

## Periorbital Dermatitis from EGFR Tyrosine Kinase Inhibitor

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Received 1 December 2023 • Revised 10 December 2023 • Accepted 20 December 2023 • Published on line 1 January 2024

### Abstract:

A 56-year-old woman with EGFR mutation metastatic adenocarcinoma presented with bilateral eyelid inflammation, itching and persistent tearing for 2 months. She had been taking erlotinib 150 mg/day 10 months for lung cancer. She also had pruritic facial rash on both eyebrow area. She was initially diagnosed periorbital dermatitis induced by erlotinib and the drug was discontinued with supportive treatment. After one month, she had complete resolution of eye and skin problem. This was uncommon but quite newly recognized adverse events of erlotinib. The differential diagnosis includes allergic conjunctivitis and infection. Physicians in charge should ask for history of regular medicine and having thorough physical examination of other systems in order to make early diagnosis and management.

**Keywords:** Tyrosine kinase inhibitor, Non-small cell lung cancer, Periorbital dermatitis

### Introduction

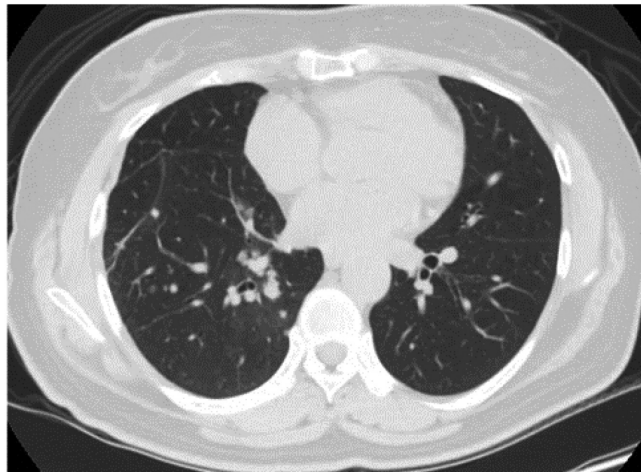
Targeted therapy has increasing role in treatment of many types of malignancy. EGFR (Epidermal growth factor receptor) tyrosine kinase inhibitor (TKI) is one of most common use drug for advanced NSCLC (non-small cell lung cancer) patients who have EGFR mutation. It is easier to take by oral and has no serious bone marrow suppression in contrary to intravenous chemotherapy. The common adverse effects are skin and gastrointestinal effects such as dermatitis, skin rash and diarrhea. Because of periorbital dermatitis is less common than skin rash but the patients can present with symptoms similar to conjunctivitis and may be misdiagnosed with allergy or infection and received delayed appropriate treatment.

### Case Presentation

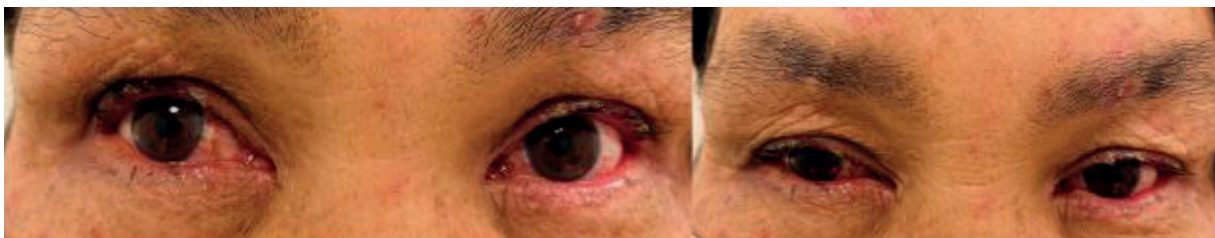
A 56-year-old non-smoking woman underlying type 2 DM for 10 years, hypertension and dyslipidemia living in Chiang Rai was diagnosed NSCLC (adenocarcinoma) staging cT3N0M0. She initially received neoadjuvant chemotherapy (carboplatin and paclitaxel) 4 cycles and underwent RUL lobectomy with wedge resection RLL in March 2022, staging pT3N0M0. She was doing well after surgery. CT scan chest during follow-up in December 2022 showed multiple various size nodules scattering at both lungs with right lung predominance, size up to 1.5 cm (Figure 1). She was subsequently diagnosed recurrence metastatic lung cancer and had received EGFR-TKI, erlotinib 150 mg/day because of positive

EGFR mutation (exon19 deletion) since January 2023. She came in Chemotherapy Clinic of MFU Medical center hospital because of changing UC status in September 2023. At that time, she was doing well with no chest symptoms except having mild skin itching. She later developed bilateral eyelid dermatitis with ectropion, eye irritation, epiphora and sticky tear for 2 months. She had no vision impairment. There was also erythematous rash on eyebrow (Figure 2).

With history of erlotinib treatment, she was initially diagnosed erlotinib induced periorbital dermatitis. So, erlotinib was discontinued for 1 month and received cetirizine 1×1 and prednisolone (5 mg) 1×3 for 5 days. Follow up 1 month later, she had complete resolution of periorbital dermatitis with no symptom of eye irritation and also facial rash (Figure 3). She was subsequently planned for switching from erlotinib to gefitinib 250 mg 1×1.



**Figure 1** CT scan of chest show multiple various size nodules scattering at both lungs with right lung predominance, size up to 1.5 cm, possibly lung metastases



**Figure 2** showed periorbital dermatitis with injected conjunctiva, ectropion and epiphora. There was also erythematous rash on eyebrow



**Figure 3** showed resolution of periorbital inflammation and skin rash on eyebrow after discontinuation of erlotinib for one month

## Discussion

EGFR-TKIs have increasing role and now are the standard of care in advanced NSCLC with EGFR mutation.<sup>1</sup> Skin and GI tract are common adverse side effects of EGFR-TKIs because EGFR plays an important role in maintaining normal epithelial cells. Thus, EGFR-TKIs may interrupt keratinocyte growth, migration, and chemokine expression, leading to inflammation and skin toxicity.<sup>2</sup> Periorbital rash resulting in bilateral lower eyelid ectropion associated with epiphora is a recently recognized side effect of erlotinib that was completely reversible with discontinuation of the drug. The rash and ectropion should be treated palliatively, and surgical intervention should be avoided unless the patient cannot be removed from treatment.<sup>3</sup> Although ocular complications with erlotinib are usually encountered early in treatment, it should be kept in mind that erlotinib-related ocular complications may also arise with long-term use, and may occur up to 3 years after treatment.<sup>4</sup> Physicians in charge should ask the patients about the underlying disease and current medication. Early recognition of cutaneous and ocular adverse events of targeted therapies should be kept in mind for patients who taking EGFR-TKIs.<sup>5</sup>

## References

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