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# Innovative Use of Bull's Eye Shield as an Ear Patch for Post-operative Wound Care in Pediatric Auricular Cut Lacerated Wound: A Novel, Cost-Effective Technique

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## Abstract

**Background:** Cut lacerated wounds (CLW) of the auricle require meticulous repair and adequate post-operative wound protection to prevent infection, hematoma, and wound dehiscence. In pediatric patients, maintaining conventional circumferential head dressings is challenging due to poor compliance, discomfort, and unnecessary coverage of uninvolved areas.

**Case Presentation:** We report a case of a 12-year-old male child with CLW over the left ear, managed with primary suturing using Monocryl 4-0. To overcome difficulties associated with traditional ear dressings, an innovative modification using a bull's eye shield as an ear patch was employed.

**Results:** The bull's eye shield provided targeted wound protection, maintained dressing integrity, improved patient comfort, and minimized exposure, thereby reducing the risk of surgical site infection (SSI). The wound healed uneventfully with good cosmetic outcome.

**Conclusion:** The bull's eye shield ear patch is a simple, inexpensive, and effective alternative to bulky head bandages for post-operative care of auricular wounds, especially in pediatric patients.

## Introduction

Auricular cut lacerated wounds are commonly encountered in emergency and surgical practice, particularly in children and adolescents. Due to the complex anatomy of the ear and its exposed position, optimal wound closure and post-operative care are essential for favorable cosmetic and functional outcomes and are crucial to prevent infection, hematoma, and wound dehiscence.

Conventionally, post-operative ear wounds are managed with bulky circumferential head bandages. However, in pediatric patients, these dressings often result in discomfort, frequent displacement, poor compliance, and unnecessary coverage of the scalp and contralateral ear. Additionally, maintaining hygiene and monitoring the wound becomes difficult.

There is a need for a localized, lightweight, and economical alternative dressing technique that ensures wound protection without compromising patient comfort. We describe a novel and innovative use of a **bull's eye shield secured with an elastic mask string as an ear patch** to address these challenges.

## Case Report

A 13-year-old male presented to the emergency department with a **cut lacerated wound over the left auricle** following accidental trauma. There was no history of loss of consciousness or associated injuries. General and systemic examination was unremarkable.

### Local Examination

- Linear CLW involving the Helix
- No cartilage loss
- Minimal contamination
- No active bleeding

### Procedure

After obtaining informed consent:

- Thorough wound irrigation and aseptic preparation were performed.
- Primary closure was achieved using **Monocryl 4-0 sutures**, ensuring good margin approximation.
- Hemostasis was secured.

### Post-operative Challenge

Post-suturing, the following issues were anticipated:

- Difficulty in maintaining conventional head bandage in a pediatric patient
- Poor tolerance due to bulkiness and heat
- Frequent displacement of dressing
- Unnecessary circumferential coverage of head and contralateral ear
- Increased risk of wound contamination and SSI due to exposure

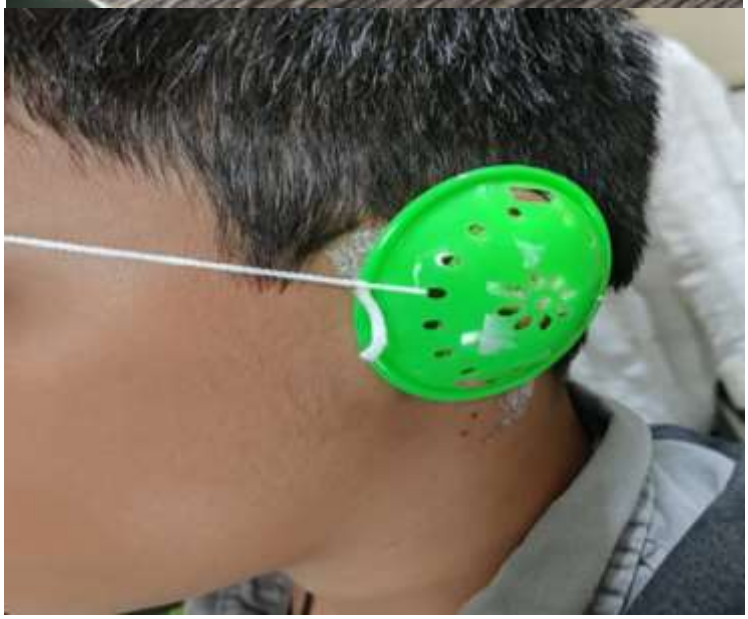
## Innovative Technique: Bull's Eye Shield as Ear Patch

To overcome these limitations, a **bull's eye shield** was innovatively repurposed as a protective ear patch.

### Technique Description

1. A sterile gauze pad was placed directly over the sutured wound.

2. A bull's eye shield was modified and contoured to fit the auricular anatomy.
3. The shield was positioned over the dressing, ensuring:
   - Adequate protection
   - Minimal pressure over the wound
4. The shield was **secured using an elastic mask string**, looped comfortably around the head:
   - Ensuring firm fixation
   - Avoiding circumferential bandaging
   - Allowing easy removal and reapplication



**Advantages of the Technique**

- **Targeted wound coverage** limited to the affected ear
- **Improved patient comfort**, especially in children
- **Better compliance** due to lightweight and non-bulky design
- **Reduced risk of SSI** by minimizing wound exposure
- **Easy wound inspection** without disturbing large dressings

- **Cost-effective** and easily reproducible
- **Avoids unnecessary head bandage**

## Outcome and Follow-Up

- Dressing remained intact throughout the post-operative period
- No signs of infection, hematoma, or wound dehiscence
- Sutures were removed as per protocol
- Excellent cosmetic and functional outcome achieved

## Discussion

Post-operative wound care is a critical determinant of surgical success, particularly in pediatric patients. Traditional head bandages, although effective, are often impractical in children. Innovative repurposing of readily available materials can significantly enhance patient care.

The bull's eye shield, originally designed for protection, serves as an ideal ear patch by offering localized protection, ventilation, and ease of fixation. This technique is especially beneficial in:

- Pediatric auricular lacerations
- Minor ear surgeries
- Resource-limited settings

Such low-cost innovations can reduce patient discomfort, improve compliance, and potentially lower SSI rates.

## Conclusion

The **bull's eye shield ear patch** represents a novel, simple, and economical technique for post-operative management of auricular lacerations. It provides effective wound protection while eliminating the drawbacks of bulky circumferential head dressings. This technique can be safely adopted in routine surgical practice, especially in pediatric patients.

## Patient Consent

Informed consent was obtained from the patient's guardian for the procedure and publication of this case report.

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