Prominent ear deformity is a common abnormality affecting approximately 5% of the population. The majority of cases can be described by two anatomic problems: (1) a poorly defined antihelix and (2) conchal hypertrophy. Although variations are seen in timing of otoplasty, it is increasingly recommended during the preschool period. Intervention at this stage in development is early enough that patients’ ears are still pliable but late enough that auricular growth is near completion and patients are capable of complying with postoperative restrictions. Furthermore, earlier intervention minimizes bullying related to prominent ears as well as associated adverse psychosocial effects. Since the emergence of SARS-CoV-2, the use of surgical masks has become an important public health tool in slowing the spread of the virus. Many institutions, including public schools, require facial coverings to decrease transmission. However, pressure and friction created by ear-looped masks can be problematic for otoplasty patients, given the location of their incision in the postauricular sulcus. With the COVID-19 pandemic still causing widespread effects and the likelihood of continued masking requirements, there is a need to examine the possible detrimental effects of masking on surgical site healing in otoplasty. In this case report, we present a setback otoplasty complicated by late surgical incision dehiscence due to prolonged mask wearing.

CASE REPORT

A 5-year-old girl presented for evaluation of bilateral prominent ear deformity. Physical examination demonstrated bilateral prominent ears with weak antihelical folds and significant conchal hypertrophy, and therefore bilateral setback otoplasty was offered. Her uneventful procedure included postauricular approach, with Furnas sutures in conjunction with Mustarde technique to achieve reduction of enlarged conchal bowls along with antihelix reconstruction, respectively. Operative site dressings and

Pulling Strings: Otoplasty Complicated by Wound Dehiscence in the Setting of Prolonged Mask Wearing

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Summary: Improved understanding of the psychosocial effects of prominent ears has led to increased intervention in early school-aged children. Cartilage-sparing otoplasty procedures are commonly used in this population, given the effectiveness of sutures in remodeling the pliable pediatric ear. In addition to their efficacy, another advantage of these techniques is their low overall complication rates, with complications beyond 3 months being particularly uncommon. We present the clinical case of a 5-year-old female patient who experienced wound dehiscence 9 months after her cartilage-sparing otoplasty. Before experiencing her atypical complication, she had been wearing an ear-looped mask daily to comply with guidelines developed to reduce the transmission of SARS-CoV-2 in schools. The use of masks would previously not have been a concern in this age group, but given the longevity of the COVID-19 pandemic and the importance of masking as a public health tool, this needs to be a consideration for otoplasty patients going forward. Pressure and friction on an immature surgical scar impede healing and expose the patient to increased risk of complications. Therefore, we discuss options for decreasing exposure to COVID-19 and complying with local face-covering policies while avoiding the direct contact associated with traditional ear-looped masks. Additionally, we explore the role permanent suture material may have played in predisposing our patient to mask-related irritation. (Plast Reconstr Surg Glob Open 2022;10:e4144; doi: 10.1097/GOX.0000000000004144; Published online 18 February 2022.)
Barton manner head wrap were maintained for 1 week, and the patient completed a prophylactic 1-week course of cephalexin.

The patient’s initial postoperative appointments (1 week, 4 weeks, and 4 months) demonstrated significant improvement in ear appearance, and no complications were observed. However, 9 months postoperatively, the patient presented with new onset postauricular erythema, pain, and drainage. The parents suspected that these symptoms could be related to daily use of an ear-looped mask required to attend school. On physical examination, a 2-mm area of postauricular dehiscence with surrounding erythema was noted. Seven days later, despite a course of oral amoxicillin-clavulanic acid and wound care, no improvement was noted. In addition, inspection revealed an exposed tail of Mersilene suture surrounded by erythema, edema, and frank drainage (Fig. 1). The extruding suture, suspected to be the infection nidus, was removed and the site was appropriately dressed, with the family instructed to avoid any direct pressure to the postauricular region.

Despite these measures, the right postauricular wound persisted, prompting the decision to take the patient to the operating room for irrigation and debridement. After a tissue culture was first obtained, the wound bed and 10 mm of surrounding skin were sharply debrided and the exposed Mersilene suture was removed. The wound was thoroughly washed with betadine and bacitracin solution and closed primarily. The patient was initially started on an empiric course of cephalexin but transitioned to trimethoprim/sulfamethoxazole when intraoperative cultures grew methicillin-resistant Staphylococcus aureus.

