

## Case Report: Facial Mask Induced Acne (“Maskne”)

Gabriel Meister<sup>1</sup>, James Espinosa<sup>2,\*</sup>, Alan Lucerna<sup>3</sup>

<sup>1</sup>Clinical Preceptor, Temple University School of Pharmacy, Philadelphia, PA, USA

<sup>2</sup>Department of Emergency Medicine, Jefferson NJ, Stratford, NJ USA

<sup>3</sup>Alan Lucerna DO, Program Director, Emergency Medicine Residency, Department of Emergency Medicine, Rowan University SOM, Jefferson Health New Jersey, Stratford, NJ, USA

### ABSTRACT

A 42-year-old male health care worker presented with complaints of severe mask-related acne vulgaris predominately to the cheeks, chin and nose. Mask-related acne and acne-like eruptions have been referred to as “maskne” in the lay press and on social media. The patient stated that his current position required the use of an N95 respirator to be worn throughout his shifts. His shift lengths ranged from 9-14 hours, 6 days per week. N95 and surgical facial mask use has been a requirement for many occupations during the COVID-19 pandemic. The acne vulgaris onset began after the use of the mask. The acne would improve on vacations and time away from work and would recur within hours of returning to work with associated mask use. Extended daily use of such masks may lead to changes in the skin which can induce irritation and precipitate infection. This has been called “maskne” in the lay press.

**Keywords:** Maskne, Mask-induced acne, acne vulgaris, healthcare workers and COVID-19

### INTRODUCTION

A survey found that about 50 percent of patients who used facial masks experienced pruritus and erythema, with longer times of face mask or goggle use associated with two times higher odds of skin damage [1].

Mask-related acne has been referred to as “maskne” in the lay press and on social media [2]. Several factors have been discussed during the pandemic to explain the causality of increased facial acne amongst health care workers. Possible mechanisms of maskne include follicular plugging from trapped oils and altered skin flora subsequent to prolonged cutaneous occlusion [2].

### CASE PRESENTATION

A 42-year-old male health care worker presented with complaints of severe mask-related acne vulgaris predominately to the cheeks, chin and nose. His work required the use of an N95 respirator to be worn throughout his shifts, which ranged in length from 9-14 hours, 6 days per week. The patient stated that prior to his mask use he had a pre-existing

### Vol No: 08, Issue: 05

Received Date: June 24, 2023

Published Date: July 15, 2023

### \*Corresponding Author

**James Espinosa MD**

Department of Emergency Medicine, Rowan University SOM/Jefferson, 18 East Laurel Road, Stratford, NJ 08084, USA

**E-mail:** jim010@aol.com

**Citation:** Meister G, Espinosa J, Lucerna A. (2023). Case Report: Facial Mask Induced Acne (“Maskne”). Mathews J Emergency Med. 8(5):65.

**Copyright:** Meister G, et al. © (2023). This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

diagnosis of recurring acne vulgaris usually treated with a 2-4 week course of Doxycycline 100 mg twice daily. Upon remission they were then well-controlled, with occasional re-occurrence, through the use of over-the-counter products and sparing use of a topical retinoid. He had no episodes of acne vulgaris for several years prior to the mask use. Since mask use patient states that flares of erythema and acneiform eruptions were refractory to the use of over-the-counter benzoyl peroxide 10% cleanser, adapalene gel 0.1% and bi-weekly applications of tretinoin 0.05% cream. The acne would improve on vacations and time away from work and would recur within hours of returning to work with associated mask use. A periodic four week course of Doxycycline 100 mg bid improved the acne.

## DISCUSSION

FFP2/KN95 masks are greater risk factors for the development of acne than surgical masks because of their higher humidity, occlusion, and temperature [2]. Skin microbiota is influenced by genetic and external factors such as environment, pH, and temperature, all of which are modified with mask-wearing and retention of biofluids [3]. Mask-wearing potentially introduces a “new” intertriginous area which is susceptible to similar infections, in particular with microbial communities like *Staphylococcus* and *Corynebacterium*, which favor moist regions [3,4]. N95 respirator and surgical masks are associated with transepidermal water loss (TEWL) and increased sebum production in the area covered by the mask. These changes persisted even after mask removal in the case of N95 respirators [4]. This has been called “maskne” in the lay press.

Suggested general preventive measures include 1) daily changing of masks; 2) avoidance of occlusive substances like oil- or petrolatum-based emollients or cosmetic products; 3) use of a mild non-soap-based cleanser for facial cleansing; and 4) regular break times with removal of masks for 15 minutes every four hours in a socially distant space, such as outdoors or in one’s own car [5].

Since specific guidelines for the treatment of “maskne” do not exist, instructions are taken from acne vulgaris therapies [6]. Mild acne should be treated with topical products; a combination of topical agents or an association between topical and systemic therapies is suggested for moderate acne, while severe forms usually require both systemic and topical therapies [7].

Systemic antibiotic use can be considered in patients presenting with severe mask induced acne refractory to the use of multiple topical agents. Oral antibiotics improve inflammatory lesions by inhibiting the growth of *C. acnes* within the pilosebaceous units [8].

In order to avoid bacterial resistance, treatments are limited to continuous therapy for three to four months [8].

## CONCLUSIONS

Extended daily use of occlusive masks, such as the N95 respirator, can induce changes in the skin leading to irritation and infection. N95 and surgical facial mask use has been a requirement for many occupations during the COVID-19 pandemic. Newer masks should be designed with the goal of reducing facial infection and eruptions of acne vulgaris.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest. There was no funding for this research.

## REFERENCES

1. Lan J, Song Z, Miao X, Li H, Li Y, Dong L, et al. (2020). Skin damage among health care workers managing coronavirus disease-2019. *J Am Acad Dermatol.* 82(5):1215-1216.
2. Kaul S, Kaur I, Jakhar D. (2021). Facial Mask-related Acne and Acneiform Eruption During the Coronavirus Disease 2019 Pandemic: A Case Series. *J Clin Aesthet Dermatol.* 14(10):32-34.
3. Teo WL. (2021). The “Maskne” microbiome - pathophysiology and therapeutics. *Int J Dermatol.* 60(7):799-809.
4. Hua W, Zuo Y, Wan R, Xiong L, Tang J, Zou L, et al. (2020). Short-term skin reactions following use of N95 respirators and medical masks. *Contact Dermatitis.* 83(2):115-121.
5. American Association of Dermatology. (2022). 9 ways to prevent face-mask skin problems.
6. Teo WL. (2021). Diagnostic and management considerations for “maskne” in the era of COVID-19. *J Am Acad Dermatol.* 84(2):520-521.
7. Zaenglein AL, Pathy AL, Schlosser BJ, Alikhan A, Baldwin HE, Berson DS, et al. (2016). Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol.* 74(5):945-73.e33.

8. Spigariolo CB, Giacalone S, Nazzaro G. (2022). Maskne: The Epidemic within the Pandemic: From Diagnosis to Therapy. *J Clin Med.* 11(3):618.