Severe "Maskne" Scarring: The face of Covid-19 prevention - A case report

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ABSTRACT

Facemask-induced acne, also known as 'Maskne' is a term coined during the Covid-19 pandemic. It is a form of acne mechanica which results from friction between the skin and the fabric used in facemasks. It may present as new onset acne, or exacerbation of existing acne. Acne scars are well known sequelae of inflammatory acne; the most common and more extensively studied type being atrophic scars. Post-acne hypertrophic or keloid scars are less commonly encountered in clinical practice and thus not frequently reported in the literature. They occur predominantly on the trunk, and are more often seen in dark-skinned persons. They have not been reported following 'maskne' in the context of the Covid-19 pandemic. Acne scars add to the burden of disease and are a major cause of the negative psychosocial impact experienced by sufferers. We herein report the case of a 26-year-old military personnel, who developed exacerbation of acne following a period of prolonged use of cloth facemask that resulted in post-maskne hypertrophic scars on the face.

Keywords: Maskne; Covid-19; hypertrophic scar; keloid; acne mechanica; Nigerian

Cicatrices 'Maskne' Sèvére: le Visage de la Prévention du Covid-19 – Un Rapport de Cas

ABSTRAIT

L'acné induite par le masque facial, également connue sous le nom de 'Maskne', est un terme inventé lors de la pandémie de Covid-19. C'est une forme d'acné mécanique qui résulte du frottement entre la peau et le tissu utilisé dans les masques faciaux. Elle peut se présenter sous la forme d'une nouvelle apparition d'acné ou d'une exacerbation d'une acné existante. Les cicatrices d'acné sont des séquelles bien connues de l'acné inflammatoire; le type le plus courant et le plus étudié étant les cicatrices atrophiques. Les cicatrices hypertrophiques ou chéloïdes post-acnéiques sont moins fréquemment rencontrées en pratique clinique et donc peu rapportées dans la littérature.

Ils se produisent principalement sur le tronc et sont plus souvent observés chez les personnes à la peau foncée. Ils n'ont pas été signalés à la suite de 'maskne' dans le cadre de la pandémie de Covid-19. Les cicatrices d'acné s'ajoutent au fardeau de la maladie et sont une cause majeure de l'impact psychosocial négatif subi par les personnes atteintes. Nous rapportons ici le cas d'un militaire de 26 ans, qui a développé une exacerbation de l'acné suite à une période d'utilisation prolongée d'un masque facial en tissu qui a entraîné des cicatrices hypertrophiques post-maskne sur le visage.

Mots clés: Maskne, Covid19, Cicatrice Hypertrophique, chéloïde, l'acné Mécanique, Nigérian

Introduction

Facemask-induced acne, also known as maskne, is a type of acne mechanica (AM), a term coined by Mills and Kligman,[1] who observed local exacerbation of lesions in acne patients from iterative mechanical injury such as friction, pressure, stretching, squeezing and rubbing. These may be caused by clothing articles, sports equipment and occupational activities. The high prevalence of AM in footballers of all ages compared to other sports, which often improved or resolved at the end of the footballing season led to its being called 'football acne.'[2] Acne mechanica has also been reported in musical instrumentalist like violinists and fiddlers.[3–5]

The first major epidemic of the 21st century – severe acute respiratory syndrome (SARS) which originated

from China and spread to over 29 countries disproportionately affected healthcare workers (HCW).[6] Measures to reduce transmission led to the increased and prolonged use of N95 masks, which saw an upsurge of acne in HCWs and led to a report of N95 acne in a hospital in Singapore.[7,8] With the advent of the current pandemic of Covid-19 caused by SARS-CoV-2 a respiratory virus, came the need for not just healthcare workers, but the general population to adopt measures that would prevent/limit the spread of infection. This has resulted in the largely unregulated use of various types of facemasks including homemade reusable cloth masks, and attendant reports of exacerbation or new onset acne called 'maskne'.[9–11]

Acne scars are common sequelae of acne. Hypertrophic/keloid scars present rare forms of post-acne scarring and are considered the most severe forms of acne scarring.[12] However, an extensive literature search did not reveal reports of hypertrophic facial scarring in the context of maskne. This prompted the need to report this case.

