Transcatheter Arterial Chemo Infusion (TACI) for Buccal Squamous Cell Carcinoma: A Case Report

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Abstract: Buccal squamous cell carcinoma (BSCC) is a rare and aggressive malignancy of the oral cavity. Traditional treatment modalities include surgery, radiotherapy, and chemotherapy. Transcatheter arterial chemo infusion (TACI) is a minimally invasive procedure that delivers chemotherapeutic agents directly to the tumor site, potentially improving local control and reducing systemic toxicity. We reported an 84-year-old male presented with one-year history of a progressively enlarging mass and ulceration on the left cheek, accompanied by pain and bleeding. A previous biopsy and excision in 2023 were followed by tumor recurrence three months prior to this admission. Notable history included extensive sun exposure without protection. Physical examination revealed a 12x8 cm friable mass with necrotic tissue. Histopathology confirmed squamous cell carcinoma. The patient underwent TACI with docetaxel, cisplatin, and 5-FU, resulting in significant tumor reduction and symptomatic improvement. Follow-up imaging and histopathological evaluation confirmed a positive response to the treatment. The patient experienced minimal side effects and maintained a good quality of life. In conclusion, TACI presents a promising alternative for the management of BSCC, particularly in patients who are not suitable candidates for surgery. This case highlights the potential of TACI as an effective and minimally invasive treatment option for BSCC, warranting further investigation in larger clinical trials.
Keywords: buccal squamous cell carcinoma; transcatheter arterial chemo infusion

INTRODUCTION

Buccal squamous cell carcinoma (BSCC) is a rare and aggressive malignancy of the oral cavity, accounting for a small percentage of head and neck cancers. Traditional treatment modalities include surgery, radiotherapy, and chemotherapy, but these approaches can be associated with significant morbidity and functional impairment.[1] Recent advances in interventional radiology have introduced minimally invasive techniques such as transcatheter arterial chemo infusion (TACI). This TACI involves selective delivery of high concentrations of chemotherapeutic agents directly to the tumor via arterial supply, aiming to maximize local drug exposure while minimizing systemic toxicity. The approach is particularly advantageous in patients who are either not suitable candidates for extensive surgical procedures or who prefer less invasive treatment options.[2]

In this case report, we describe the clinical journey of an 84-year-old male diagnosed with BSCC. The patient presented with a rapidly growing mass on the buccal mucosa. Biopsy confirmed the diagnosis of SCC. Due to the patient's underlying comorbid conditions and his refusal to undergo extensive surgical resection, TACI was selected as the primary treatment modality. The procedure was meticulously planned and executed, involving the infusion of chemotherapeutic agents through a catheter directly into the arterial supply of the tumor.

CASE PRESENTATION

An 84-year-old male presented with the primary complaint of a mass accompanied by an ulcer on his left cheek, which had been progressively worsening over the past year. Initially, the mass was approximately the size of a coin but had grown significantly larger over time. The patient reported associated symptoms, including pain and easy bleeding from the site. Additional complaints included tinnitus and a reduction in hearing acuity, though he denied any associated headaches. The patient's medical history revealed that he had previously undergone a biopsy and excision of the mass in 2023 at another hospital. Despite the initial treatment, the mass recurred three months prior to this presentation and had been rapidly increasing in size over the past month. The patient admitted to spending considerable time gardening over the last five years without using any sun protection or wearing a hat. He denied any family history of similar conditions.

Upon referral to Kandou Hospital for further evaluation and management, a comprehensive physical examination was performed. The patient's vital signs were within normal limits, and his pain was assessed using the Visual Analog Scale (VAS), which yielded a score of 2. His functional status was excellent, with a Karnofsky performance status score of 90%. General physical examination findings were unremarkable.

Local examination of the left buccal region revealed a 12x8 cm mass with well-defined borders. The mass appeared friable and exhibited signs of sloughing, with blood, pus, and necrotic tissue present. No significant lymphadenopathy was detected. Histopathological examination of a biopsy taken in February 2024 demonstrated the presence of numerous mature squamous epithelial cells, with some exhibiting mild atypia. Inflammatory cells and anucleate squame cells were also observed, leading to a diagnosis of squamous cell carcinoma.

