important for

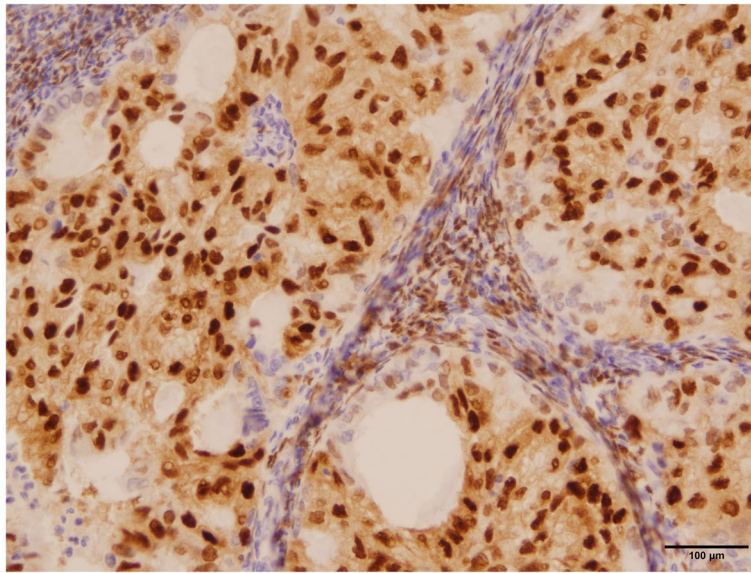


Fig. 4 Endometrioid adenocarcinoma with PR strong positive (200×)

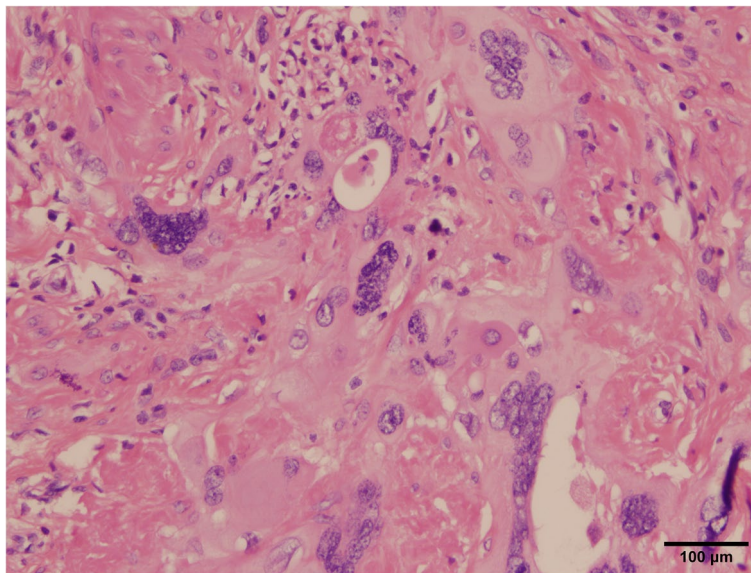


Fig. 5 Residual trophoblast cells are seen between the myometrial walls of the uterus (200×)

clinicians and pathologists to identify trophoblastic differentiation in ECs because of poor outcomes. As in our report, abnormal uterine bleeding is the most common clinical symptom that is not specific to this disease. Immunochemical studies are usually required to verify the diagnosis. The β -hCG level was used as a marker for diagnosis and monitoring the treatment effect and relapse in trophoblastic gestational disease and germ cell tumors. Out of 24 cases of uterine carcinoma with

trophoblastic differentiation, 23 were reported to have preoperative and postoperative β -hCG elevation, and β -hCG level fluctuated with recurrence [6]. The elevated β -hCG level in our case helped us consider the existence of trophoblastic differentiation, and was used to monitor the treatment effect in our patients.

