Paraneoplastic Syndrome in Hawai'i: A Case of Dermatomyositis Associated with Endometrial Cancer

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Abstract

Dermatomyositis as a paraneoplastic consequence of gynecological malignancy has rarely been reported in literature and never been reported in Honolulu. This case report describes a local Honolulu resident who was diagnosed with endometrial adenocarcinoma upon presenting with acute dermatomyositis symptoms.

Keywords

Paraneoplastic, gynecological, gynecology, endometrial, ovarian, adenocarcinoma, cancer, local, dermatomyositis, myositis, Gottron papules, heliotrope erythema

Introduction

Adult-onset classic dermatomyositis is a rare type of inflammatory myopathy associated with an increased incidence of malignancy.[1] There have been reports linking paraneoplastic dermatomyositis with female reproductive tract cancers, with ovarian adenocarcinoma being the most common.[2] However, an association with endometrial carcinoma—the most common cancer of the female reproductive organs in the United States—is rare.[3] In this report, we discuss and describe a case of paraneoplastic syndrome as a consequence of endometrial adenocarcinoma occurring in Honolulu in 2013.

Case Report

The case report herein describes a nulliparous 46-year-old local professional woman who presented to her dermatologist for a skin rash on her hands and chest lasting three months, which had appeared suddenly after a marathon race and persisted. Although creatinine phosphokinase levels were not assessed, a skin biopsy was performed and the patient was subsequently diagnosed with dermatomyositis. Further work up to screen for internal malignancy was performed, and computerized tomographic scans of the chest, abdomen and pelvis revealed an intrauterine mass. She was then referred to gynecology and the gynecologic oncology service at a local clinic for consult.

The patient denied any significant past medical history including hypertension, diabetes, or polycystic ovarian syndrome. Her gynecologic history was unremarkable; menarche occurred at age 13 and she denied any sexually transmitted infections or abnormal pap smears. She previously took drospirenone contraceptive for 2 years but stopped recently. She denied smoking or using recreational drugs, and reported drinking alcohol on rare occasions. She was physically active and exercised regularly.

On exam, the patient had an athletic build, with a height of 156 cm (5'2"), weight of 47.6 kg (105 lbs), and vital signs: blood pressure 140/91 mm Hg; pulse 100; respiratory rate 18; and temperature 37.3 °C (99.2 °F). Physical exam revealed characteristic heliotrope rash, Gottron papules on her hands and scattered erythema on her chest, with no signs of androgen excess such as obesity, hirsutism, acne, or male pattern baldness. Pelvic exam revealed a small amount of dark blood in the vaginal vault with no discharge, lesions, rashes, or masses on external structures, vagina, or cervix. The uterus was mobile and nontender, and appeared of normal size. There was no evidence of right adnexa masses; however, there was a large, nontender, firm, left adnexal mass. Rectovaginal exam was within normal limits. Labs revealed microcytic anemia with a hemoglobin of 8.1 g/dL.

Transvaginal ultrasonographic exam showed an irregularly shaped, homogenous, highly vascular, intracavitary lower uterine mass measuring 3.3 x 2.6 x 3.2 cm and a suboptimally visualized, highly vascular, intracavitary upper uterine mass measuring 1.0 x 1.2 x 1.1 cm. There was also a large left ovarian complex cystic/solid mass with marked vascularity measuring 7.94 x 4.57 x 5.99 cm, which replaced the entire left ovary. Dilation and endometrial curettage revealed grade 2-endometrioid-type 1 endometrial adenocarcinoma.

A robotic total hysterectomy and bilateral salpingo-oophorectomy with paraaortic sentinel node biopsy were performed. On inspection, there was no obvious peritoneal carcinomatosis. The uterus appeared 8 weeks in size and there was a 10-week size left ovarian mass, which was densely adherent to the left pelvic sidewall and infiltrating through the parapelvic sidewall and into the parametria. Frozen section of one enlarged lymph node obtained on the left was negative for metastatic disease; however, histological exam confirmed grade 2-endometrioid-type 1-endometrial adenocarcinoma with metastasis to right and left ovaries without lymph node involvement, consistent with the International Federation of Gynecology and Obstetrics (FIGO) Stage IIIB. Pelvic washings were negative for malignancy. She attended follow up every three weeks for five months, and received six cycles of carboplatin with an AUC (area under curve) of 6 mg/mL min and paclitaxel 175 mg/m^2 every three weeks. Her skin condition gradually improved over this time period.

