CASE REPORT

Squamous cell carcinoma of the tongue during pregnancy experiences in two-year treatments

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Summary A case of tongue carcinoma (T3N2bM0) in a 35-year-old pregnant patient was described. She was in the second trimester of pregnancy, although she had not noticed her pregnancy at the time of the first visit to our hospital. After cesarean delivery of a boy at a gestation period of 27th week, she was treated with continuous intra-arterial infusion chemotherapy followed by surgery and postoperative radiotherapy. The patient died of local recurrence at 28 months after the diagnosis. Various issues complicating the management of tongue cancer during pregnancy are discussed.

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KEYWORDS
Pregnancy; Tongue carcinoma; Squamous cell carcinoma

Introduction

Squamous cell carcinoma (SCC) of the head and neck during pregnancy is very rare.\textsuperscript{1–5} A malignancy discovered during pregnancy is often difficult to manage; there is almost always a conflict between the optimal maternal therapy and fetal well-being. Regarding cancer during pregnancy, prospective randomized clinical trials which may be regarded as a "gold-standard" for treating the disease are impossible.\textsuperscript{6} Both the patient and her doctor are often in a dilemma as to the optimal therapy.

Case report

A 35-year-old woman was diagnosed as aphthous stomatitis by her dentist. She had no treatment for six months. The ulcerative lesion did not heal, the pain gradually increased, and she visited our department.
She had previously received outpatient treatment for diabetes and had been controlled using diet therapy. She smoked approximately 20 cigarettes a day but seldom drank alcohol. Her father died of cancer of the larynx at the age of 63. She was obese, with a height of 150 cm and a weight of 73 kg. Intraoral examination revealed an ulcerated endophytic lesion, measuring approximately 45 mm × 30 mm on the right side of the tongue, with surrounding induration (Fig. 1A). Tongue mobility was limited in forward protrusion. On palpation, many cervical nodes were noticed on the ipsilateral side, and a CT scan also revealed multiple lymph node swellings. A diagnosis of poorly differentiated SCC was made by biopsy. The tumor, T3 N2 b M0, had infiltrated into the adjacent muscle.

Systemic neoadjuvant intravenous chemotherapy was planned with cisplatin and 5-fluorouracil (Fu). Two days after the start of 5-Fu administration and just before cisplatin infusion, she told us that she had not menstruated for 6 months. The administration of 5-Fu was canceled, and she was referred to the Obstetrics and Gynecology Department. She was found to be at a gestation of 26th week 6 days. Our hospital staff, including us, the obstetrician and pediatrician proposed cesarean section and standard treatment for advanced tongue carcinoma. Nine days after the tumor was diagnosed, at a gestation of 27th week 1 day, a boy was delivered by cesarean section (Fig. 2). Immediately after the delivery, a catheter was inserted into the right superficial temporal artery for continuous intra-arterial infusion chemotherapy.

Chemotherapy with cisplatin (24.4 mg/m² on day 5, and 12.2 mg/m² on day 17) and 5-Fu (15.0 mg/m² for 24 h daily until day 28) was performed. The tumor had dramatically decreased in size by the end of the chemotherapy (Fig. 1B), showing a more than 50% decrease in volume. The patient subsequently underwent a right hemiglossectomy with right radical and left supraomohyoid neck dissection by the pull-through method. The defect was reconstructed with a radical forearm free flap. Histopathologically, the surgical specimen showed well-differentiated SCC (Fig. 3A), although the tumor had been previously diagnosed as poorly differentiated SCC. The patient received postoperative radiotherapy to the primary site and bilateral cervical areas.

Approximately 1 year after the completion of postoperative radiotherapy, the patient revealed a recurrence extending to the submandibular and submental regions including the mandible. The patient received two cycles of salvage chemotherapy. Salvage surgery was performed, including excision of the bilateral floor of the mouth, removal of the right submandibular and submental lesions, partial mandibulectomy and reconstruction with a deltopectoral flap. The surgical specimen showed poorly differentiated SCC (Fig. 3B).

Six months after the second surgery, multiple mass lesions appeared on the skin of the right submandibular area. The tumor developed progressively and she died at 28 months after the initial visit. There was no clinical evidence of distant metastases. The child grew normally with regular physical and mental development.

**Discussion**

Oral cancer during pregnancy has been described, although it accounts for less than 2% of all cancers. Cancer during pregnancy entails many complicating issues such as the relationship...
between carcinogenesis and pregnancy, maternal fetal immunological and maternal hormonal interactions, and therapeutic difficulties.

It is speculated that immunological suppression during gestation, in some way, predisposes the subject to the malignancy, modifies the biological behavior of the neoplasm, and adversely affects the clinical course of the malignancy. It is known that immunosuppressive drugs used in organ transplant patients increase the risk of cancer and cause major morbidity and/or mortality. Estrogens and progesterone may stimulate latent breast...
carcinoma to an active growth during the first 20th week of gestation; however, no hormonal receptors in the head and neck epithelial cells existed.  

It is reputed that there is an increased cancer risk during pregnancy, that pregnancy stimulates malignancy occurrence, or that pregnancy activates latent cancer.  

We suppose that both the patient’s recovery from immune suppression and her no longer being pregnant may have contributed to the dramatic reduction in tumor size affected by the continuous intra-arterial infusion chemotherapy.

The optimal cancer therapy may impose a great risk on the fetus. Chemotherapy and/or radiotherapy administered during the first trimester poses a risk of fetal malformations or spontaneous abortion.  

The traditional optimal time of delivery at the 34th week of gestation might easily be moved to an earlier date due to recent advances in perinatology and neonatology. The mortality rate at 30th week of gestation and later is only 1%. In the case of cancer during pregnancy, the fetus may be allowed to mature until the 24th week of gestation and longer, so that tumor therapy may be administered as soon as the fetus is delivered by cesarean section.  

In the case of cancer during late pregnancy, three treatment options exist: (1) standard treatment after induced delivery in an attempt to save the infant, with or without fetal lung maturation; this entails a high risk of complications, including hyaline membrane disease or sepsis of the baby, because of immaturity at birth; (2) no-treatment of the fetus until after natural birth; it gives priority to full time delivery of the fetus over the mother’s risks; and (3) starting cancer therapy during pregnancy with corresponding risks regarding both fetal viability and teratogenicity.  

In the present case, the patient opted for (1). There are limited data on the outcome of locally advanced tongue carcinoma during pregnancy at present.  

To our knowledge, this is the first reported case of continuous intra-arterial infusion chemotherapy for advanced tongue carcinoma after delivery. We also discussed the physiologic changes that occur chemotherapy after the delivery in compliance with the oncological base.

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References


Figure 3 Photomicrographs of the lesions. (A) Histopathology of the initial surgical specimen showed well-differentiated SCC (H & E, ×10). (B) Histopathology of the salvage surgical specimen showed poorly-differentiated SCC (H & E, ×10).