



## TITLE:

### Effectiveness of exclusive trans-canal endoscopic ear surgery (EES) for treatment of cholesteatoma limited to attic region: A systematic review and meta analysis

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#### ABSTRACT (upto 300 words)

**Background:** Attic cholesteatoma typically destroys the ossicles with the capability of expansion and bone destruction. Nowadays, endoscopic ear surgery (EES) is increasingly being employed in cholesteatoma management as it offers excellent visualization of middle ear structures. Therefore, we aimed to explore the efficacy and safety of EES compared to traditional microscopic ear surgery (MES) in managing cholesteatoma.

**Methods:** We searched Medline, Embase, and CENTRAL for randomized controlled trials that compared (EES) to (MES) for treating attic cholesteatoma. All studies were assessed for risk of bias using the Revised Cochrane Risk of Bias Tool for Randomized trials (RoB 2). The primary outcomes evaluated were the effectiveness of EES on post-operative audiological assessment, operation time, healing time, and incidence of post-operative

complications. Mean difference (MD) and odds ratio (OR) were used to represent the outcomes.

**Results:** A total of 5 RCTs with a total of 451 operated ears were eligible. All studies had a low risk of bias. Based on the meta-analysis it was revealed that patients who undergone EES had a statistically significant lower operation and healing time (MD: -2.18, 95% CI, -5.18 to -0.44,  $P = 0.02$ ,  $I^2 = 98\%$ ) and (MD: -2.53, 95% CI, -4.53 to -0.53,  $P = 0.01$ ,  $I^2 = 93\%$ ) respectively. Moreover, the EES group had a significant reduction in overall post-operative complication rate (MD: 1.60, 95% CI, 1.21 to 2.11,  $P = 0.001$ ,  $I^2 = 5\%$ ). Subgroup analysis showed reduction in the incidence of post-operative pain requiring analgesia in EES group (MD: 2.49, 95% CI, 1.40 to 4.45,  $P = 0.002$ ,  $I^2 = 80\%$ ).

**Conclusions:** EES showed superiority to the MES in terms of operation time, healing



time and overall post-operative complication which supports prior findings. However, no difference was noted regarding post-operative audiological assessment results.

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### **BIOGRAPHY (upto 200 words)**

Dhay Saleh Alrashid is a dedicated and ambitious senior medical student at King Saud bin Abdulaziz University For Health Sciences with a keen interest in research. Recognizing the importance of research in enhancing patient care and outcomes, Dhay actively engages in research activities, seeking to bridge the gap between scientific discoveries and clinical practice.