Discussion

Endometrial cancer is the most common gynecological malignancy in the United States, with an estimated 40,000 new cases annually.[4,5] Risk factors are associated with increasing age, diabetes mellitus, family history (hereditary nonpolyposis colorectal cancer), and excessive estrogen states: obesity, early menarche, late menopause, nulliparity, polycystic ovarian syndrome, unopposed estrogen therapy, and tamoxifen therapy.[6] The most common symptom is postmenopausal bleeding and diagnosis is confirmed with endometrial biopsy or dilation

and curettage.[4,6] Patients diagnosed with endometrial cancer should undergo hysterectomy, bilateral salpingoophrectomy, pelvic washings and surgical staging with pelvic and paraaortic lymphadenectomy as per the revised FIGO system.[7] According to the American College of Gynecologists (ACOG), most surgically treated patients can be followed with pelvic examinations every 3-4 months for the first two years, and then twice yearly for an additional three years before returning to annual visits. Paclitaxel, doxorubicin, and cisplatin chemotherapy is the adjuvant treatment of choice for advanced endometrial cancer following surgery.[6]

Adult-onset classic dermatomyositis was originally proposed by Stertz in 1916 as a paraneoplastic syndrome associated with malignancy.[8] Since then, numerous case reports have demonstrated that it is more common in female patients over 50 years of age and in association with ovarian, lung, pancreatic, stomach, and colon cancers, as well as non-Hodgkin lymphomas.[2] Ovarian cancer appears to have the highest association with dermatomyositis, and the association of dermatomyositis with other gynecologic malignancies such as endometrial cancer is relatively rare.[9,10]

The pathogenesis of dermatomyositis in malignancy is poorly understood, but is thought to be caused by altered cellular and humoral immunity.[11] According to Casciola-Rosen, et al, myositis-specific autoantigen, histadyl tRNA synthetase (HRS/Jo-1) are expressed at higher levels in myositis muscles, regenerating muscle cells, lung and breast cancer, and hepatocellular carcinoma, suggesting that there may be cross-reactivity of autoantigens against cancer cells with regenerating muscle cells.[12]

Clinical manifestations range from cutaneous inflammation to polymyositis. However, cutaneous involvement is common and includes photosensitivity, periorbital heliotrope rash, Gottron's papules, poikiloderma (triad of atrophy, dyspigmentation, and telangiectasia), and periungal telangiectasia.[13] Although these findings are less likely to be associated with muscle abnormalities,[2,13,14] the risk for malignancy is highest within one year of diagnosing myositis.[2]

Diagnosis of dermatomyositis—which usually occurs two years before or after the diagnosis of malignancy—is based on characteristic skin lesions and laboratory findings such as increased creatinine phosphokinase, aldolase, and lactate dehydrogenase.[15,16] Definitive diagnosis may be made by either a skin biopsy or muscle biopsy.[13] However, no diagnostic criteria exists to establish dermatomyositis as a paraneoplastic consequence of malignancy; the anti-p155 autoantibody may be useful in diagnosing cancer-associated myositis and guiding disease management.[16,17] It has a specificity of 89%, sensitivity of 70% and a negative predictive value of 93%.[18]

A thorough history and physical exam—including a rectal exam, and breast and pelvic exam in women or testicular exam in men—should be performed in all patients newly diagnosed with dermatomyositis.[18] Additional studies such as a colonoscopy, and mammogram and pap smear in women or prostate specific antigen in men, should also be done.[18] The patient should be followed with gynecologic examinations every 6-12 months for the first three years, or five years for ovarian cancer, after the diagnosis of dermatomyositis.[7,13]

Treatment for non-paraneoplastic dermatomyositis is managed with high dose corticosteroid and tapered when muscle enzymes begin to normalize.[13] However, malignancy related dermatomyositis is much less responsive to systemic glucocorticoid therapy and definitive treatment of the underlying malignancy usually results in symptom regression.[19,20]

Conclusion

Adult-onset classic dermatomyositis is associated with gynecologic malignancies and usually presents prior to the onset of malignancy. Physicians should be aware of this association so that these patients may be appropriately managed, allowing for early clinical evaluation of malignancy and improved patient outcomes.[19]

Conflict of Interest

None of the authors identify a conflict of interest.

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