The patient was evaluated 3 weeks after the secondary procedure. The right postauricular site had healed without evidence of infection or wound breakdown (Fig. 2). Notably, no loss of the auricular contour correction was observed. The patient is now 20 months from her original surgical intervention without further complications or deformity recurrence.

**DISCUSSION**

Otoplasty utilizing cartilage-sparing techniques is both effective and safe, with over 95% of patients reporting satisfactory results and an estimated complication rate of just 1.3% in the pediatric population. Infection in particular is considered a rare complication, potentially due to the ear’s robust blood supply. Patients wearing ear-loops mask in the postoperative period, however, are at increased risk of infection. With prolonged mask use, the skin’s natural defenses are compromised, as pressure and friction from the straps lead to erosion of the epidermal barrier. The
irritation caused by ear loops may be further amplified for otoplasty patients due to compression from the postoperative headband used to protect the ears from trauma during the initial healing process.6

Suture material choice is another factor that may have contributed to this patient’s outcome. Suture extrusion and prominence are well-described complications of repair techniques employing nonabsorbable materials such as Mersilene.4 Use of absorbable sutures results in lower rates of these complications but have historically not been favored out of concern that the auricular deformity would recur as the tensile strength of the suture degraded.7 However, research in animal models has demonstrated that the absorbable suture material polydioxanone (PDS) is strong and long-lasting enough to retain cartilaginous folds in position for scar-tissue to form, which ultimately is the key mitigator of long-term shape maintenance.7 PDS has been used to achieve lasting correction in nasal tip reshaping procedures as well as reconstruction of the auricle for microtia.8,9 These findings are supported clinically by observations that patients generally do not experience deformity recurrence when extruded or painful sutures are removed, similar to our patient.7 The extent to which suture prominence predisposed our patient to mask-related irritation is unclear. However, given the frequency of suture extrusion utilizing permanent sutures and the initial promise of PDS in permanent cartilage reshaping, more research is needed to determine its viability for otoplasty procedures.

Otoplasty patients have several options to decrease their exposure to airborne pathogens while also lowering risk of postoperative complications. Masks that do not rely on ear loops are an obvious and attainable solution. If alternative masks are unavailable or unaffordable, multiple methods have been described for modifying an ear loop mask to redistribute the pressure by using common items like a piece of plastic or headband with buttons.10

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REFERENCES
1. Owsley TG, Biggerstaff TG. Otoplasty complications. Oral Maxillofac Surg Clin North Am. 2009;21:105–18, vii.
2. Kajosaari L, Pennanen J, Klockars T. Otoplasty for prominent ears–demographics and surgical timing in different populations. Int J Pediatr Otorhinolaryngol. 2017;100:52–56.
3. Gasques JA, Pereira de Godoy JM, Cruz EM. Psychosocial effects of otoplasty in children with prominent ears. Aesthetic Plast Surg. 2008;32:910–914.
4. Limandjaja GC, Breugem CC, Mink van der Molen AB, et al. Complications of otoplasty: a literature review. J Plast Reconstr Aesthet Surg. 2009;62:19–27.
5. Montero-Vilchez T, Martinez-Lopez A, Cuenca-Barrales C, et al. Impact of gloves and mask use on epidermal barrier function in health care workers. Dermatitis. 2021;32:57–62.
6. Handler EB, Song T, Shih C. Complications of otoplasty. Facial Plast Surg Clin North Am. 2013;21:653–662.
7. Iamphongsai S, Eshraghi Y, Toonchi A, et al. Effect of different suture materials on cartilage reshaping. Aesthet Surg J. 2009;29:93–97.
8. Sakamoto A, Kiyokawa K, Rikimaru H, et al. An investigation of the fixation materials for cartilage frames in microtia. J Plast Reconstr Aesthet Surg. 2012;65:584–589.
9. Lo S, Rowe-Jones J. Suture techniques in nasal tip sculpture: current concepts. J Laryngol Otol. 2007;121:110.
10. Ozkan B, Uysal CA, Ertas NM. Securing posterior auricular incision with button headbands in prominent ear patients wearing surgical masks for self-protection in the pandemic. Aesthetic Plast Surg. 2020;44:1937–1939.