



## Cetuximab-Induced Acneiform Eruption: A Case Report

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### ABSTRACT

Epidermal growth factor receptor (EGFR) monoclonal antibody inhibitors are used to treat metastatic colorectal cancers. Cetuximab, an EGFR inhibitor drug, targets specific molecular pathways and does not cause the severe systemic side effects seen in cytotoxic chemotherapy. Herein, we presented a case who developed acneiform eruptions during cetuximab treatment.

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### Introduction

Colorectal cancer is the third most common cancer globally.<sup>1</sup> About a quarter of them are metastatic at diagnosis, and metastasis develops in 40-50% of early-stage cancers.<sup>2</sup> Epidermal growth factor receptor (EGFR) monoclonal antibody inhibitors are used to treat metastatic colorectal cancer without Ras mutation and are reported to prolong patient survival.<sup>1</sup> Cetuximab is an EGFR inhibitor drug used to treat metastatic colorectal, head and neck cancers. Since EGFR inhibitors target specific molecular pathways, they do not cause systemic severe side effects seen in cytotoxic chemotherapy and have less systemic toxicity than traditional antineoplastic agents.<sup>3</sup> Cutaneous side effects have been reported frequently during cetuximab treatment.<sup>4</sup> Acneiform eruptions, one of the severe side effects of cetuximab treatment, are usually reversible but rarely lead to dose reduction or discontinuation.<sup>5</sup> We presented a case with cetuximab-induced acneiform eruption.

### Case Report

A 54-year-old male patient without known comorbid disease was undergone an emergency operation due to colonic obstruction in March 2020 and was diagnosed with colon adenocarcinoma after a left hemicolectomy operation. The systemic evaluation at the diagnosis revealed multiple liver metastases. Because the patient did not have K-ras/nras/braf mutations, mFOLFOX (folinic acid + fluorouracil + oxaliplatin) plus cetuximab was started in April 2020. The patient, who had no history of rash (acneiform) and had not used systemic steroids recently, developed pruritic papules and pustular lesions on the nose and sides of the nose and in the nasolabial grooves after the ninth cycle of chemotherapy (Picture 1). We observed no pathology in evaluating the skin and mucosa of the whole body, except for the lesions. Comedones did not accompany the lesions. Laboratory examinations were unremarkable. The patient was diagnosed with cetuximab-



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**Picture 1.** Papules and pustules on the erythematous ground on and around the nose.



**Picture 2.** Response after treatment.

induced acneiform eruption based on the current clinical findings. We applied clindamycin and 10% sodium sulfacetamide cream once a day and recommended protection from sunlight. On the seventh day of the treatment, the skin lesions regressed almost wholly (*Picture 2*), we continued his treatment at the current dose. In the outpatient follow-ups, there was no recurrence.

## Discussion

Cetuximab is a chimeric (mouse/human) monoclonal antibody administered by intravenous infusion, which binds to EGFR and inhibits it.<sup>3</sup> It was first approved by FDA in 2009 for the treatment of metastatic colon cancer without K-ras mutation after it was found to be ineffective in patients with

colon cancer with K-ras mutation. This is the first genetic test to be included in the management of cancer treatment.<sup>3</sup> Cetuximab's mechanism of action is to inhibit tumor proliferation by inhibiting EGFR, but besides this effect, it also inhibits the EGFR pathway in the skin, causing various dermatological side effects by impairing keratinocyte proliferation, differentiation, and hair follicle development.<sup>6</sup> Although systemic side effects are rare in patients using cetuximab, the frequency of cutaneous side effects has increased.<sup>3</sup> Among these dermatological side effects associated with EGFR inhibitors, the acneiform eruption is the most common and the earliest.<sup>1</sup> Papulopustular rash, nail and hair disorder, xerosis, telangiectasia, hyperpigmentation, seborrheic dermatitis are other cutaneous side effects.<sup>1</sup> Acneiform lesions

are usually seen on the face, scalp, trunk, and upper back. Unlike acne, comedones are not seen. In mild cases, topical metronidazole, clindamycin, salicylic acid; Systemic tetracyclines can be used in moderate and severe cases.<sup>4</sup> It is recommended that patients be protected from sunlight during cetuximab treatment and up to 2 months after the end of treatment, and sunscreens are recommended.<sup>7</sup>

In conclusion, it should be kept in mind that skin rashes developing in patients using cetuximab may be related to treatment. Recognition and treatment of lesions are necessary for the patient to continue cetuximab therapy.

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### **Conflict of interest**

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Authors' Contribution**

Study Conception: SOO, BG; Study Design: SOO, BG; Supervision: TE; Materials: BG, SOO; Data Collection and/or Processing: BG; Statistical Analysis and/or Data Interpretation: TE; Literature Review: BG; Manuscript Preparation: BG, SOO; Critical Review: TE.

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