Gynecologic Oncology Reports 25 (2018) 1–2

Contents lists available at ScienceDirect

Gynecologic Oncology Reports

journal homepage: www.elsevier.com/locate/gynor

Case report

Polymyositis as a presentation of advanced carcinoma of Mullerian origin: A case report and discussion

Catherine Dieffenbach[a,*], Sara Bouberhan[b], Elizabeth Raynor[c], Meghan Shea[b], Fong Liu[a]

[a] Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, United States
[b] Department of Hematology Oncology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, United States
[c] Department of Neurology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, United States

ARTICLE INFO

Keywords:
Mullerian carcinoma
Paraneoplastic syndrome
Polymyositis

1. Introduction

Paraneoplastic syndromes are rare, occurring in < 1% of all patients with cancer (Chandiramani et al., 2006). While rare, typical presentations of paraneoplastic phenomena are increasingly well-characterized and understood (Pelosof and Gerber, 2010). They often result from the secretion of active substances by tumors or from the development of cross-reactive antibodies in the setting of malignancy; many of these specific processes are well-characterized (Pelosof and Gerber, 2010). Atypical presentations of paraneoplastic phenomena, however, continue to present a challenge to the timely diagnosis of new malignancies. For instance, while dermatomyositis has been clearly associated with ovarian cancer (Stockton et al., 2001), polymyositis (without dermatologic features) has only been identified as a presenting symptom of ovarian cancer in rare case reports (Davis and Ahmed, 1997; Ghosh et al., 2007; Iavazzo et al., 2007; Kalogiannidis et al., 2008; Raizman et al., 2017). Because of its rare and atypical presentation, we present a case of carcinoma of Mullerian origin, initially presenting with symptoms of polymyositis (PM).

2. Case

A 75 year-old G5P4 woman initially presented with several months of progressively worsening proximal muscle weakness, dysphagia, and dyspnea on exertion; she also reported significant subacute hearing loss and had lost 30 pounds in the previous 3 months. At an outside hospital, she was given a preliminary diagnosis of polymyositis and had been treated with prednisone over the previous 3 weeks. She developed progressive weakness and was admitted to the neurology service at our hospital where she underwent an extensive neurologic workup. She had objective findings of sensorineural hearing loss, neck flexor and extensor weakness, tongue weakness, and severe, diffuse proximal muscle weakness (MRC 2-3/5). She was not able to lift her limbs or turn in bed without assistance and required nutrition through a feeding tube. To evaluate her weakness, she underwent electromyography (EMG) testing which showed moderate-to-severe generalized myopathy with denervating features, consistent with an inflammatory myositis. Repetitive stimulation studies showed no evidence of neuromuscular transmission disorder. A deltoid muscle biopsy was performed and showed evidence of focal, mild inflammation, scant myonecrosis, and atrophic fibers. Myositis antibody profile was weakly positive for RO60. Creatine kinase (CK) level was within normal limits at 111 IU/L at the time of presentation.

A paraneoplastic etiology was suspected and she underwent CT imaging of her chest, abdomen and pelvis, with findings notable for an enlarged 3 cm supraclavicular lymph node, a 9 mm epipericardial lymph node with suspicious morphology, and a 2.8-cm celiac lymph node and porta hepatis lymph nodes measuring up to 11 mm. The uterus and adnexa were normal in size and appearance. The omentum was unremarkable, and there was no evidence of ascites. Based on these imaging findings, the patient underwent multiple biopsies. FNA of the right supraclavicular lymph node and celiac lymph node were positive for malignant cells consistent with poorly differentiated carcinoma. Immunohistochemistry staining was positive for CK7, CK20, PAX-8, PAX-2, ER, WT-1 and C5; negative for TTF-1, CDX-2, p63, RCC and CD117 consistent with carcinoma of Mullerian origin. Tumor markers were as follows: CA-125192, CEA 1.2, AFP 2.9, CA19-9 69.

Given concern for a paraneoplastic syndrome and a primary

* Corresponding author: Beth Israel Deaconess Medical Center, 330 Brookline Ave, Kirstein 3, Boston, MA 02215, United States.
E-mail address: cdieffen@bidmc.harvard.edu (C. Dieffenbach).

https://doi.org/10.1016/j.gore.2018.04.010
Received 3 March 2018; Received in revised form 25 April 2018; Accepted 30 April 2018
Available online 01 May 2018

gynecologic malignancy, the patient underwent transvaginal ultrasound of the pelvis, which demonstrated a heterogeneous endometrium measuring 6 mm with internal cystic spaces and a 1 cm simple appearing right ovarian cyst. PET imaging was not performed, as it is not standard protocol in the workup of gynecologic cancers and would not change the management of this patient. Endometrial biopsy was non-diagnostic, revealing strips of atrophic endometrium.

To treat her myositis, she received methylprednisolone 1 g daily for 5 days, followed by 1 mg/kg prednisone, and IVIG 2 g/kg, with improvement in her symptoms of weakness. For her diagnosis of stage IV poorly differentiated carcinoma of Mullerian origin, she was treated with dose reduced combination chemotherapy due to ongoing, albeit improved, neurological symptoms. She received carboplatin AUC 5 and paclitaxel 140 mg/m^2 every 21 days. She was not felt to be a surgical candidate at this time. Steroids were slowly tapered; she did have some recurrence of her weakness and was treated with a second course of IVIG approximate 7 weeks after starting treatment with chemotherapy. She has had a measurable decrease in her palpable metastatic lesions since starting chemotherapy. Her weakness has improved significantly, and she is able to ambulate independently with a walker; speech, swallowing and hearing have also improved considerably. Her prednisone dose was gradually decreased and is currently 15 mg daily. Following the discovery of asymptomatic pneumatosis intestinalis, paclitaxel was removed from her regimen. She is now receiving single-agent carboplatin with ongoing clinical response with no evidence of disease on imaging and decreased CA125 to 22 after her sixth cycle of treatment.