Case Report

We report the case of a 26 year old male military officer of Nigerian extraction with a history of mild recurrent acne since adolescence, for which he had never sought treatment. He observed an abnormal breakout of nodulocystic acne on both sides of the lower aspects of his face approximately one month into a six month intensive military training away from his base (Figure 1). He described associated pain and purulent discharge from the lesions which lasted approximately two months before receiving treatment with antibiotics and some injectable medications (names unknown) from a general practitioner. He experienced marked improvement and was subsequently advised to discontinue the use of facemasks.

Prior to traveling for the training, he used cloth facemasks an average of three hours per day. This was increased to approximately ten hours per day at the training camp. There was no change in regular facemasks, which was tightly fitted to the lower aspect of his face (nose, cheeks, mouth and chin) as shown in Figure 2; and used consecutively for two - three days before washing.

Five months after the resolution of the acne lesions, he observed progressive evolution of new bumps in the same area as the previous acne eruptions; these were firmer in consistency, had no discharge but were mildly pruritic. Examination revealed multiple discrete and coalescent firm, shiny, papulonodular lesions in the lower face, particularly around the jaws bilaterally, with underlying indurations, see Figure 3. He denied a personal or family history of hypertrophic scar or keloid formation.

A clinical diagnosis of severe post-maskne hypertrophic scar was made, and treatment with intralesional steroid injection commenced.

Discussion

The regular use of facemasks among the general public beyond their conventional use in healthcare settings has been reported during pandemics such as: the influenza pandemic of 1918-1919; the SARS epidemic of 2002-2004; and the current SARS-Cov-2 pandemic.[13] This has predisposed to an increased number of facemask-induced acne (maskne) both in healthcare workers and in the general population; especially among persons who use them for prolonged periods.[11,14] The index patient had lived with acne for most of his life, but this was of little consequence to him until the onset of the prolonged use of a tight fitting homemade facemask. Occlusive facemasks such as the N95 masks are associated with exacerbation of acne.[7]

Occlusion, heat, friction, and pressure are some of the factors which change the microenvironment of the mask-covered area, leading to maskne. However, the delay in initiating appropriate therapy was definitely contributory to the eventual maskne scarring; this is reported to increase the chances and severity of acne scarring.[15] Factors that predispose to maskne may be potentially amplified in the warm and humid climate of the tropics; especially in developing tropical countries, where there has been an upsurge in the largely unregulated production of cloth facemask following the advent of the Covid-19 pandemic. Most of these masks are made from non-breathable synthetic fabrics like polyester, nylon and spandex, and are often tight-fitting. They thus produce greater occlusion, heat, skin irritation and more intense inflammation, leading to maskne and a greater

propensity to scar formation. Unfortunately, in our index patient who had no personal or family history of keloid/hypertrophic scarring, but is from an at risk race, it resulted in facial hypertrophic scarring, a never before reported disfiguring sequelae of maskne.

Conclusion

Maskne can result in severe facial scars. Ergonomics must be considered in the production of reusable cloth facemasks, and regulated timed breaks should be encouraged for persons who mandatorily have to use facemasks for prolonged periods. Finally, the risk of developing severe facial scarring underscores the need for prompt diagnosis and appropriate treatment of maskne.

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Patient Consent: A signed written consent was obtained from the patient to use his image and details of the history for publication and teaching purposes.

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Figure 1. Severe Nodulocystic 'maskne' lesions

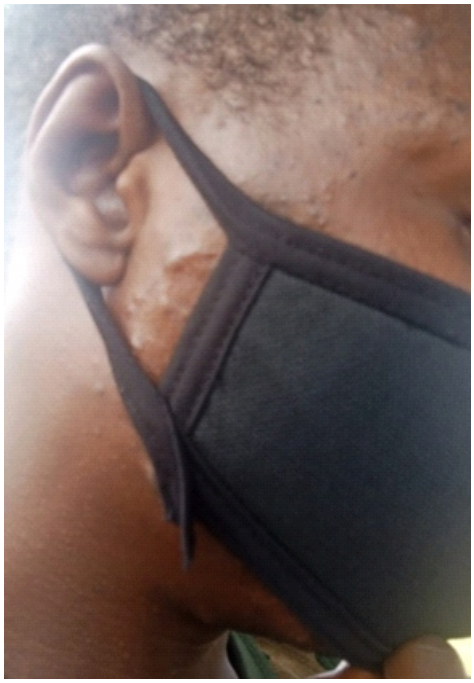

Figure 2. Tight-fitting reusable cloth facemask worn by patient

Figure 3. Maskne-induced hypertrophic scars on the right jaw of patient