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CASE REPORT

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Vaping-Associated Dermatitis and Reversible Airway Obstruction in a Non-Atopic Adult

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ABSTRACT

We present a case of a 42-year-old non-atopic male who developed pruritic rashes and reversible airway obstruction after initiating daily e-cigarette use. Symptoms included cutaneous eruptions and asthma-like respiratory complaints, with objective evidence of bronchial reversibility. This highlights vaping's potential to trigger systemic hypersensitivity and new-onset airway reactivity. Clinicians should consider vaping as a possible cause in patients with unexplained rashes and respiratory symptoms, even in the absence of prior atopy.

Keywords: electronic cigarettes, vape-related illness, hypersensitivity, dermatitis, bronchial hyperreactivity, airway obstruction

INTRODUCTION

Electronic cigarette (e-cigarette) use has grown as an alternative to traditional tobacco smoking and is often perceived as a safer option.[1-3] However, emerging reports suggest that vaping may trigger systemic hypersensitivity reactions and respiratory complications, even in non-atopic individuals.[4-6] This case presents a rare occurrence of vaping-associated dermatitis coupled with reversible airflow obstruction in a previously healthy adult.

CASE

We report the case of a 42-year-old male from Caloocan City with a 30-pack-year smoking history man who transitioned to daily e-cigarette use three months prior to symptom onset. Five weeks after initiating vaping, the patient developed gradually progressive pruritic maculopapular rashes over the anterior neck and upper extremities, unaccompanied by fever, dyspnea, or systemic symptoms (Figure 1). Self-medication with topical corticosteroids provided only partial relief. Two weeks later, respiratory symptoms including nasal congestion, rhinorrhea, productive cough, and wheezing emerged. Physical examination revealed excoriated rashes, boggy turbinates with purulent discharge, and wheezing with rhonchi predominantly on the right lower lung field. Peak expiratory flow rate (PEFR) was significantly reduced at 49% of predicted baseline, with a post-bronchodilator reversibility of 13%. Repeat PEFR one week later showed a 45% reversibility, consistent with reactive airway disease (Table 1). Chest radiograph showed linear fibrosis versus subsegmental atelectasis of the left lower lung (Table 2). Laboratory tests revealed anemia and elevated CRP, but no eosinophilia (Table 3).

DISCUSSION

This case illustrates the possibility of e-cigarette use inducing both dermatologic and respiratory manifestations, suggestive of a systemic hypersensitivity reaction.

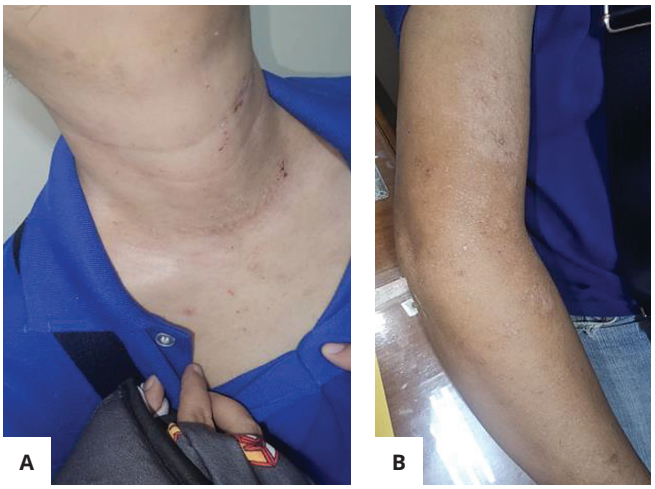

Figure 1. Scattered linear excoriations; blanching, non-coalescing, non-tender, pruritic maculopapular rashes surrounded by hypopigmented patches on anterior neck **(A)** and both upper extremities **(B)** showing right arm only.

The absence of atopic history or prior respiratory disease emphasizes the potential of vaping to incite new-onset inflammatory pathways in susceptible individuals. The presence of reversible airway obstruction raises concerns about vaping as a trigger for asthma-like airway reactivity, even in non-asthmatic patients. The concurrent dermatologic and respiratory findings support a systemic response rather than isolated organ involvement.

CONCLUSION

Clinicians should be aware of the emerging spectrum of vaping-associated illnesses, including cutaneous hypersensitivity and reversible airway obstruction. E-cigarette use should be actively inquired about in patients presenting with unexplained rashes or new-onset respiratory symptoms, particularly in those without prior atopic history. Further studies are warranted to establish causality and clarify the immunologic mechanisms involved.

Table 1. Peak flow rate (PEFR)

PEFR 12/2/24	Expected PEFR: 630 L/min Pre-short-acting bronchodilator (SABA): 310 L/min (49% of expected) Post-SABA: 350 L/min Reversibility: 13%
PEFR 12/9/24	Expected PEFR: 630 L/min Personal best: 450 L/min (71% of expected) Reversibility: 45%

Table 2. Other diagnostic findings

CRP	28.58
Chest x-ray	Linear fibrosis vs subsegmental atelectasis, left lower lung field

Table 3. CBC with platelet count

Hemoglobin	107
Hematocrit	0.36
Platelet	315
WBC	7.96
Monocytes	0.07
Segmenters	0.69
Lymphocytes	0.24
Eosinophils	0.04

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Ethical Consideration
The authors acknowledge the importance of obtaining informed consent prior to the publication of any patient-related information. In this case, every reasonable effort was made to contact the patient to secure written consent. Several attempts were made to reach the patient via the provided mobile number through both calls and text messages, but no response was received. The patient had no identifiable or active presence on social media platforms, and a personal visit to the address listed in the medical record was also unsuccessful.

Despite these diligent efforts, the authors were unable to establish contact with the patient. Nevertheless, great care has been taken to ensure that all potentially identifiable information has been removed and that the patient's privacy and confidentiality are fully protected in the preparation of this report.

Statement of Authorship
The authors certified fulfillment of the ICMJE authorship criteria.

Author Disclosure
The authors declared no conflict of interest.

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