

A facial ulcer secondary to a non-invasive ventilation mask in COVID-19 pneumonia

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Sir,

An 83-year-old patient hospitalized in the intensive care unit (ICU) of the pulmonary department for chronic respiratory failure complicated by severe COVID-19 pneumonia with respiratory involvement of 50% of the lungs. The comorbidities included diabetes, uncontrolled hypertension, ischemic heart disease, Parkinson's disease, and bronchial asthma. The patient was unable to maintain adequate arterial oxygen saturation with a face mask and nasal prongs. The attending physician ordered non-invasive ventilation (NIV) and a continuous positive airway pressure (CPAP) mask was applied. On day ten of the patient's ICU stay, his attending physician noticed a grade II cheekbone ulcer.

The patient was put on a paraffin dressing. The evolution was marked five days later by a worsening in the stage of the pressure ulcer, which had become a stage III ulcer and, therefore, our opinion was requested. An examination of the patient revealed a well-adjusted, full-face mask with pressure against the zygomatic bone aggravated by the application of compresses, which further increased the aggression against the bone. A dermatological examination found two necrotic patches on both cheekbones without a peripheral detachment or inflammatory border (Fig. 1). There were no signs of bacterial infection. Upon investigation, the caregivers revealed that the CPAP mask had been left in place for nearly eighteen hours daily without formal monitoring or the inspection of the pressure areas. Fortunately, the patient's condition

began to improve as did her arterial oxygen saturation. The pulmonologist was gradually attempting to remove the patient from NIV. Strict monitoring of the pressure points was recommended and the patient was put on a hydrogel dressing for five days until the necrosis was eliminated, then on a hydrocolloid dressing after the mechanical removal of the remnants of the necrosis and fibrin with good improvement of the ulcer.

The COVID-19 epidemic represents a new challenge for critical care physicians (ICU). In the context of this epidemic, the management of arterial oxygenation during critical care procedures is one of the main challenges for ICU physicians. As an effective means of ensuring satisfactory arterial oxygenation during COVID-19 pneumonia, more than 50% of patients treated in China required non-invasive ventilation (NIV) [1].

During NIV with headgear, ICU nurses should focus on interventions that help to improve the patient's comfort to maximize the acceptability of the device and minimize mask-induced skin irritability [1]. Skin pressure sores secondary to helmet application may be prevented by applying hydrocolloid dressings associated with close monitoring of the patient's tolerance to the pressure exerted by the mask [2].

The development of NIV-related pressure sores is due to a combination of pressure effects and shear forces exerted by the presence of a mask, pressure changes during the different phases of ventilation, and the tension of the mask's strap [3]. The use of oronasal masks and increased time on NIV increases the risk of

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Figure 1: Necrotic eschar spots on both cheekbones without a peripheral detachment or inflammatory border.

pressure ulcer formation, as do patient factors such as age, sensory impairment, chronic skin conditions, and hypotension [4].

Oronasal masks remain the most popular interface, with a European survey revealing that they are the first choice in 70% of cases. The reasons given by respondents for their choice were the reduction of air leakage, patient comfort, and cost [5].

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

REFERENCES

1. Kaur T, Kaur S. A multi-center, cross-sectional study on the prevalence of facial dermatoses induced by mask use in the general public during the COVID-19 pandemic. *Our Dermatol Online.* 2022;13:1-5.
2. Bishopp A, Oakes A, Antoine-Pitterson P, Chakraborty B, Comer D, Mukherjee R. The preventative effect of hydrocolloid dressings on nasal bridge pressure ulceration in acute non-invasive ventilation. *Ulster Med J.* 2019;88:17-20.
3. Yamaguti WP, Moderno EV, Yamashita SY, Gomes TG, Maida AL, Kondo CS, et al. Treatment-related risk factors for development of skin breakdown in subjects with acute respiratory failure undergoing non-invasive ventilation or CPAP. *Respir Care.* 2014;59:1530-6.
4. Visscher MO, White CC, Jones JM, Cahill T, Jones DC, Pan BS. Face masks for noninvasive ventilation: Fit, excess skin hydration, and pressure ulcers. *Respir Care.* 2015;60:1536-47.
5. Nishi N, Sonappa UK, Rajashekar TS, Hanumanthayya K, Kuppaswamy SK. A pilot study assessing the various dermatoses associated with the use of a face mask during the COVID-19 pandemic. *Our Dermatol Online.* 2021;12:349-53.

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