Case Report

Rectovaginal septum primary squamous cell cancer: Extremely rare entity

Swachchhanda Songmen, MD*, Pankaj Nepal, MD, Deborah Fang, MD, Eugene Lewis, MD, Neda Yagan, MD

St. Vincent’s Medical Center, 2800 Main Street, Bridgeport, CT 06606, USA

Abstract

Rectovaginal septum primary cancer is an extremely rare entity including gastrointestinal stromal tumor, adenocarcinoma (endometriosis related/unrelated) and Mullerian cell remnant cancer. These cancers are usually asymptomatic, but can grow large enough to present with pelvic discomfort or pressure symptoms (urinary retention or constipation). Imaging plays an important role in detection, characterization, staging workup and follow-up. Despite adenocarcinoma being the histology seen in most cases of primary rectovaginal septum carcinoma, 1 prior case of squamous cell cancer was reported in 2016. To the best of our knowledge, our case is the second reported case of this same extremely rare entity. We discuss a 35-year female with a rectovaginal mass which was detected by pelvic ultrasound, worked up by computed tomography (CT), positron emission tomography-CT and diagnosed by large incisional transvaginal biopsy. The patient underwent combined chemoradiotherapy, which resulted in complete resolution of the mass on follow up pelvic magnetic resonance imaging. Standard management guidelines are not available due to lack of adequate data.

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Case report

A 35 year G1P1 female with past history significant for Human Papilloma Virus (HPV) positive status and occasional smoking was having rectal and vaginal discomfort for a month duration. The patient also complained of a palpable lump in her vagina. The patient underwent pelvic ultrasound which revealed 2 adjacent solid masses between the rectum and vagina (Figs. 1a and 1b). The masses measured 4.5 × 3.4 × 3.2 cm and 5.7 × 4.7 × 4.5 cm and demonstrated internal minimal vascularity. Endometrium and bilateral adnexa were unremarkable. CT of the chest abdomen and pelvis revealed an 8.7 × 6.9 × 6.2 cm bilobed heterogeneously enhancing...
mass with loss of the intervening fat plane with the rectum posteriorly and with the cervix/vagina anteriorly (Figs. 1c and 1d). No suspicious lymph nodes or distant metastasis were seen.

Three days later, the patient underwent examination under anesthesia with sigmoidoscopy, exploratory laparotomy with pelvic washing, and a transvaginal biopsy with removal of a small amount of vaginal wall and a large incisional biopsy of the of the mass involving the RVS. Laparoscopy showed the vagina pushed anteriorly significantly but the entire vaginal mucosa was clear and cervix appeared unremarkable. Uterus, adnexa, appendix and peritoneum were unremarkable. Sigmoidoscopy revealed unremarkable mucosa. Pelvic washing was negative for malignant cells. The biopsy showed submucosal invasive squamous cell carcinoma (Figs. 2a, 2b and 2c), which was p16 positive as well (Fig. 2d). However, the overlying vaginal squamous mucosa was negative for dysplasia and p16 staining, with no connection to the underlying squamous cell carcinoma (Figs. 2e and 2f). (Note: p16 expression is highly correlated to HPV infection.) The clinical, radiological and pathological findings were consistent with primary squamous cell carcinoma of the RVS.

Within a week of the biopsy, the patient underwent PET-CT scan which revealed intense tracer uptake with maximum standardized uptake value (SUV max) 11.6 in the bilobed mass in the RVS (Fig. 1e). With the final diagnosis of unresectable moderately differentiated invasive primary squamous cell carcinoma of the RVS without metastasis, the patient was treated with combined chemoradiotherapy. She received weekly dose of cisplatin for 6 weeks and pelvic irradiation for 6 weeks with total dose of 63 Gray. The patient tolerated the treatment well with significant improvement in the pelvic pain. After 2 months of therapy, MRI pelvis revealed significant decrease in the size of the rectovaginal mass measuring 4.5 × 4.2 × 3.0 cm (Figs 3a, 3b and 3c). At 4 months post treatment initiation, MRI pelvis revealed no imaging evidence of residual mass (Figs 3d and 3e).

Discussion

The RVS is fibroconnective tissue between the rectum posteriorly and vagina anteriorly. The septum is an uncommon site for pathologies, which can range from infection, fistula, cyst (endometriotic, dermoid, inclusion), endometriosis and neoplasm. Neoplasms may include benign mesenchymal tumors (such as fibroma, leiomyoma, lipoma, etc) or primary malignant tumors (usually GIST, adenocarcinoma from prior endometriosis, Mullerian rest origin) or secondary malignancies (extension of vaginal or cervical or rectal malignancy, metastasis) [1].