Her work-up also revealed multiple positive auto-antibodies. These included an elevated anti SS-A antibody (> 8 AI), anti-cardiolipin IgM (15 MPL), striational (Striated Muscle) antibody (titer 1:7680), and P/Q-type calcium channel antibody (0.05). The significance of these findings, including their association with her malignancy and their contribution to her initial presentation of weakness, remains unclear at this time as there is no clinical evidence of a neuromuscular transmission disorder and no evidence of thymoma by imaging studies.

3. Discussion

We present this case as an atypical presentation of carcinoma of Mullerian origin related paraneoplastic syndrome. This case highlights a rare and complex clinical presentation of an undiagnosed advanced gynecologic malignancy. It illustrates that tumors of gynecologic origin may not always present with radiographic evidence of a primary mass or localizing intra-abdominal symptoms. Rather, paraneoplastic phenomena, like this patient's weakness, may be the first presenting symptom of malignancy.

We emphasize that PM, without dermatologic features, has only been associated with a primary gynecologic malignancy in rare case reports. We searched PubMed using combinations of the following MESH search terms: polymyositis, dermatomyositis, ovarian cancer, mullerian, and cancer. We were able to identify 6 clearly documented presentations of polymyositis, without dermatomyositis, associated with gynecologic malignancies (Davis and Ahmed, 1997; Ghosh et al., 2007; Iavazzo et al., 2007; Kalogiannidis et al., 2008; Raizman et al., 2017).

Of the documented cases in the literature, four patients presented with limited stage (Stage III) disease and underwent surgical resection (Davis and Ahmed, 1997; Kalogiannidis et al., 2008; Raizman et al., 2017). Of these, two patients' treatment courses were documented; both received steroid immunosuppression and systemic chemotherapy with reported control of disease (Kalogiannidis et al., 2008; Raizman et al., 2017). One patient was reported to have an improved functional status, and one had an incomplete remission of PM symptoms after steroid treatment (Kalogiannidis et al., 2008; Raizman et al., 2017).To our knowledge, only one case of recurrent ovarian cancer and one case of metastatic ovarian cancer have been associated with PM (Ghosh et al., 2007; Iavazzo et al., 2007). The only other patient to present with metastatic ovarian cancer and symptoms of PM did not undergo treatment with systemic chemotherapy (Ghosh et al., 2007). Further, our patient is the only documented case to have received systemic chemotherapy without a surgical resection of her disease. Our patient had improvement in her symptoms of weakness after combined immunosuppression with prednisone, IVIG, and platinum-based chemotherapy. Early worsening of her neurologic symptoms were successfully treated with a second course of IVIG. While it would be premature to identify trends in treatment response with such a limited sample size, our case, in addition to the other patients with localized disease who received chemotherapy, supports the use of systemic chemotherapy in addition to standard immunosuppression for the treatment of polymyositis associated with metastatic ovarian/mullerian carcinoma.

We hope that the publication of this patient's atypical presentation of paraneoplastic phenomena will raise awareness of the diagnosis, helping clinicians make timely and accurate diagnoses of underlying malignancy. This case adds to the small number of reports describing polymyositis as a rare presenting symptom of ovarian/Mullerian malignancy. The association between polymyositis and tumors of Mullerian or ovarian origin remains unclear, and further study will be necessary to characterize this association more fully. Finally, we present our patient's clinical improvement after treatment with systemic chemotherapy and immunosuppression. We hope this information will inform clinicians on palliative treatment options in patients who present with PM and advanced cases of ovarian/Mullerian carcinomas.

Conflicts of interest

None.

Financial disclosures

None.

Consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

References

Chandiramani, M., Joynson, C., Panchal, R., Symonds, R.P., Brown, L.J., Morgan, B., et al., 2006. Dermatomyositis as a paraneoplastic syndrome in carcinosarcoma of uterine origin. Clin. Oncol. (R. Coll. Radiol.) 18 (9), 641–648.

Davis, M.D., Ahmed, I., 1997. Ovarian malignancy in patients with dermatomyositis and polymyositis: a retrospective analysis of fourteen cases. J. Am. Acad. Dermatol. 37 (5 Pt 1), 730–733 (November).

Ghosh, A., Malak, T.M., Pool, A.J., 2007. Polymyositis and ovarian carcinoma: a case report. Arch. Gynecol. Obstet. 275 (3), 195–197 (March).

Iavazzo, C., Vorgjas, G., Papadakis, M., Manikis, P., Mavromatis, I., Akrivos, T., 2007. Polymyositis in a patient with recurring ovarian cancer and history of unrelated breast cancer. Arch. Gynecol. Obstet. 276 (1), 81–84 (July).

Kalogiannidis, I., Papanikolaou, A., Xanthakis, I., Makedos, A., Prapas, N., 2008. Clear cell ovarian carcinoma following polymyositis diagnosis: a case report and review of the literature. Hippokratia 12 (3), 181–185 (July).

Pelosof, L.C., Gerber, D.E., 2010. Paraneoplastic syndromes: an approach to diagnosis and treatment. Mayo Clin. Proc. 85 (9), 838–854 (September).

Raizman, Z., Hosseini, B., Kean, S., Altman, A.D., 2017. Paraneoplastic myositis secondary to poorly differentiated serous carcinoma of ovarian/tubal origin. Gynecol. Oncol. Rep. 20, 112–114 (April 5).

Stockton, D., Doherty, V.R., Brewster, D.H., 2001. Risk of cancer in patients with dermatomyositis or polymyositis, and follow-up implications: a Scottish population-based cohort study. Br. J. Cancer 85 (1), 41–45 (July 6).