Late Midtrimester Pregnancy, Advanced Bulky Cervical Cancer, Radiation Therapy, and Physician’s Moral Distress: A Management Dilemma

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Abstract

Background: Approximately 3% of cervical cancers are diagnosed during pregnancy, of which 75% are detected in early stages. The management may pose significant challenges because of the pregnant state.

Case: We describe a case of rapidly progressing bulky cervical cancer complicating a late second trimester pregnancy. The case was successfully managed by induction of labor with misoprostol after induced fetal demise followed by radiation therapy with fetus in situ.

Conclusion: In a late second trimester pregnancy complicated by rapidly progressing bulky cervical cancer, optimal outcome was achieved using a multidisciplinary approach. Fetal intra-cardiac potassium chloride injection is helpful in the management of select cases.

Introduction

Cervical cancer is one of the most common gynecologic malignancies. Approximately 3% are diagnosed during pregnancy, of which seventy five percent are in early stages 1A-1B [1]. Pregnancy does not have a negative effect on the course or prognosis of cervical cancer [2]. Diagnosis made in late second trimester may pose significant management challenges due to the presence of a fetus approaching viability.

Case

A 44-year-old female gravida 5, para 2012 at 7 weeks’ gestation was diagnosed with poorly differentiated cervical squamous cell carcinoma with apparent stage IB2 with a lesion measuring 6cm. She was referred to Gynecologic Oncology clinic for further evaluation. Radiation treatment was recommended. The patient left for her native country for personal reasons prior to initiation of treatment.

She returned to Gynecologic Oncology clinic at 20 weeks’ gestation. Clinical exam at this time placed her disease at stage II A2 due to involvement of the anterior vaginal wall. Sonographic assessment of her pregnancy documented an appropriate sized, structurally normal fetus.

Options of pregnancy continuation or termination were discussed with the patient thoroughly. Concerned about the rapidly progressing disease, she opted for termination and aggressive treatment of her cancer. Treatment options considered were as follows: termination of pregnancy followed by chemoradiation; proceeding with chemoradiation followed by medical termination after involution of cervical lesion. The size of the lesion made induction of labor or dilatation and evacuation not a feasible option due to potential life-threatening hemorrhage associated with either one of the procedures. Since chemoradiation interferes with wound healing, evacuation of the pregnancy by hysterotomy would result in delay of treatment. The second option was discussed in a multidisciplinary meeting. Radiation oncology service expressed extreme moral distress over the use of radiation treatment at this gestation, which theoretically may cause a slow and painful fetal death. Fetocide by fetal intra-cardiac Potassium chloride injection prior to initiation of radiation therapy was discussed. Maternal Fetal Medicine service was consulted.

The procedure was performed under ultrasonographic guidance at 21 weeks’ and 6 days gestation. A potential risk of consumptive coagulopathy was entertained due to retained products of conception.

External beam radiation treatment with concurrent weekly cisplatin was then started with weekly monitoring of disseminated intravascular coagulopathy panel. After 5 weeks of chemoradiation, pelvic exam showed significant shrinkage of the lesion to 5mm on the anterior lip of the cervix. On digital exam the cervix was 1cm dilated, 2cm long, -3 station, soft consistency, and posterior to mid position. The patient was admitted to Labor and Delivery unit for induction of labor. At this time she was at 25 weeks and 5 days’ gestation with a demised fetus of 20 weeks’ size. The patient delivered a nonviable fetus after 2 doses of 100 mcg misoprostol given buccally 6 hours apart without complications.

She was discharged home on postpartum day. Subsequently she completed chemoradiation and brachytherapy. A follow up exam revealed a normal appearing cervix with no visible lesion six months after treatment.

Comment

Cervical cancer diagnosed during pregnancy poses significant challenges for the patients and their physicians. Management depends on gestational age, disease stage, size of the lesion and patient’s desire to continue with pregnancy [3]. Our patient had an advanced cervical cancer with a bulky lesion. Treatment options for our patient with stage IB1 cervical cancer would be: radical hysterectomy with the fetus in situ and lymphadenectomy, external radiotherapy with the fetus in situ, followed by brachytherapy after delivery of fetus or evacuation of the uterine cavity by hysterotomy followed by radiotherapy. Cisplatin based neoadjuvant chemotherapy can also be used in cases of locally advanced disease, followed by surgery [4]. Since our patient’s cervical disease was felt to be too bulky, radical hysterectomy with fetus in situ...
was considered a suboptimal choice of treatment. Radiotherapy was entertained. By contrast with most cancers in pregnancy, preservation of fetal life is not possible with radiation treatment of cervical cancer [5].

In most cases, spontaneous abortion occurs after external beam radiation therapy. Radiation-induced biological effects are directly related to the stage of gestation. The earlier the gestation, the more detrimental the expected effects are. Potential effects on the fetus between 16-25 weeks gestation include mental and growth restriction, sterility, malignancies and death depending on the dose of radiation exposure [5].

The recommended dose for treatment of cervical malignancy with external beam radiation is 45 to 50.4 Gy given in standard 1.8 to 2 Gy fractions over five to six weeks. When this dose is applied with fetus in situ, it usually leads to spontaneous abortion within 24 to 34 days, during the 1st trimester pregnancy [6]. The second trimester fetuses are less sensitive to irradiation with an average interval of 43 days between the start of irradiation and abortion. There have been reported cases of structurally abnormal newborns delivered after radiation treatment [6]. Potentially such treatment could have led to either a slow fetal death process or a severely damaged fetus. This is not acceptable to the radiation oncologist and the radiation oncology staff involved in this case. Evacuation of the pregnancy by hysterotomy would potentially result in delay of treatment and pyometra has been reported as a complication of the surgical procedure [7]. Moreover, chemoradiation also interferes with wound healing. Medical termination using misoprostol, a prostaglandin E1 analogue, has been shown to be a safe method of pregnancy termination in the first and second trimesters [8]. However, it was not considered an option in this case due to the presence of a bulky cervical lesion.

We proceeded with induced fetal demise using fetal intracardiac potassium chloride injection. Maternal complications after this procedure are extremely rare [9]. Risk of potential hypofibrinogenemia and disseminated intravascular coagulopathy (DIC) due to retention of potassium chloride, allowed initiation of radiation therapy without delay.

Cervical cancer diagnosed during pregnancy may present significant therapeutic, ethical and moral dilemmas. A general consensus on treatment algorithms in the presence of rapidly progressing bulky cervical cancer does not exist. Management requires a case by case approach involving multidisciplinary involvement and active patient participation. In our case the moral distress expressed by the radiation oncology team and their refusal to initiate treatment led us to explore an alternative treatment approach. Fetocide using fetal intracardiac Potassium chloride, allowed initiation of radiation therapy without delay.

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