The hypothesis for trophoblastic differentiation in ECs is as follows: germ cells that fail to complete their migration to the gonads undergo malignant

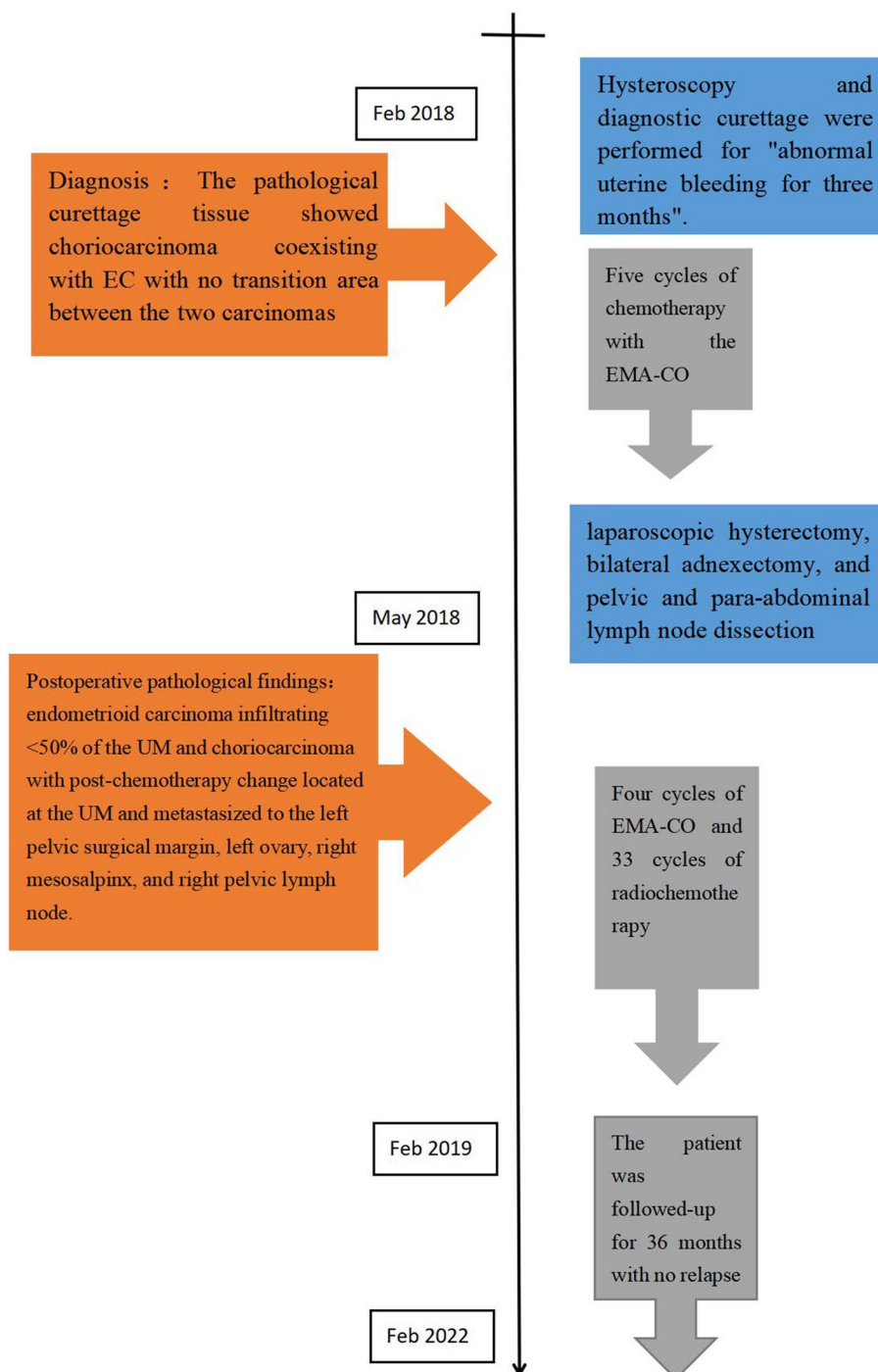


Fig. 6 Timeline

transformation, germ cells outside the urogenital ridge that fail to undergo apoptosis transform into choriocarcinoma, and epithelial cells retrodifferentiate or dedifferentiate into choriocarcinoma [8].

