CASE REPORT

Vaginal vault carcinoma as second primary in a treated case of ovarian cancer

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ABSTRACT

With the advances in the treatment of cancer, the chances of survival have increased today. The five-year relative survival rate is about 66%. With the increasing survival rate, it is important to identify the late effects of cancer and its therapy. One of the most serious events experienced by cancer survivors is the diagnosis of a new cancer. Case: A 32-year-old unmarried female diagnosed as ovarian cancer in the year 2010. She was treated with three cycles of chemotherapy followed by surgery. Histopathology was well-differentiated adenocarcinoma. She received three more cycles of chemotherapy after surgery. She was under follow-up and developed vaginal vault carcinoma after a disease-free interval of 2 years. The biopsy was suggestive of squamous cell carcinoma. She was treated with radiation for vaginal cancer successfully. This case indicates that female gynecological cancers with different histology may occur in minimum period of interval even in the absence of any predisposing factors like human papilloma virus infection.

Key Words: Chemotherapy, human papillomavirus infection, ovarian cancer, radiotherapy, second primary, vaginal cancer

INTRODUCTION

Advances in radiation therapy and chemotherapy have increased the chances of survival for many people with cancer today. Among all cancer patients, the 5-year relative survival rate is now almost 64%.[1] With the increasing survival rate, identification of the late effects of cancer and its therapy has become critical. One of the most serious events experienced by cancer survivors is the diagnosis of a new cancer. The number of patients with second primary cancer is growing, with independent malignancies comprising about 16% (or one in six) of incident cancers reported to the National Cancer Institute's Surveillance, Epidemiology, and End Results Program in 2003.[2]

Travis *et al.*,[3] have categorized second primary cancers into three major groups according to dominant etiological factors: treatment-related, syndromic, and those due to shared etiological influence [Table 1].

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Here we are presenting a case of vaginal vault carcinoma as second primary in a treated case of ovarian cancer

CASE REPORT

A 32-year-old, unmarried, came to our out patient department in October 2009 with complaint of distension of abdomen since 2 months and pain in abdomen since 3 months. She had no menstrual complaints.

On examination, abdomen was distended with free fluid, no mass felt due to gross ascites. On per rectal examination, hard fixed mass felt in pelvis. Per vaginal examination is not done in view of unmarried status.

Her serum CA-125 level was more than 1,000 IU/ml and serum Carcinoembryonic Antigen CEA was within normal limit. Computed tomography (CT) scan was suggestive of

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malignant right ovarian mass (8 by 9 cm) with gross ascites. Chest X-ray was suggestive of elevation of left hemi-diaphragm due to ascites. Fluid cytology was positive for malignancy with morphology suggestive of adenocarcinoma.

Patient received four cycles of Paclitaxel (250 mg) and Carboplatin (450 mg) followed by surgery. Exploratory laparotomy was done on 22nd April 2010; intraoperative findings revealed multiple small tumor deposits on bladder surface, undersurface of diaphragm, and omentum. There was a right adnexal mass of 3 by 4 cm size. Tip of the appendix was buried into the tumor mass. Total abdominal hysterectomy with bilateral salpingo-oopherectomy, omentectomy, and appendicectomy with optimal cytoreduction was done. Histopathology was suggestive of well-differentiated adenocarcinoma of right ovary [Figure 1] and foci of metastatic deposits seen in omentum. Cervix showed chronic cervicitis and appendix showed chronic appendicitis. No evidence of malignancy in other specimens. After operation, she received three more cycles of chemotherapy (last cycle received in September 2010).

She was under follow-up with normal serum CA125 level until March 2012, when she complained of foul smelling discharge per vaginum. On examination, there was a proliferative growth at the vault region [Figure 2]. CT scan was done and it was suggestive of thickened vaginal vault. Biopsy was done; histopathology was suggestive of non-keratinizing squamous cell carcinoma [Figure 3]. She was treated with 25 fractions of external radiation with dose

Table 1: Etiology of second primary cancers[2]

Life style	Environment	Host factors	Interactions and other factors
Tobacco	Contaminants	Age and gender	Gene–environment
Alcohol	Virus	Genetics	Gene–gene
Diet	Occupations	Immune functions	
Other	Others	Hormonal	
		Others	

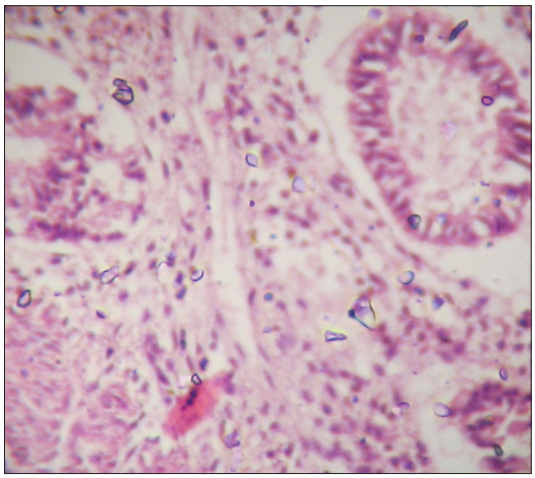

Figure 1: Histopathology of the specimen showing well-differentiated adenocarcinoma

