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Case Report

# Erlotinib Induced Trichomegaly-Case Report and Literature Review

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## ABSTRACT

Lung cancer is a leading cause of cancer-associated mortality worldwide. Targeted therapy has been developed and is widely used for the treatment of Non-Small Cell Lung Cancer (NSCLC), particularly in patients harboring an activating Epidermal Growth Factor Receptor (EGFR) mutation. Erlotinib is a Tyrosine Kinase Inhibitor (TKI) used in the treatment of advanced Non-Small Cell Lung cancer (NSCLC) which harbors the Epidermal Growth Factor Receptor (EGFR) mutation. Impressive responses have been seen after the introduction of this molecule and it is currently the standard of care in patients with EGFR mutations. Common side effects include skin rash, mucositis, and diarrhoea. Recent reports demonstrate that medications that act on the Epithelial Growth Factor Receptor (EGFR) may induce trichomegaly. Erlotinib induced Trichomegaly is a relatively rare and peculiar side effect of this drug. Here we report a case of advanced NSCLC on Erlotinib with trichomegaly and literature review.

**Keywords:** Lung cancer; EGFR; Trichomegaly; Progression-free survival

## CASE REPORT

A 60year-old non-smoker was diagnosed with Stage IV Adenocarcinoma lung with metastases (pleural effusion and skeletal). Tissue analysis was positive for EGFR mutation (Exon 19 deletion). He did not mention any other comorbidities and drug intake. He started on Tab. Erlotinib 150 mg per day. The periodic evaluation was suggestive of clinical and radiologic response. He complained of excessive growth of eyelashes after the 6th month of Erlotinib. A diagnosis of Erlotinib induced Trichomegaly was made after other causes were ruled out (Figure 1). He needed no intervention as he was asymptomatic and Erlotinib was continued at the same dose and he had progressive disease after 16 months of Erlotinib therapy [1-4].

## DISCUSSION AND LITERATURE REVIEW

Trichomegaly is the excessive growth of eyelashes and eyebrows. Eyelash trichomegaly, which was first identified by Gray H [5] in 1944, is characterized by the increased length, thickness, stiffness, curling and pigmentation of the eyelashes.

EGFR TKIassociated eyelash trichomegaly has been rarely reported and its incidence remains unknown [4]. Trichomegaly caused by erlotinib inhibition can be explained by EGFR inhibition causing keratin gene expression dysregulation, contributing to terminal differentiation of the epithelial cells of the hair follicle It is excessive growth and thickening of eyelashes [6,7]. Erlotinibassociated eyelash trichomegaly has been reported only in a small number of case reports [3,4,8,9] to the best of our knowledge this is the second case report of erlotinib induced trichomegaly from India.

The exact pathogenesis of these symptoms associated with Erlotinib largely unknown [6]. Vergou T et al. proposed in their paper that systemic inhibition of EGFR with erlotinib not only affect the apoptosis and proliferation of cancerous cells but also affect the progression of the hair follicle from the anagen phase to the telogen phase [10] which leads to an aberrant anagen phase and subsequently to abnormal hair growth,which can stimulate the formation of disorganized hair follicle [10], this observation in literature led to several interesting facts, patients who manifested trichomegaly also exhibited poor Progression-Free Survival (PFS) (3-7 months), and disease progression occurred after 1-3 months of trichomegaly. Therefore, eyelash trichomegaly may correlate with the resistance of lung cancer to EGFR inhibitors [11,12]. Our case had PFS 16 months.

Though trichomegaly is not a drug limiting adverse event, it can produce problem with vision and has been reported to cause

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corneal problems including erosion, ulceration, irritation, and infection.

Trimming and epilation of the elongated eyelashes are the most common and safe therapeutic options used by patients experiencing drug-associated eyelash trichomegaly [13].

**Figure 1:** Trichomegaly on erlotinib after 6 months.

## CONCLUSION

In conclusion, trichomegaly is a rare, EGFR TKIassociated effect. Oncologists should be aware of this potential sequela, for which referral to an ophthalmologist or dermatologist may be helpful. Though the literature suggests Trichomegaly is a negatively predicted variable, still need to be evaluated in large prospective trails.

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