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The Journal of Emergency Medicine, Vol. 62, No. 4, pp. e91–e92, 2022
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0736-4679/$ - see front matter

https://doi.org/10.1016/j.jemermed.2021.12.025

Visual Diagnosis in Emergency Medicine

Pandemic Pinna Injury

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☐ **Keywords—ear injury; surgical mask; pinna injury; auricular injury; COVID-19 pandemic; pressure injury; MDRPI**

Introduction

The coronavirus disease 2019 (COVID-19) pandemic changed the worldwide use of surgical masks and respirators by health care workers and the public. Prolonged use of a mask is now common, with providers and members of the public wearing masks for upwards of 8 h. Prevalence of deleterious effects of mask use is considered very low, with the risk–benefit ratio favoring universal mask use. However, injury to the ear and pinna is a possible adverse effect of prolonged use and should be recognized by physicians and health care providers.

Case Report

A 56-year-old man with a history of cocaine use presented to the Emergency Department (ED) complaining of bilateral ear pain. Due to the COVID-19 pandemic, he wore a surgical mask continually day and night for about a month. He noted that he was unable to remove the mask for the prior 2 to 3 weeks and was complaining of increasing pain to both ears. He denied any ear trauma or fever. On physical examination, he had bilateral swelling at the pinnae superiorly near the junction with the scalp, with erosion of the face mask ear straps through the dermis and cartilage for a length of 2 cm. The superior aspect of each wound had partially healed with granulation tissue, preventing the removal of the ear straps (Figures 1 and 2). The rest of the physical examination was negative. The patient's wounds were anesthetized with lidocaine, the margins and granulation tissue were debrided with a scalpel, and the ear straps were removed. The wounds were then cleansed and closed with a deep layer of suture to reapproximate the damaged cartilage, and the skin was closed with simple interrupted sutures. After consultation with Otolaryngology, he was discharged from the ED with instructions to apply topical bacitracin twice daily and take oral ciprofloxacin twice a day for 5 days.

Discussion

The patient suffered a pandemic pinna injury secondary to prolonged mask use, causing erosion of the ear straps through the full thickness of the pinna, involving the skin and elastic cartilage. Most surgical masks have elastic ear straps that wrap around the pinna, causing pressure to the vulnerable postauricular skin. Injury to the pinna during the pandemic has been described, including minor erosion of the postauricular aspect from prolonged surgical mask wear in a patient admitted to a long-term care facility (1). Long-term use can cause a pressure-related injury to the skin, causing a medical device-related pressure injury (MDRPI) (2). Postauricular dermatitis and contact dermatitis also has been well reported in the literature during the COVID-19 pandemic (3).

Received: 30 October 2021; Final submission received: 8 December 2021;
Accepted: 23 December 2021

Figure 1. Right ear.

Figure 2. Left ear.

Direct trauma from ear straps has been described from a surgical mask being accidentally caught on an object during a fall (4). However, full thickness erosion of the ear straps into the dermis and ear cartilage has never been reported. Our patient was unaware of risk to his skin and a related pressure injury, so he chose to leave the mask in place for several weeks, eating and drinking through the sides, and sleeping with the mask in place. Although warnings about mask exemption in disabled patients exist on the Centers for Disease Control and Prevention website, there are no specific instructions about related pressure injury in either normal or disabled users of surgical masks (5). This patient was free of disabilities and had no psychiatric or mental health diagnosis, suggesting that warnings about pressure-related injury should be more accessible to the public.

High risk factors for adverse skin reactions have been documented when face mask wearing exceeds 4–6 h per day. Encouraging individuals wearing masks for longer than 4 h to take mask-free breaks has been suggested, as well as replacing masks at least daily (6). Other preventative measures to prevent soreness and injury to the pinna include the use of an "ear saver" mask strap by securing the mask ear straps behind the occiput, eliminating any pressure or contact with the pinnae (1,7).

After excision and repair of the pinnae, the patient was discharged on ciprofloxacin. No studies exist that show a definite benefit to antibiotics in pinna injury, though it is suggested that advice from local experts is appropriate when deciding to administer a specific agent (8).

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