Impact of Body Mass Index on the Surgical Efficiency of Tympanoplasty and Tympanomastoidectomy Procedures

College of Medicine

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Time is Money: BMI Matters in the OR

Complications in **anesthesia, positioning, exposure,** and **closure** add time.[1,2]

Higher BMI = **longer operative and perioperative times for identical procedures**[3,4]

Increased OR time costs ($**46/hour**)!![5]

Obesity affects **~40%** of American adults[6]

Hypothesis

Increasing body mass index (BMI) is associated with both prolonged operative and non-operative procedure times in common otologic procedures.

Methods

Design: Retrospective chart review, 2008–2023.

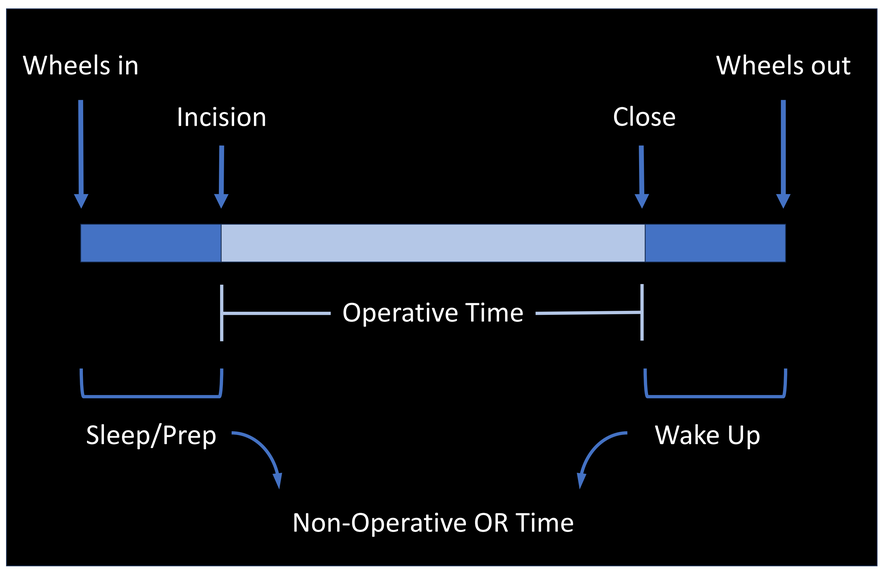
Procedures: Tympanoplasty (n=1104), Tympanomastoidectomy (n=1002).

BMI Groups: Underweight (<18.5), Normal (18.5–24.9), Overweight (25–29.9), Obese I (30–34.9), Obese II (35–39.9), Obese III (≥40).

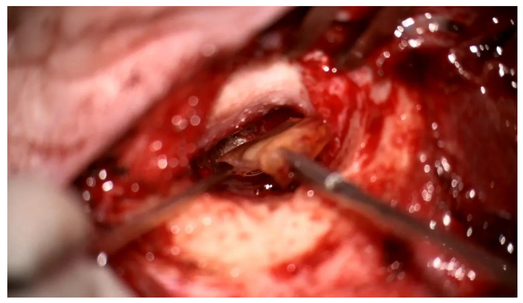
Time Definitions:
Operative time = incision → closure
Non-operative time = total OR time − operative time

Analysis: ANOVA and regression models.

Figure 1. Surgical time classifications.

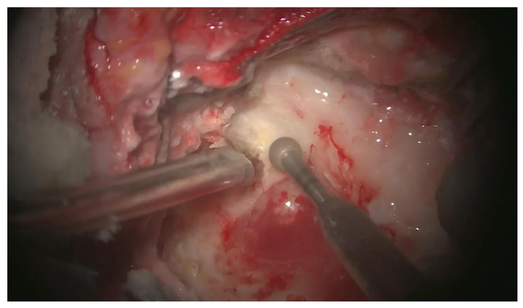


Key Takeaways



Tympanoplasty & BMI

- **All elevated BMI classes except Class II Obesity had increased operative time.**
- **Perioperative time was increased in Class II and Class III Obesity.**
- **Total OR time was increased in patients with BMI >25.**



Tympanomastoidectomy & BMI

- **Operative time increased in Class II Obesity.**
- **All elevated BMI classes had increased perioperative time except in the Overweight category.**
- **Total operative time was increased in Class II and Class II Obesity.**

Conclusions

- OR efficiency is critical—every extra minute costs money, and inefficiency may contribute to physician burnout.
- BMI is a predictable, pre-operative factor that significantly increases both operative **and** non-operative OR times.
- Most classes of obesity show increased operative non-operative times, but more marked in tympanoplasty vs tympanomastoidectomy.
- Anticipating the effects of BMI on operative times can improve scheduling accuracy, resource use, and overall efficiency in otologic surgery.