Horn et al. reported two types of uterine carcinoma with trophoblastic differentiation: one was related to

gestational choriocarcinoma with a high level of β -hCG and distant metastatic lesions with poor prognosis, and the other represented the characteristics of ECs containing only a few syncytiotrophoblastic giant cells secreting low levels of β -hCG with no distant metastatic lesions and a better prognosis [9]. The prognosis of the disease

is related to the components of EC and choriocarcinoma. Therefore, the treatment should treat both components. Our patient responded well to the EMA-CO, and we administered surgery and postoperative radiochemotherapy. She was disease-free 40 months after the treatment ended.

Conclusion

Here, we report a rare uterine choriocarcinoma coexisting with EC and reviewed the clinicopathological characteristics of endometrial carcinoma with trophoblastic differentiation reported previously in literature. Our case adds important insights to this rare disease and may help inspire additional studies in the future.

Abbreviation

EC	Endometrial carcinoma
hCG	Human chorionic gonadotropin
UM	Uterine myometrium
CT	Computed tomography
EMA-CO	Etoposide, methotrexate, actinomycin D, cyclophosphamide, and vincristine
AST	Aspartate aminotransferase

Acknowledgements

Not applicable

Authors' contributions

LB, LH and YC was responsible for the conception of the paper and manuscript drafting. XM and YC reviewed the literature and organized the information. AZ and X M contributed to the revision and final approval of the manuscript. The author(s) read and approved the final manuscript.

Funding

Not applicable.

Availability of data and materials

The data supporting the conclusions of this article is available from corresponding author.

Declarations

Ethics approval and consent to participate

The study was approved by the ethics committee of the West China Second University Hospital.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Competing interests

The authors have no conflicts of interest to declare.

Received: 6 March 2022 Accepted: 18 April 2023

Published online: 10 May 2023

References

- Hoffman K, Nekhlyudov L, Deligdisch L. Endometrial carcinoma in elderly women. *Gynecol Oncol*. 1995;58(2):198–201.
- Gao HJ, Zhou W, Zhang XF, Zhou CY, Qian JH. Coexistent gestational choriocarcinoma and mixed adenocarcinoma of the uterus. *Eur J Gynaecol Oncol*. 2013;34(4):362–7.
- Akbulut M, Tosun H, Soysal ME, Oztekin O. Endometrioid carcinoma of the endometrium with choriocarcinomatous differentiation: a case report and review of the literature. *Arch Gynecol Obstet*. 2008;278(1):79–84.
- Erhan Y, Ozdemir N, Zekioglu O, Nart D, Ciris M. Breast carcinomas with choriocarcinomatous features: case reports and review of the literature. *Breast J*. 2002;8(4):244–8.
- Liu AY, Chan WY, Ng EK, Zhang X, Li BC, Chow JH, et al. Gastric choriocarcinoma shows characteristics of adenocarcinoma and gestational choriocarcinoma: a comparative genomic hybridization and fluorescence in situ hybridization study. *Diagn Mol Pathol*. 2001;10(3):161–5.
- Rawish KR, Buza N, Zheng W, Fadare O. Endometrial carcinoma with trophoblastic components: clinicopathologic analysis of a rare entity. *Int J Gynecol Pathol*. 2018;37(2):174–90.
- Savage J, Subby W, Okagaki T. Adenocarcinoma of the endometrium with trophoblastic differentiation and metastases as choriocarcinoma: a case report. *Gynecol Oncol*. 1987;26(2):257–62.
- Horn LC, Hänel C, Bartholdt E, Dietel J. Mixed serous carcinoma of the endometrium with trophoblastic differentiation: analysis of the p53 tumor suppressor gene suggests stem cell origin. *Ann Diagn Pathol*. 2008;12(1):1–3.
- Horn LC, Hänel C, Bartholdt E, Dietel J. Serous carcinoma of the endometrium with choriocarcinomatous differentiation: a case report and review of the literature indicate the existence of 2 prognostically relevant tumor types. *Int J Gynecol Pathol*. 2006;25(3):247–51.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