Given the patient's age, comorbid conditions, and the local extent of the tumor, a multidisciplinary team decided to proceed with TACI as the primary treatment modality. The procedure involved the selective infusion of chemotherapeutic agents directly into the arterial supply of the tumor. Specifically, docetaxel (29.8 mg), cisplatin (22.35 mg), and 5-fluorouracil (223.5 mg) were dissolved in 20 cc of 0.9% sodium chloride and administered over approximately 45 minutes. The procedure was conducted with the aid of a diagnostic catheter and guide wire, ensuring precise delivery of the chemotherapeutic agents. The femoral artery sheath was affixed, and careful hemostasis was achieved post-procedure. The patient tolerated the procedure well, with minimal complications.

Figure 1. Clinical view of the patient pre TACI

Figure 2. Clinical view post TACI. (Left) One month post TACI I; (Middle) One month post TACI II; (Right) One month post TACI III.

In follow-up evaluations, the patient showed a notable reduction in tumor size and improved symptomatology. His overall quality of life was maintained, and there were no significant adverse effects from the treatment. This case highlights the potential of TACI as an effective and minimally invasive treatment option for patients with buccal squamous cell carcinoma, particularly in those with contraindications to extensive surgical interventions.

DISCUSSION

Transcatheter arterial chemo infusion (TACI) is a minimally invasive procedure that delivers high concentrations of chemotherapeutic agents directly to the tumor site via the arterial supply. This targeted approach aims to maximize the therapeutic effect while minimizing systemic toxicity.[2] In the case of buccal squamous cell carcinoma (BSCC), TACI can be particularly beneficial due to the aggressive nature of the tumor and its tendency for local invasion and recurrence.[3] Buccal squamous cell carcinoma is a common malignancy in the oral cavity, often associated with risk factors such as tobacco chewing, betel quid chewing, and alcohol consumption.[4,5] The case presented involves a patient with a significant history of these risk factors, leading to the development of a large ulcerative lesion in the buccal mucosa. The application of TACI in this context aims to reduce tumor burden and improve the patient's quality of life.[6]

The management of buccal squamous cell carcinoma (BSCC) presents significant challenges, particularly in elderly patients with comorbid conditions. The case of the 84-year-old male patient highlights the potential benefits of Transarterial Chemo Infusion (TACI) as a minimally invasive treatment modality for BSCC. In this case, TACI was chosen due to the patient's advanced age, comorbid conditions, and refusal of extensive surgical intervention. TACI involves the targeted delivery of chemotherapeutic agents directly into the arterial supply of the tumor, allowing for high local concentrations of the drugs with reduced systemic exposure.[7] The use of docetaxel, cisplatin, and 5-fluorouracil in TACI showed significant efficacy, resulting in notable tumor size reduction and symptom improvement while maintaining a good quality of life for the patient. This aligns with previous studies demonstrating the effectiveness of intra-arterial chemotherapy in head and neck cancers.[8] Poedjomartono et al[9] have demonstrated in their study

that TACI combined with radiation therapy in patients with SCC of the tongue has demonstrated its potency as an efficient and effective palliative therapy, but TACI is not the primary method for managing SCC of the tongue. The other study, TACI using an EML emulsion can be considered as the pne of therapeutic options for the treatment of intermediate-stage HCC.[10]

This case supports the potential for the broader application of TACI in the treatment of BSCC, especially for patients who are not suitable candidates for surgery or radiotherapy. Given the positive outcomes observed, further research and clinical trials are warranted to establish standardized protocols and to evaluate the long-term benefits and survival outcomes associated with TACI in BSCC. While TACI offers a promising alternative to conventional treatments, it is important to consider its limitations. The procedure requires specialized equipment and expertise, which may not be readily available in all healthcare settings. Additionally, patient selection is crucial, as the benefits of TACI may vary based on individual tumor characteristics and patient comorbidities.

CONCLUSION

Transcatheter arterial chemo infusion (TACI) represents a viable and effective treatment option for buccal squamous cell carcinoma (BSCC), providing targeted therapy with minimal systemic toxicity. The positive response observed in this case highlights the need for further investigation and integration of TACI into the treatment landscape for BSCC.

Conflict of Interest

There is no conflict of interest in this study.

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