Results

Figure 2. Comparison of operative and non-operative times to normal BMI in **Tympanomastoidectomy**

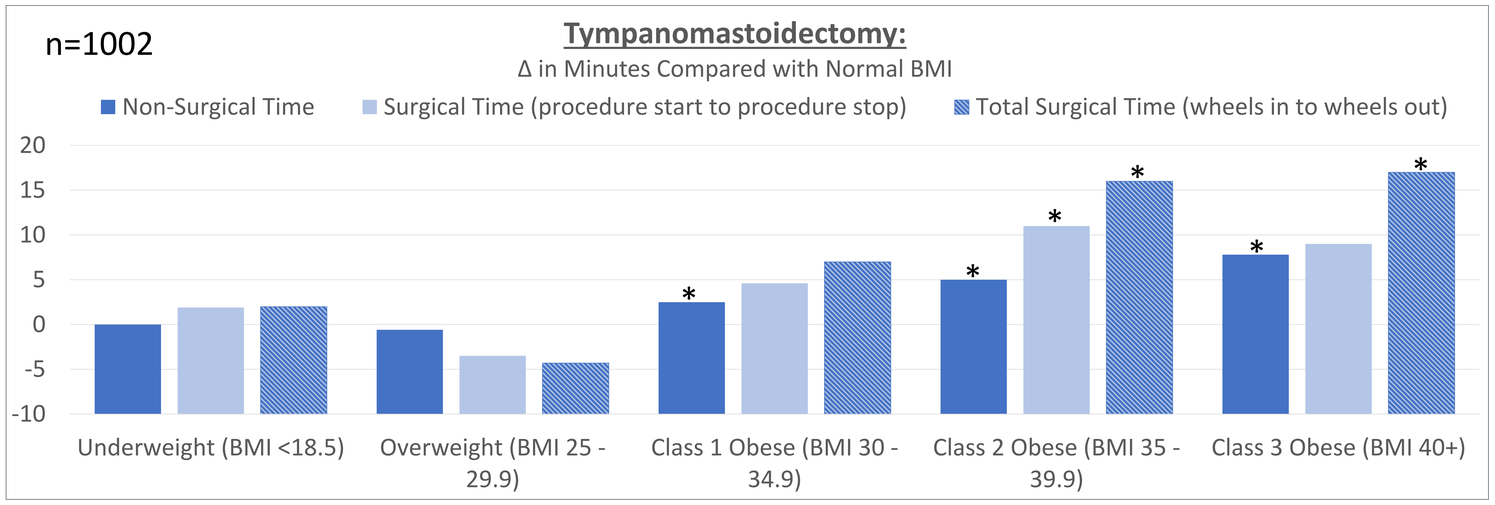
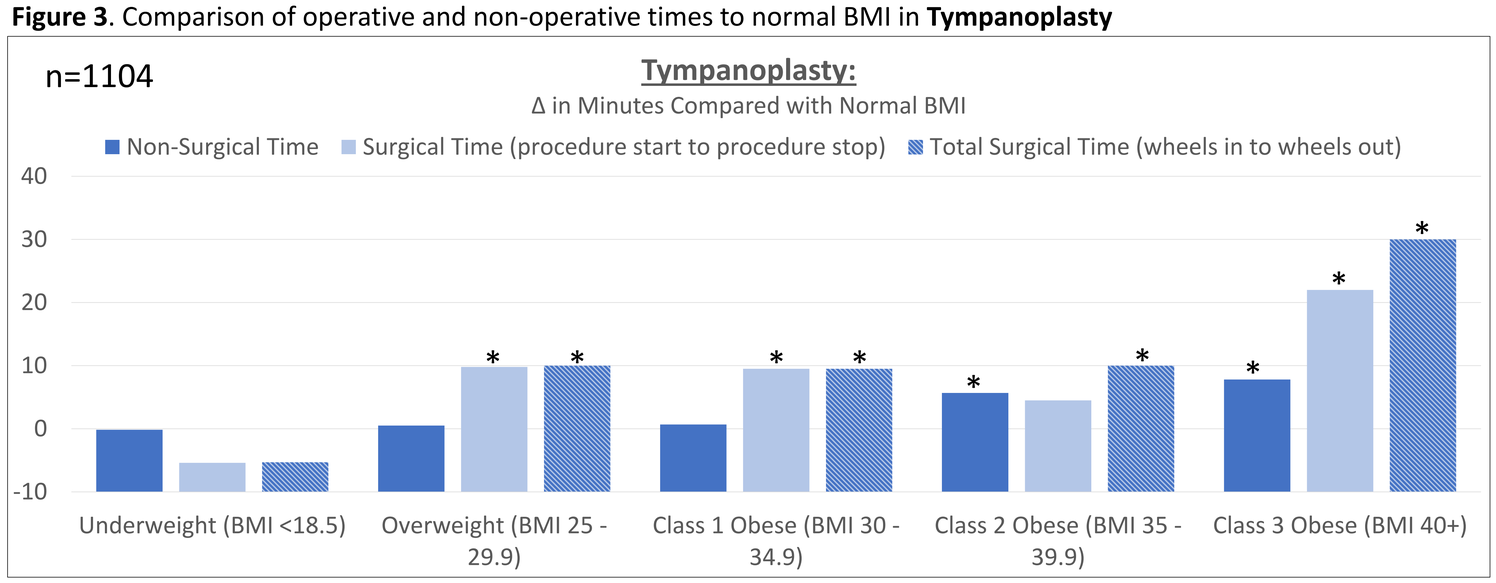


Figure 3. Comparison of operative and non-operative times to normal BMI in **Tympanoplasty**



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