RVS primary malignancy is extremely rare. A review in 2016 showed 17 GIST cases, 12 endometriosis related adenocarcinomas and only 5 nonendometriosis related cancers to date. Among the latter 5 cases, 3 were adenocarcinomas, 1 was a

Fig. 1 – Rectovaginal mass detection and characterization. [a] Transabdominal sonography showing well defined hypoechoic mass (M) posterior to the uterus (ut), vagina and urinary bladder (ub). [b] Transvaginal sonography showing well defined bilobed hypoechoic mass (M) posterior to the vagina. Post contrast CT [c] sagittal image and [d] axial image showing mass anterior to rectal gas (white solid arrow) and posterior to vaginal gas (black solid arrow), signifying location in rectovaginal septum. (e) PET-CT showing intense tracer uptake in the mass, SUV max 11.6.
Fig. 2 – Transvaginal biopsy showing primary squamous cell cancer of rectovaginal septum. [a, b] Malignant cells (blue) in the submucosa. [c] Malignant cells showing p40 stain positivity. [d] Malignant cells showing p16 stain, indicative of HPV positivity status. [e] Overlying vaginal mucosa is unremarkable ie absent malignant cells or dysplastic changes. [f] Overlying vaginal mucosa is p16 negative.

Fig. 3 – MRI pelvis showing significant interval decrease in size of the mass (M) during the treatment [a, b, c]. Post treatment MRI pelvis reveals no residual mass [d, e].

Mullerian rest cancer and 1 had no histology described. The authors also reported the first ever case of RVS primary squamous cell cancer [2]. To our knowledge, our case is the second reported case of the same extremely rare entity. The hypothesis for the origin of primary RVS squamous cell cancer is the extension of squamous cells from adjacent vagina or skin [2]. Vaginal squamous cell carcinoma arising in a squamous inclusion cyst of the posterior vaginal wall was reported extending to the rectovaginal septum, but the case showed presence of dysplastic changes in the overlying vaginal mucosa transitioning into the squamous cell cancer and invagination of surface squamous epithelium forming cyst [3]. Our case showed no
dysplastic changes in the overlying vaginal mucosa and no invagination or communication of the surface epithelium with underlying malignant cells.

Almost half of the RVS tumors are symptomatic with pelvic discomfort, dyspareunia, urinary retention or constipation [4]. The symptoms are usually seen only in locally advanced stages due to pressure symptoms. Physical exam can reveal palpable nodularity or mass posterior to the posterior vaginal wall. Direct visualization with vaginoscopy, rectoscopy or sigmoidoscopy is useful to (a) confirm absence of primary tumor in the vagina and rectosigmoid colon, so that the tumor can be diagnosed as primary RVS tumor, and (b) assess any infiltration of the tumor to vaginal or rectal mucosa, which would indicate locally advanced stage of the tumor.

Imaging is performed for the detection, characterization, workup and treatment follow up. Initial imaging can be done with pelvic ultrasound, preferably transvaginally which shows the lesion posterior to the vagina. Transvaginal ultrasound can show the lesion anterior to the rectum as well, when rectal gas can be identified. Transrectal ultrasound may be of use as well to assess the lesion from the posterior aspect. Given the limited field of view in transvaginal/transrectal ultrasonography, larger or deeper lesions are better assessed with pelvic MRI instead [5]. CT scan and PET-CT studies (a) assess for regional and distant spread of disease, and (b) serve as a baseline to compare with on follow up studies performed during and after treatment. Biopsy can be obtained without imaging (ie transvaginally as in our case) or with imaging guidance (eg ultrasound or CT guided biopsy) [6].

Standard management guidelines are not available due to lack of adequate data. RVS GISTs are usually treated with local tumor resection, without/with hysterectomy or proctectomy or lymphadenectomy or with adjuvant radiotherapy with long term follow up (recurrence common despite negative resection margins). Endometriosis related RVS malignancies are treated with total abdominal hysterectomy with bilateral salpingo-oophorectomy and pelvic lymph node dissection without or with neoadjuvant radiotherapy or adjuvant chemoradiotherapy [7]. Among 6 nonendometriotic RVS tumors, 2 were treated with only surgery, 2 were treated with surgery (hysterectomy + proctectomy) plus chemo or radiotherapy and 2 with surgery plus concomitant chemoradiotherapy. The latter group included of the index case of primary RVS squamous cell cancer, who received 6 cycles of 5-fluorouracil and cisplatin and concomitant 50.4 Gray of radiotherapy. The tumor shrank and was resected; the patient remained disease free on follow up for 4 years [2].

### Conclusion

Primary RVS malignancies are extremely rare tumors, with our case of primary RVS squamous cell histology being the second reported case, to the best of our knowledge. Imaging is extremely important in detection, characterization, workup and follow up during/post treatment of RVS tumors. Biopsy clinches the histologic diagnosis. Standard management guidelines are not available due to lack of adequate data, however it is usually treated with combined chemoradiotherapy.

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