

## **Metastatic squamous cell carcinoma to the colon arising from a mature cystic ovarian teratoma**

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**Keywords:** Squamous cell, carcinoma, teratoma

### **Abstract**

Malignant transformation of a mature cystic teratoma is extremely rare, occurring in 0.17-2% of cases.<sup>1</sup> The most common malignant degeneration is squamous cell carcinoma (SCC) arising from the ectoderm. Approximately half of all cases of SCC of the ovary are confined to the ovary at time diagnosis.<sup>1,2</sup> Secondary to its absolute rarity and the relative infrequency of cases with metastatic spread the optimal treatment of advanced stage disease is unknown. Outcomes for locally advanced and widespread disease have historically been very poor. Ford and Timmons recently reported on a patient with stage IIC SCC arising in a mature cystic teratoma treated with multimodal therapy who has been free of disease for more than five years.<sup>3</sup> Herein we report on a woman with stage IIIC SCC arising within a mature cystic teratoma treated with directed chemoradiation who subsequently developed metastatic SCC to the colon.

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### **Introduction**

Malignant transformation of a mature cystic teratoma is extremely rare, occurring in 0.17-2% of cases.<sup>1</sup> The most common malignant degeneration is squamous cell carcinoma (SCC) arising from the ectoderm. Approximately half of all cases of SCC of the ovary are confined to the ovary at time diagnosis.<sup>1,2</sup> Secondary to its absolute rarity and the relative infrequency of cases with metastatic spread the optimal treatment of advanced stage disease is unknown. Outcomes for locally advanced and

Please cite this paper as: Maines J, Newell J, Fraenhoffer E, Juliano J, Ruggiero F, Schreiber I, Kesterson JP. Metastatic squamous cell carcinoma to the colon arising from a mature cystic ovarian teratoma. *Proc Obstet Gynecol.* 2017;7(2): Article 6 [ 6 p.]. Available from: <http://ir.uiowa.edu/pog/>. Free full text article.

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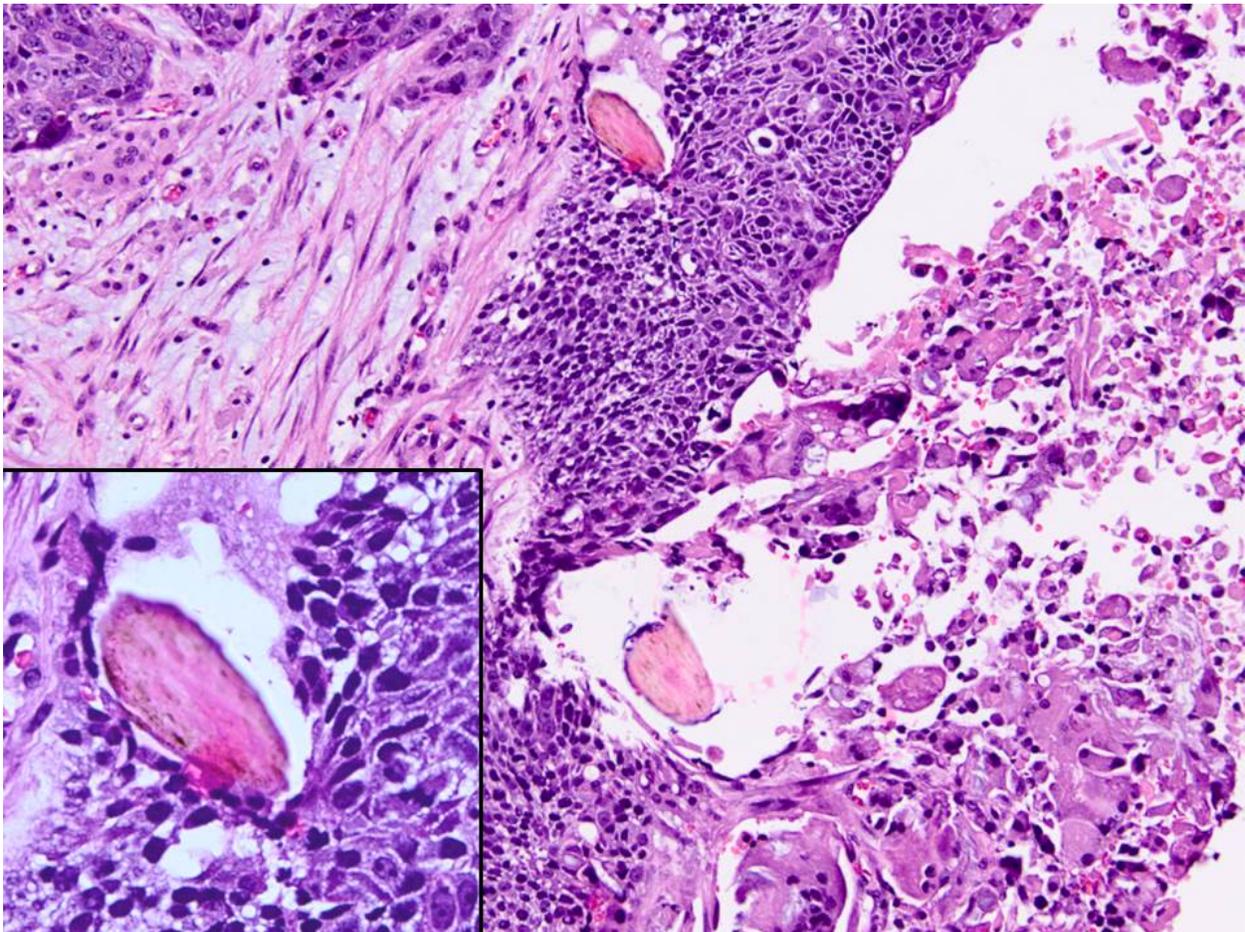
**Financial Disclosure:** The authors report no conflict of interest.

