

**Case Report****Isolated Cardiac Metastasis in Carcinoma Cervix: A Rare Case Report**

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Dr Tasneem NalawalaMBBS, 3rd year resident doctor, Department of Radiation Oncology, The Gujarat Cancer and Research Institute, Ahmadabad Pin code- 380016, India**Abstract**

Cardiac metastasis in a known case of squamous cell carcinoma of cervix is rare. Majority are diagnosed at autopsy. Incidence is <1.23% on autopsy.^[1] Metastatic sites in heart include epicardium, myocardium, endocardium and intraventricular tumor formation.^[2] Cardiac metastasis should be suspected in patients with recurrent pulmonary emboli without any evidence of deep vein thrombosis, inexplicable heart failure especially in patients with extensive pelvic lymph node metastasis. Early diagnosis may improve prognosis.^[1]

We report a case of carcinoma cervix International Federation of Gynecology and Obstetrics (FIGO) Stage IIIB treated with external beam radiotherapy 50 Gray in 25 fractions, 5 fractions per week with concurrent weekly five cycles of carboplatin followed by two fractions of intracavitary brachytherapy 7.5 Gray per fraction. Patient was on regular follow up and asymptomatic for four months post treatment. There was no evidence of local disease on examination and imaging. She complained of fatigue, weakness and shortness of breath. Total leucocyte count was elevated. Chest radiograph showed mild cardiomegaly. Patient was treated symptomatically. Cardiology opinion was sought. 2D echocardiography showed mild mitral stenosis, tricuspid stenosis, aortic stenosis, 4×2 cm thrombus in right ventricular outlet, clot in right ventricle apex. Patient was admitted under cardiology and actively managed for pulmonary emboli, but patient developed brain infarct and was kept on anticoagulants. However, patient's condition could not be stabilized even after two weeks of active management and she ultimately died of cardiac failure. On review of literature, we found 40 case reports of the same.^[6] Average survival after diagnosis was 12-23 months after the diagnosis.

Keywords: Cardiac metastasis, carcinoma cervix.**Introduction**

Cardiac metastasis in a known case of squamous cell carcinoma of cervix is rare. Majority are

diagnosed at autopsy because of its rarity. Incidence is <1.23% on autopsy.^[1] Early diagnosis

and aggressive treatment is needed in these patients that can improve patients' survival.^[2]

The metastasis in the heart can include epicardium, myocardium, endocardium or intraventricular tumor formation, incidence in decreasing order.^[2] Due to slow blood flow in the right atrium and ventricle and filtering role of pulmonary circulation, it is more common in the right chambers. Cardiac metastasis should be suspected in patients with recurrent pulmonary emboli without any evidence of deep vein thrombosis, inexplicable heart failure especially in patients with extensive pelvic lymph node metastasis. Early diagnosis may improve prognosis.^[2]

Here we report a case of carcinoma of the cervix treated with chemo-radiation presenting with breathlessness and fatigue confirmed to be cardiac metastasis on CT angiography and biopsy.

Clinical Presentation

The patient, a 38-year-old woman, P4L3, premenopausal had initially presented in July 2018 with vaginal bleeding and discharge per vagina for last 4 months. On per vaginal examination, there was an ulceroproliferative growth involving the cervix obliterating all the fornices, anterior and right lateral vaginal walls were involved in the upper one-third. Both the parametrium were involved upto the lateral pelvic wall. Biopsy was reported as moderately differentiated squamous cell carcinoma of the cervix. Routine blood investigations were within the normal range. Further imaging with ultrasound scan of the abdomen and pelvis and chest X-ray was done which showed a 4.4×5.5×5.3 cm mass involving the cervix, with no evidence of infiltration in the surrounding organs like the bladder or the rectum, no hydronephrosis, no grossly enlarged pelvic or paraaortic nodes and no evidence of any distant metastasis in the liver or the lung. She was diagnosed with International Federation of Gynecology and Obstetrics (FIGO) Stage IIIB cervical squamous cell carcinoma. She received external beam radiotherapy 50 Gray in

25 fractions with 6 MV photons with 2D technique, 5 fractions per week over a period of 35 days. She also received five cycles of concurrent carboplatin at 150 mg/m². After 7 days of EBRT, the patient received high dose-rate intracavitary brachytherapy using the Fletcher-Suit applicator to a dose of 7.5 Gy to Point A for 2 fractions with a gap of 1 week between the two fractions. The overall treatment was completed in 7 weeks.

There was no evidence of local disease on examination and imaging at three months post treatment and the patient was advised for regular follow-up. At the 5-month post-treatment follow-up, she presented with fatigue, weakness, shortness of breath and bilateral pedal oedema of 10 days duration. No history of cough, fever, chest or abdominal pain, reduced appetite or weight loss was present. On general examination, bilateral pedal oedema of pitting type was found. Per vaginal and rectal examination revealed no evidence of disease.

