Case report

Primary signet ring cell adenocarcinoma of the uterine cervix — A rare neoplasm that raises the question of metastasis to the cervix

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A B S T R A C T

Primary signet ring cell adenocarcinoma is extremely rare. Signet ring cell carcinoma is more commonly primary in the stomach or breast, and the more likely metastatic disease to the cervix needs to be ruled out. We present a case of primary signet ring cell carcinoma of the cervix and review the literature.

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1. Introduction

Primary signet ring cell adenocarcinoma of the cervix is extremely rare, and most cases of signet ring carcinoma in the cervix are metastatic (Balci et al., 2010). Signet ring cell carcinoma is more commonly primary in the stomach, or breast, can also arise in the colon, and metastatic disease to the cervix from one of these or other less common sites needs to be ruled out. We present a case and review the literature.

2. Case

The patient was a 64-year-old female with a past medical history significant for bilateral retinoblastomas as a child and recent maxillary sinus leiomyosarcoma who now presented with abdominal fullness. A CT of the abdomen/pelvis revealed a large amorphous mass in the pelvis causing bilateral hydronephrosis resulting in placement of a unilateral nephrostomy tube. She subsequently underwent endometrial and endocervical curettage. The endometrial curettage showed poorly differentiated adenocarcinoma with signet ring features and no endometrial tissue. The endocervical curettage also showed poorly differentiated adenocarcinoma with signet ring features and no endometrial tissue. The endocervical curettage also showed poorly differentiated adenocarcinoma with signet ring features and no endometrial tissue. The endocervical curettage also showed poorly differentiated adenocarcinoma with signet ring features and no endometrial tissue.

The rectum was smooth and there was no palpable rectal extension. The cystoscopy showed no lesions. The LEEP cone biopsy and vaginal biopsy showed adenocarcinoma characterized by small infiltrating cells with small signet ring-like intracytoplasmic lumina staining for periodic acid Schiff (PAS), growing in cords and sheets without desmoplasia, mimicking lobular carcinoma of the breast (Fig. 1). The immunohistochemical stains for Cytokeratin 7, Carcinoembryonic antigen (CEA), and P16 were positive and stains for estrogen receptor (ER), progesterone receptor (PR), Gross cystic disease fluid protein (GCDFP) a marker seen in breast lesions, S-100 protein, synaptophysin, smooth muscle actin (SMA), caudal-type homeobox 2 (CDX-2, a marker for colon carcinoma) and Cytokeratin 20 were negative. Despite the immunoprofile,
the histology was most suggestive of lobular breast carcinoma, although
at the time, metastatic gastric or pancreatic primaries were also sug-
gested in the differential. Based on this pathology report, further work-
up with esophagogastroduodenoscopy (EGD), colonoscopy and
breast MRI were performed. The biopsies taken of the stomach, duode-
nom, colon and rectum showed no signs of neoplasia. The breast MRI
performed showed a benign 0.3 cm lesion in the central lower left quad-
rant of the breast. The patient was referred to medical oncology and ra-
diation oncology for palliative treatment for stage IVB adenocarcinoma
of the breast. The patient was referred to medical oncology and ra-
diation oncology for palliative treatment for stage IVB adenocarcinoma
of the cervix that was currently asymptomatic, however within three
months, she developed palpable supraclavicular adenopathy and a
right lower extremity deep venous thrombosis. She was admitted to
an outside hospital, referred for hospice care and expired shortly
thereafter.

3. Discussion

Primary adenocarcinoma of the cervix is usually endocervical or
endometrioid in histology, with intestinal, villoglandular, and minimal
deviation subtypes less common. Extremely rare is signet ring cell ade-
ocarcinoma, a tumor most often arising in stomach or breast. Balci
et al. (2010) reviewed the literature in 2010, reporting what they be-
lieved was the 12th case in the literature, and there have been a few re-
ports since then (Giordano et al.). They emphasized the need to rule out
metastatic disease to the cervix, and noted that identification of human
papillomavirus in the tumor supports a cervical primary. Our case was
p16 positive, in addition to the negative metastatic workup, suggestive
of high risk HPV etiology. In one case (Giordano et al.), the tumor spread
to the endometrium and myometrium, but was positive for p16 immu-
nohistochemistry and HPV18 by PCR, supporting the cervical origin. Sig-
net ring cell carcinoma may be the only histology seen, but admixtures
with other histologic types, such as glassy cell carcinoma (Moritani
et al., 2004) have been reported. The number of reported cases is too
low to establish a prognosis for this lesion, but it has been suggested
that advanced stage disease is particularly aggressive (Giordano et al.;
Moritani et al., 2004; Suarez-Penaranda et al., 2007). Low stage disease
seems to have a better overall prognosis, much as usual cervical carcino-
ma, with one case of stage IBI reported as having an 8 year disease free
survival at the time of the report (Insabato et al., 2007).

Presenting symptoms on reported cases are similar to more usual
cervical cancers, including abnormal bleeding, including postcoital
bleeding (Giordano et al.). Rarely abnormal glandular cells may be
seen on pap smears (Haswani et al., 1998), however signet ring cells
on a pap smear may also reflect metastatic carcinoma to cervix
(Matsuura et al., 1997), or even gastrointestinal carcinoma with ascites
without cervical involvement (Selvaggi et al., 1993).

The pattern of the tumor described here was most suggestive of a
primary lobular breast carcinoma, but was determined to be of cervical
primary. Metastatic lobular carcinoma of the breast to the cervix has oc-
curred as much as 15 years after therapy (Waks et al., 2015). It is critical
to rule out metastatic disease before determining that a signet ring cell
carcinoma is primary to the cervix. Although there are few reported
cases, and survival documented in early stage disease, reported late
stage disease appears to be aggressive.

Disclosures

None.

Conflicts of interest

None.

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