The comparative anatomy of the ovine middle ear: a model for otological surgical training

David D Pothier

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Introduction

• Practicing temporal bone dissection improves surgical skill
• Human temporal bones are scarce
• Stapedectomy is seldom taught on temporal bone courses
• Performing stapes surgery on patients for the first time is risky
Introduction

• Older studies show trainees have more complications\(^1\)
• Later research shows that this is no longer the case\(^2;3\)
• Good result when case load and training is adequate

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Introduction

• A model for stapes surgery is needed
• Must be easily available
• Must be anatomically similar
Human stapes: length = 2.99 mm, width = 1.41 mm

$\bar{x} = 3.85\text{mm},$  
$(SD = 0.27\text{mm})$
Stapedectomy

- 20 stapedotomies drilled
- Prostheses inserted and removed by each of the three investigators for each stapedotomy
  (60 insertions of prostheses)
Summary

• The ovine middle ear approximates the human middle ear in certain key respects
• Stapedectomy can be easily performed as a training exercise
• Further study of mastoid required
• May be a useful model for ventilation tube insertion, myringoplasty or ossiculoplasty