Investigations

All the hematological and biochemical investigations were normal except slight elevation of the leucocyte count. Ultrasonography with colour Doppler of bilateral lower limbs showed subcutaneous oedema and ruled out deep vein thrombosis. Ultrasonography of abdomen and pelvis showed no abnormality. Chest radiograph showed mild cardiomegaly [figure 1]. Patient was treated symptomatically. Cardiology opinion was sought. 2D echocardiography showed mild mitral stenosis, tricuspid stenosis, aortic stenosis, 4×2 cm thrombus in right ventricular outlet and clot in right ventricle apex. CT pulmonary angiography was performed due to suspicion of pulmonary emboli which was suggestive of metastatic lesion involving apex of right ventricle and intraventricular septum measuring 5.2×3.3 cm and multiple metastatic deposits in pericardium with thrombus in right descending pulmonary artery [figure 2]. CT guided biopsy and immunohistochemistry performed from the right

ventricular lesion showed metastatic squamous cell carcinoma from carcinoma cervix. Due to poor general condition further investigations like PET-CT were not performed.

Treatment

Patient was admitted under cardiology and actively managed for pulmonary emboli, but patient developed brain infarct and was kept on anticoagulants.

Outcome

Patient's condition could not be stabilized even after two weeks of active management and she ultimately died of cardiac failure.



Figure 1- Chest X ray showing mild cardiomegaly

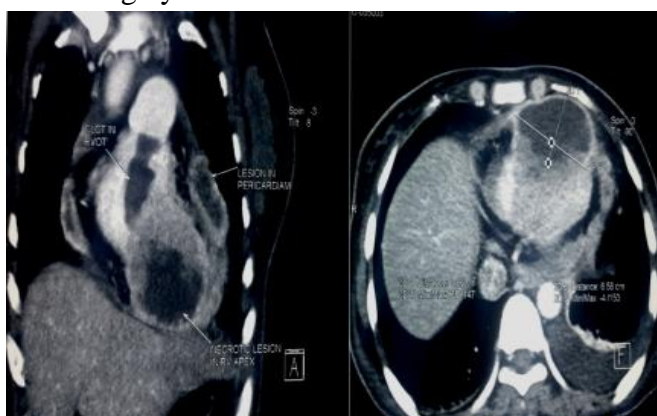


Figure 2- Computed Tomo-Angiography showing metastatic lesion involving apex of right ventricle and intraventricular septum measuring 5.2×3.3 cm and multiple metastatic deposits in pericardium with thrombus in right descending pulmonary artery.

Discussion

Carcinoma of cervix metastasize commonly to lungs, bones, liver, abdominal cavity and supraclavicular lymph nodes. Metastasis to brain is rare. Cardiac involvement is extremely rare; the most frequently involved is the right ventricle, as reported in this case, followed by the right atrium. Less than 40 of such cases have been reported in literature.^[4,6]

In case of cardiac tumors, secondary tumor deposits are 40 times more common than primary cardiac tumors. The primary tumors most commonly metastasizing to heart are malignant melanoma, malignant lymphoma, leukemia, lung cancer and breast cancer. Cardiac metastasis due to cervical carcinoma is extremely rare. Majority are diagnosed at autopsy. Incidence is <1.23% on autopsy.^[1]

Among the cases diagnosed before death, the most common symptoms were dyspnea, chest pain, coughing and fatigue.^[6] So when a patient with carcinoma cervix complains of chest symptoms, it is necessary to investigate further with chest radiograph, echocardiogram and to rule out cardiac enlargement, intracardiac mass or pericardial effusion.

Echocardiography is valuable and convenient for initial investigation in patients with chest symptoms. MRI remains the imaging modality of choice for the evaluation of myocardial abnormalities.^[5] CT scan provides a superior spatial resolution and assessment of extracardiac structures.^[5] Though 2D echocardiography and CT scan as performed in this case can give some information about cardiac metastasis, FDG PET/CT has a sensitivity of 97.5%, specificity of 63.6% in detecting recurrence from carcinoma cervix.^[1,5] Cardiac MRI will provide a better delineation of the exact nature and position of cardiac mass.

Surgery is rarely necessary, except for confirmation of diagnosis in certain cases, decompressing pericardial effusions or resection of obstructive masses. There have been cases in which open-heart surgery was performed and

patients survived for more than two years.^[7,8] The best results have been seen in patients whose primary sites were treated successfully months ago or those who underwent a complete tumor resection.

Radiation therapy to the cardiac metastasis has also shown better symptomatic improvement with good response but the survival in these patients is often low, as eventually most of the patients will develop fatal congestive cardiac failure over a period of months.^[2] Average survival after diagnosis was 12-23 months after the diagnosis.^[2]

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