How I Do It

Otology and Neurotology

A Specific Issue and Its Solution

# Absorbable Mattress Sutures in the Management of Auricular Hematoma

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## INTRODUCTION

Blunt trauma to the external ear is especially common in wrestlers and boxers. Auricular hematoma after blunt trauma is caused by shearing forces that disrupt the adherence of the perichondrium to the cartilage the subsequent filling of the subperichondrial space with blood.

Most of the hematomas occur in the concavities on the anterior side of the pinna, The anterior skin is closely fixed and firmly adherent to the underlying cartilage; therefore, it will shear off rather than slide over the cartilage The posterior skin is separated from the cartilage by muscle, fat, and areolar tissue and is loosely fixed to the posterior cartilage. It will receive the shearing forces by sliding over, rather than shearing off, the cartilage, However, a tear through the full thickness of the cartilage can produce hemorrhage with the accumulation of blood on both surfaces of the cartilage,

Hematomas deprive the cartilage of nutrients and may result in cartilage necrosis and predispose to infection, Necrosis is especially likely to occur when the perichondrium on both sides of the cartilage is elevated; the risk of infection is increased considerably when the overlying skin is penetrated or lacerated, Disfigurement, the principal complication of auricular hematoma, can result from fibrosis caused by infection, cartilage necrosis, or the incomplete evacuation of clotted blood, The "cauliflower ear" is a well-known conspicuous complication of auricular hematoma. Less obvious deformities, such as permanent swelling at the site of the hematoma, result from the of an clot by fibrous tissue,

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## MANAGEMENT

The goal of treatment is to prevent permanent deformity. The guiding principles should be evacuation of the hematoma, reapposition of the perichondrium to the cartilage, prevention of hematoma recurrence, and avoidance of infection.

### *Evacuation of the Hematoma*

The auricle is prepared in a sterile manner and anesthetized with 1% lidocaine, adrenaline 1:100,000 by infiltrating the skin over the hematoma. The hematoma may be aspirated with a large bore needle. Complete aspiration of the clot is rarely possible, while incomplete aspiration may result in fibrosis and, hence, deformity. In those rare instances in which the patient is seen more than 2 weeks after injury, the hematoma may have liquefied, allowing complete aspiration,

If aspiration fails to remove the hematoma adequately, a small incision should be made to drain the fluid completely. An anterior incision paralleling the natural skin folds may be used. To prevent a visible scar, a posterior skin incision with the removal of a small "window" of cartilage (analogous to cartilage harvesting for tympanoplasty)posterior to the hematoma may be used for drainage.

### *Reappose the Perichondrium to the Cartilage*

Permanent elimination of the dead space after the evacuation of the hematoma is the principal stumbling block in the management of auricular hematomas. Pressure dressings have met with limited success and often necessitate repeated aspirations which enhance the chances for infection. Tie-over dressings using through-and-through sutures over bolsters [1-3] are the mainstay of treatment today. However, an evenly distributed pressure to eliminate the entire dead space is not always possible even with multiple bolsters.

The problem of dead-space elimination is analo-

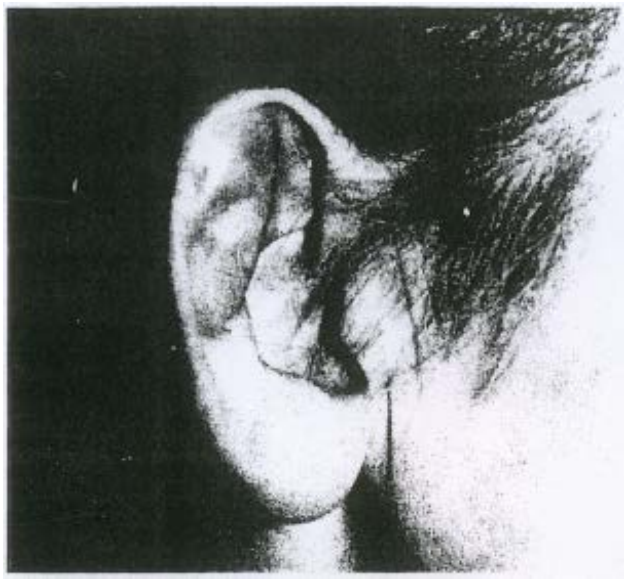

Fig. 1. Auricular hematoma of 3 weeks' standing.