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### **Case**

A 43 year old woman originally presented to the Emergency Department with complaint of right lower quadrant pain. On review of systems she also admitted to urinary symptoms, including frequency and nocturia. Her past medical history was significant only for anxiety. Past surgical history was significant for a cesarean section and laparoscopic tubal ligation in 2004. Pap smears at our facility dating back to 2000 were noted to be within normal limits.



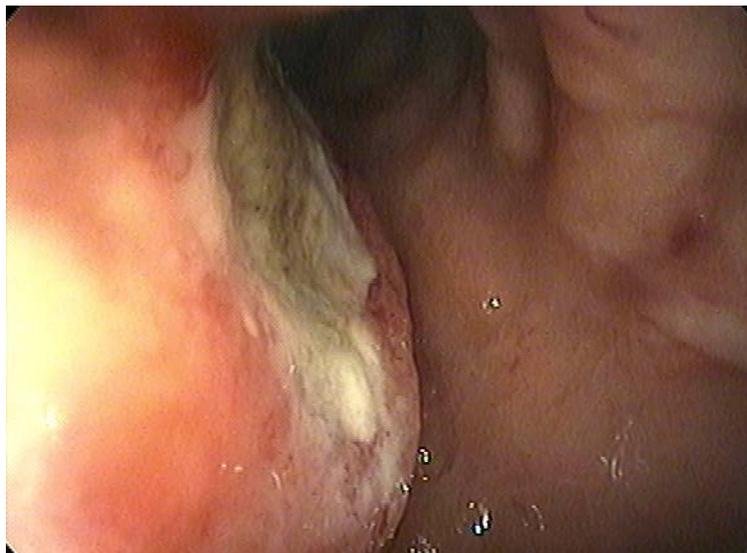
**Figure 1. Medium power of ovarian squamous carcinoma with embedded hair shaft material (inset, high power) and foreign body giant cell reaction to hair material. Hematoxylin and eosin stain.**

