Comparing Bolstering and Mattress Suturing of Auricular Hematomas: A Systematic Review

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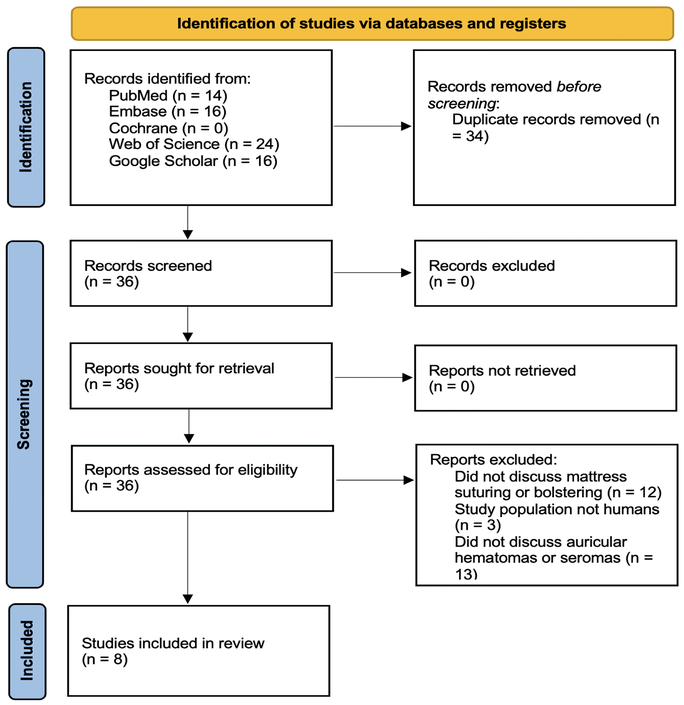
Introduction

- Auricular hematomas are blood collections that form between the tightly adherent anterior ear skin and the auricular cartilage. They are commonly seen after blunt trauma to the ear.
- Treatment involves prompt evacuation of the hematoma via incision and drainage (I&D) or needle aspiration with subsequent placement of a compressive dressing to prevent re-accumulation.
- Delay in treatment or re-accumulation can lead to infection, ischemia, or cartilage necrosis, resulting in permanent cosmetic deformities.
- Traditionally, a bolster dressing sutured into place has been used but an alternative approach involves placing absorbable mattress sutures in a quilting fashion without an accompanying dressing.
- In this study, we examined the literature on bolstering versus mattress suturing. We aimed to determine if one technique has lower re-accumulation rates.

Methods and Materials

- The following databases were searched: PubMed, Embase, Cochrane, Web of Science Core Collection, and Google Scholar.
- Search criteria were crafted to include articles that mentioned either mattress suturing or bolstering, as well as auricular hematoma.
- Studies that did not address auricular hematomas or did not use mattress suturing or bolstering were excluded. Non-human studies were also excluded.

Flow Diagram

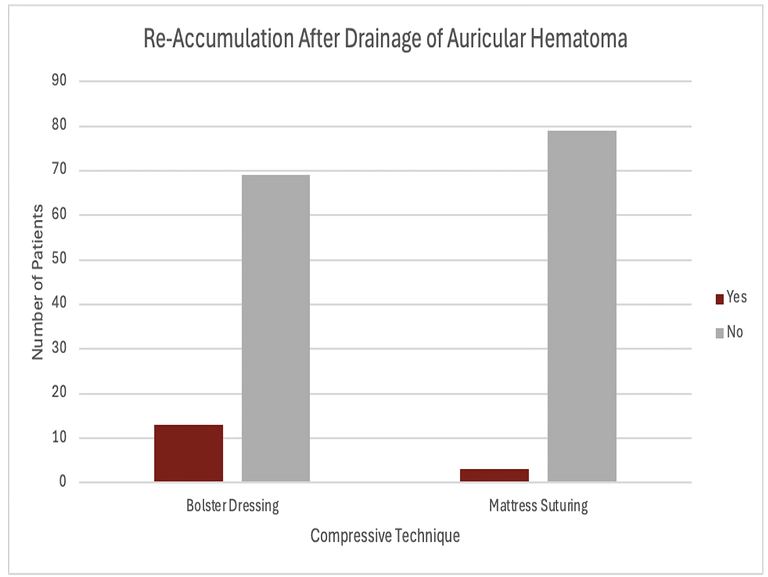


Results

- 36 total articles were found in the databases. Thirty-four duplicates were excluded.
- 12 articles were excluded for not discussing mattress suturing or bolstering. Three more articles were excluded for looking at a non-human population.
- 13 articles were excluded for not mentioning auricular hematomas.
- 8 articles were found to meet final inclusion criteria and were subsequently evaluated for intervention (mattress suturing or bolster dressing), re-accumulation rate, and/or cosmetic deformities.
- No studies directly compared bolster dressing and mattress suturing.
- 82 patients were treated with bolster dressing and 82 patients were treated with mattress suturing.
- In aggregate, 16% of patients treated with bolster dressing experienced re-accumulation of hematoma.
- 3.7% of patients treated with mattress suturing experienced re-accumulation of hematoma.

Source	Intervention	Hematoma Re-Accumulation Rate (n/total n)	Cosmetic Deformity (n/total n)
Dalal et al. (2020)	Bolster Dressing	6/42 (14%)	N/A
Ghanem et al. (2005)	Bolster Dressing	0/10 (0%)	0/1 (0%)
Phillips et al. (2024)	Bolster Dressing	7/30 (23%)	3/28 (11%)
Phillips et al. (2024)	Mattress Suturing	1/4 (25%)	N/A
Giles et al. (2007)	Mattress Suturing	1/19 (5%)	2/19 (11%)
Kakarala et al. (2012)	Mattress Suturing	0/28 (0%)	0/28 (0%)
Roy et al. (2010)	Mattress Suturing	0/8 (0%)	0/6 (0%) 2 with pre-treatment deformity
Shakeel et al. (2015)	Mattress Suturing	1/15 (7%)	N/A
Reddy et al. (2014)	Mattress Suturing	0/8 (0%) at 6-month follow-up	0/8 (0%)

Table 1. Individual Articles Addressing Efficacy of Mattress Suturing or Bolster Dressing.



Graph 1. Aggregate Re-Accumulation Rates After Drainage of Auricular Hematoma.

Figure 1. Mattress Sutures.

Figure 2. Bolster Dressing.

Discussion

- Re-accumulation rates were found to be lower when mattress sutures were used, suggesting a more efficacious treatment.
- Cosmetic results were subjectively reported to be satisfactory for both methods based on patient reports and/or as determined by surgeon evaluation.

Conclusions

- Bolster dressing has proven to be an effective treatment for auricular hematomas. However, it requires patients to return for bolster removal at a follow-up visit.
- Mattress sutures have been shown to be promising with lower rates of recurrence without the need for secondary intervention.
- Additionally, they are a useful alternative if concern for lack of follow-up, as it can be performed with absorbable sutures.
- Further studies directly comparing bolstering vs. mattress suturing are warranted. This includes prospective randomized studies.

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