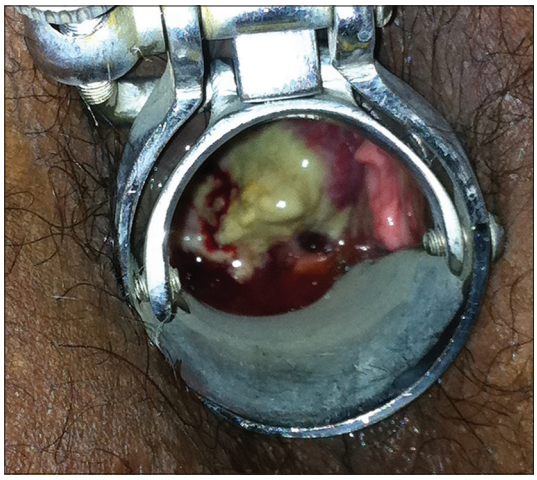

Figure 2: Proliferative growth at the vaginal vault

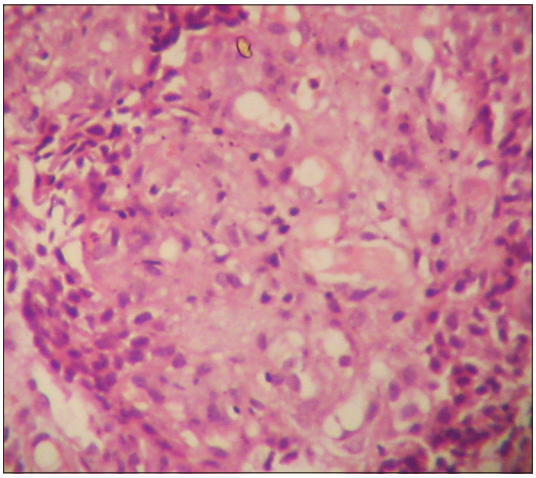

Figure 3: Histopathology of the vaginal vault growth showing non-keratinizing squamous cell carcinoma

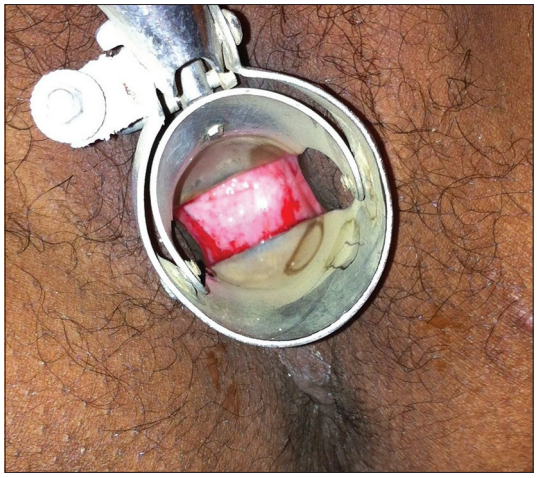

Figure 4: Post-radiation picture showing healthy vaginal vault

of 50 Gy with cobalt-60 followed by three fractions of central vaginal source (CVS) brachytherapy [High dose rate (HDR)] with dose of 750 centi Gy each. After completion of radiation, patient came for check-up on 2nd August 2012. On examination, there was no evidence of any growth [Figure 4]. She is under follow-up and doing well.

DISCUSSION

There is a significant increase in the survival rate of the ovarian cancer patients in last 20 years because of the recent advances in the treatment. As most ovarian cancer patients present with late-stage disease, the 5-year relative survival for women diagnosed with ovarian cancer is 43.9% (excluding borderline ovarian tumors).[2] A second cancer that may occur in ovarian cancer survivors includes leukemia, cancers of the colon, rectum, small intestine, renal pelvis, breast, bladder, bile duct, and melanoma of the eye. The overall incidence of second cancers in ovarian cancer is 9.4% in 25 years.[2]

Chemotherapy is associated with increased risk of leukemia. Genetic factors (BRCA1 and BRCA2) and germline mutations in DNA mismatch repair genes (e.g. MLH1, MSH2, MSH6, etc.)[4] pre-disposing to ovarian cancer may have contributed to the elevated risk of breast, colorectal, endometrium, stomach, small intestine, the hepatobiliary system, kidney, and ureter, and other neoplasms.

In the review of literature, we have not found any vaginal vault carcinoma developing after the treatment of ovarian carcinoma.

Charak, Parikh, Advani reported a case of ovarian cancer developing after 15 years of treatment of cervical carcinoma.[5] Phupong *et al*., reported a case of triple synchronous primary cervical, endometrial, and ovarian cancer with four different histological patterns.[6] Myriokefalitaki *et al*., reported a case of two eterochronous primary gynecological malignancies of different origin. The patient was treated for endometrial cancer followed by development of vaginal vault carcinoma in duration of 20 months.[7]

Vaginal cancer is the rarest of all female genital malignancies accounting for only about 2% of all gynecological malignancies.[8] Primary invasive carcinoma of the vagina is predominantly a disease of elderly women; 70-80% of cases are diagnosed in women older than 60 years.[9] Human papillomavirus (HPV) infection is one of the etiology for vaginal cancer with prevalence rate of 60-65%.[10] HPV-induced vaginal lesions are thought to arise in areas of squamous metaplasia that develop during healing of mucosal abrasions caused by coitus, tampon use, chronic pessary use, or other trauma.

Our case is an unusual case as the etiology of second primary cannot be determined on the basis of treatment induced or genetic basis. As the patient is not sexually active, the chance of HPV infection as a cause of vaginal cancer is rare. Decreased immunity due to ovarian cancer treatment may pre-dispose to second malignancy.

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