Pertinent findings on physical exam included right adnexal fullness and tenderness. A transvaginal ultrasound showed a heterogenous complex right ovarian mass measuring 17 x 14 x 8 cm. She was consented for surgery. At time of laparotomy, the right ovary appeared grossly abnormal with a purplish-gray color with cystic areas that appeared to contain congested blood. The ovary was densely adherent to the right pelvic sidewall. A right salpingo-oophorectomy was performed and the specimen was sent for pathologic examination. Exploration of the pelvis and abdomen revealed a normal left fallopian tube and ovary. There was a dense whitish plaque covering the bladder peritoneum, uterosacral ligaments and cul-de-sac. There were also a few scattered peritoneal implants, appendiceal implants, but no grossly evident omental tumor.

Frozen section of the right ovary and a

peritoneal implant demonstrated carcinoma with squamous differentiation. She underwent a debulking and staging procedure including a modified radical hysterectomy, left salpingo-oophorectomy, omentectomy, appendectomy, pelvic and para-aortic lymphadenectomy and peritoneal biopsies. Peritoneal implants were fulgurated with the argon beam coagulator. She was optimally debulked. Her post-operative course was uneventful and she was discharged home on post-operative day three.

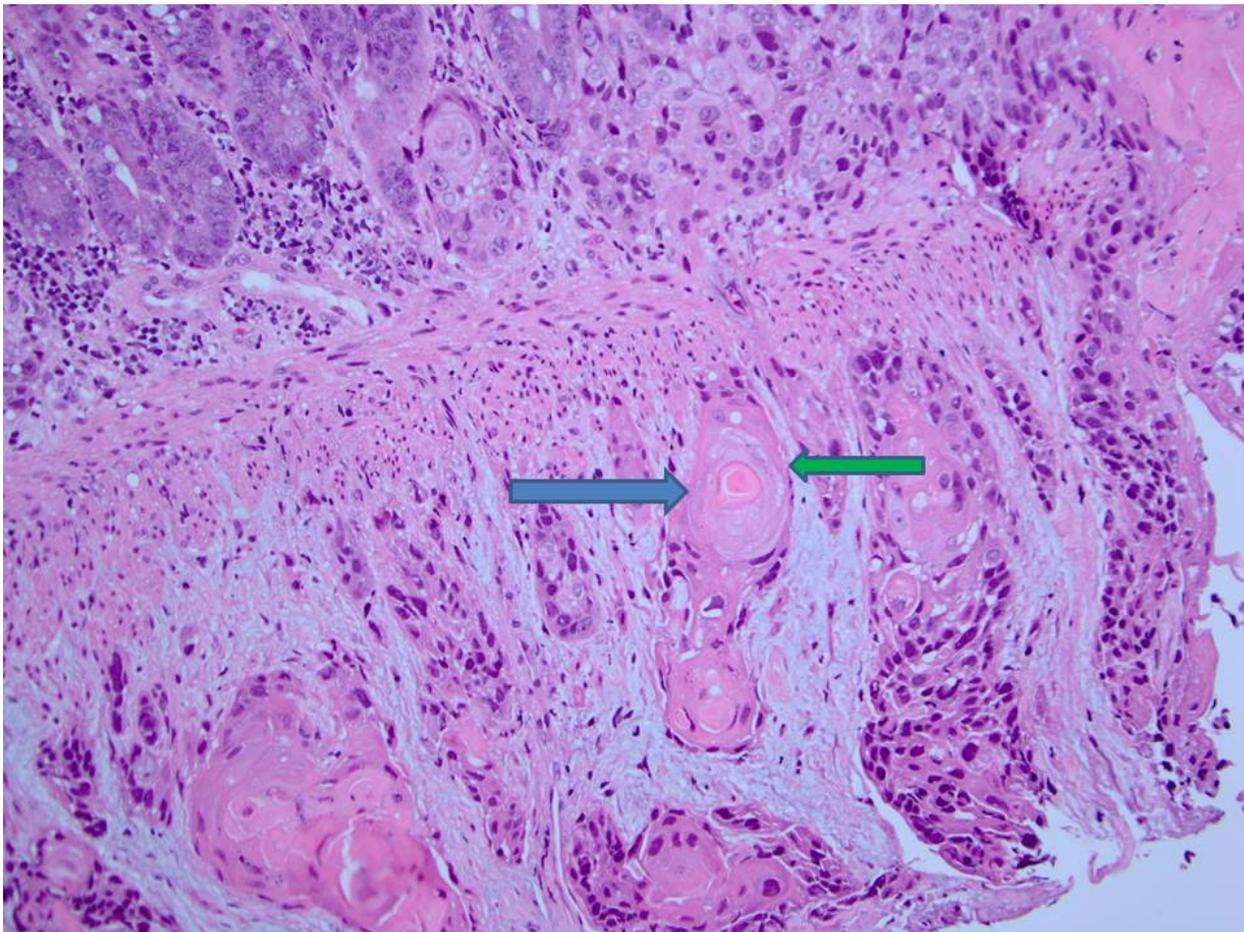
Pathologic examination of the right ovary showed complete replacement by a 17 x 14x 8 cm solid partially necrotic mass consisting of squamous cell carcinoma. The presence of hair shaft fragments surrounded by tumor suggested that the carcinoma arose as a result of malignant transformation of a mature cystic teratoma (Figure 1).