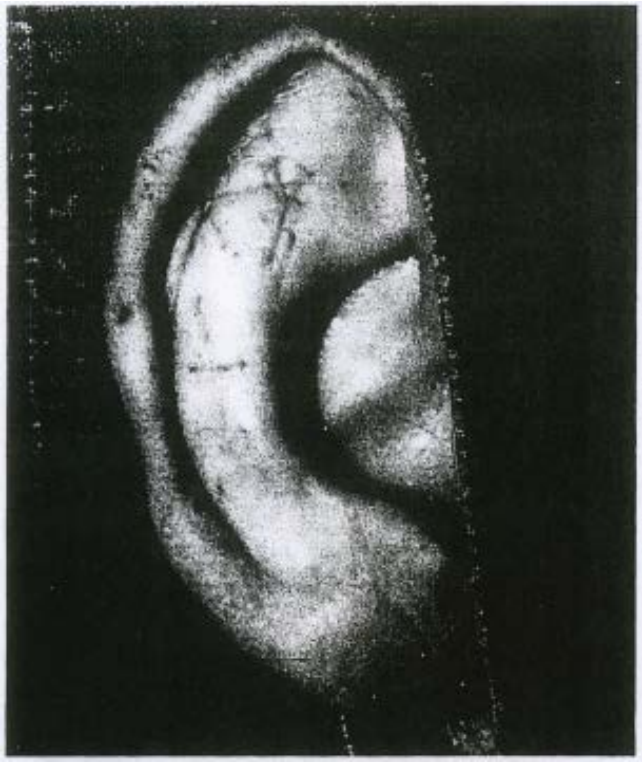

Fig. 2. After evacuation of the hematoma and mattress-suturing of the external ear.

gous to the coaptation of mucoperichondrial flaps after septoplasty. Numerous publications testify to the effectiveness of a continuous mattress suture that obviates the need for nasal packing.[4,5]

The same principle should be applied after the evacuation of an auricular hematoma. A continuous running suture with a straight(-ened) needle through

Fig. 3. Result 10 days after surgery.

the posterior skin, cartilage, and anterior skin in a mattress-like fashion will firmly fix the perichondrium to the cartilage (Figs. 1 through 3). The 4-0 plain catgut used after septoplasty is not appropriate for skin suturing because its disintegration time is too long, causing wound irritation. The use of absorbable sutures for the closure of facial wounds has been suggested by Webster, *et al.*[6] Special fast-absorbing catgut (Ethicon 5-0/1915G) combines rapid dissolution with very little wound irritation. After mattress-suturing the area of the hematoma as described, a large cotton wool bolster tie-over dressing should be applied for 4 days. The necessity of this dressing after mattress-suturing is debatable, but it does not increase the morbidity at all.

### *Avoid Infection*

Infection is best avoided by complete evacuation of the hematoma and obliteration of the resultant dead space. After a sterile procedure, antibiotic ointment is applied to the incision and over the area with the mattress sutures. This is continued for 2 weeks after the tie-over dressing is removed, until the sutures are completely absorbed. After a sterile procedure, systernic antibiotics are not routinely prescribed.

## CONCLUSIONS

The auricular hematoma should be managed by complete evacuation of the hematoma and definite reapposition of the perichondrium to the cartilage to

prevent hematoma recurrence and avoid infection.

For complete evacuation of the hematoma, suction with a large bore needle or anterior or posterior skin incision may be used. Subsequently, we suggest a running mattress suture (analogous to the coaptation of mucoperichondrial flaps after septoplasty) using special fast-absorbing catgut for complete elimination of the dead space. A tie-over dressing may not be necessary.

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## 2nd International Symposium on the Pediatric Airway Set

The Departments of Anesthesiology and Otolaryngology of Children's Hospital of Pittsburgh and the Departments of Anesthesia and Otolaryngology of The Children's Hospital of Philadelphia are sponsoring the 2nd International Symposium on the Pediatric Airway.

The symposium will be November 22-24, at the Vista International Hotel in Pittsburgh.

The symposium will present the state-of-the-art in pediatric airway management and provide a forum for an exchange of ideas among pediatric subspecialists. Topics will include noninvasive monitoring, tracheostomy, laryngeal papillomatosis, tracheal reconstruction, chronic airway obstruction and nasal physiology, among others.

Requests for information and registration should be directed to Lawrence M. Borland, MD, Symposium Chairman, Department Pediatric Anesthesiology & Critical Care Medicine, Children's Hospital of Pittsburgh, 3705 Fifth Avenue at DeSoto Street, Pittsburgh, PA 15213-2583.

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The fellowship would be scheduled as a one-year block of time at the end of the third year of medical school— thus requiring a one-year leave of absence from the medical school curriculum, and be funded in the amount of $10,000, plus up to $3,500 for animals and consumable supplies.

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For more information about this fellowship, please contact Walter A. Petryshyn, M.D., Medical Director, The Deafness Research Foundation, 9 East 38th Street, New York, NY10016.