**Figure 2. Colonoscopy demonstrated a fungating lesion with central ulceration**

No other mature or immature teratoid elements were identified. Metastatic squamous carcinoma also involved the uterine serosa, parametrium, bilateral lymph nodes and omentum. She received three cycles of adjuvant chemotherapy with cisplatin and paclitaxel followed by radiation therapy to the pelvis (4860 cGy total dose given in 26 fractions of 180 cGy/fraction) administered with weekly cisplatin. She then received an additional three cycles

of cisplatin and paclitaxel. An MRI performed at the completion of therapy did not show any evidence of persistent or metastatic disease. Several months after the completion of chemotherapy, she complained of hematochezia. Digital rectal exam revealed a palpable mass. A colonoscopy was performed. A fungating lesion with central ulceration was noted extending from 5 to 10 cm from the anal verge (Figure 2); multiple biopsies were obtained.



**Figure 3. Rectum 5 cm. from anal verge, biopsy. 200x. The squamous cell carcinoma is characterized by keratin pearl formation (blue arrow) and intercellular bridges (green arrow).**

The remainder of the colonoscopy, including terminal ileal intubation, was within normal limits. Biopsies of the rectal mass showed colonic mucosa infiltrated by a moderately differentiated squamous cell carcinoma (Figure 3). The tumor involved the submucosa and mucosa, with no in situ component, compatible with metastasis from another site. The tumor was histologically identical to the squamous cell carcinoma from her right ovary.

## **Discussion**

Malignant transformation of a mature cystic teratoma is a rare event. We describe a case of SCC originating from such a degeneration. This case is also unique in that the tumor metastasized to the colon four months after receiving aggressive surgery, chemo- and radiation therapies. Metastatic SCC to the colon has been described in the literature but, typically, these tumors originate from a pulmonary tumor.<sup>4,5</sup> Although metastasis to the rectum from ovarian squamous cell carcinoma has been described,<sup>6,7</sup> to our knowledge, this is the first case of recurrent SCC to the colon arising from the malignant degeneration of a mature cystic teratoma.

Our management in this case was cognizant of the historically dismal outcomes for patients with advanced stage SCC of the ovary, prompting the initial optimal cytoreduction and complete staging followed by multimodal aggressive therapy, consisting of combination platinum-based chemotherapy and external beam radiation with cisplatin sensitization. Secondary to the rarity of this specific entity, the optimal adjuvant therapy is unknown with data limited to case

reports and small case series with varied chemotherapies, radiation or a combination thereof. Our multimodality approach was based on a review of the literature supporting combination adjuvant therapy squamous cell carcinomas arising in an ovarian teratoma.<sup>2,3</sup>

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