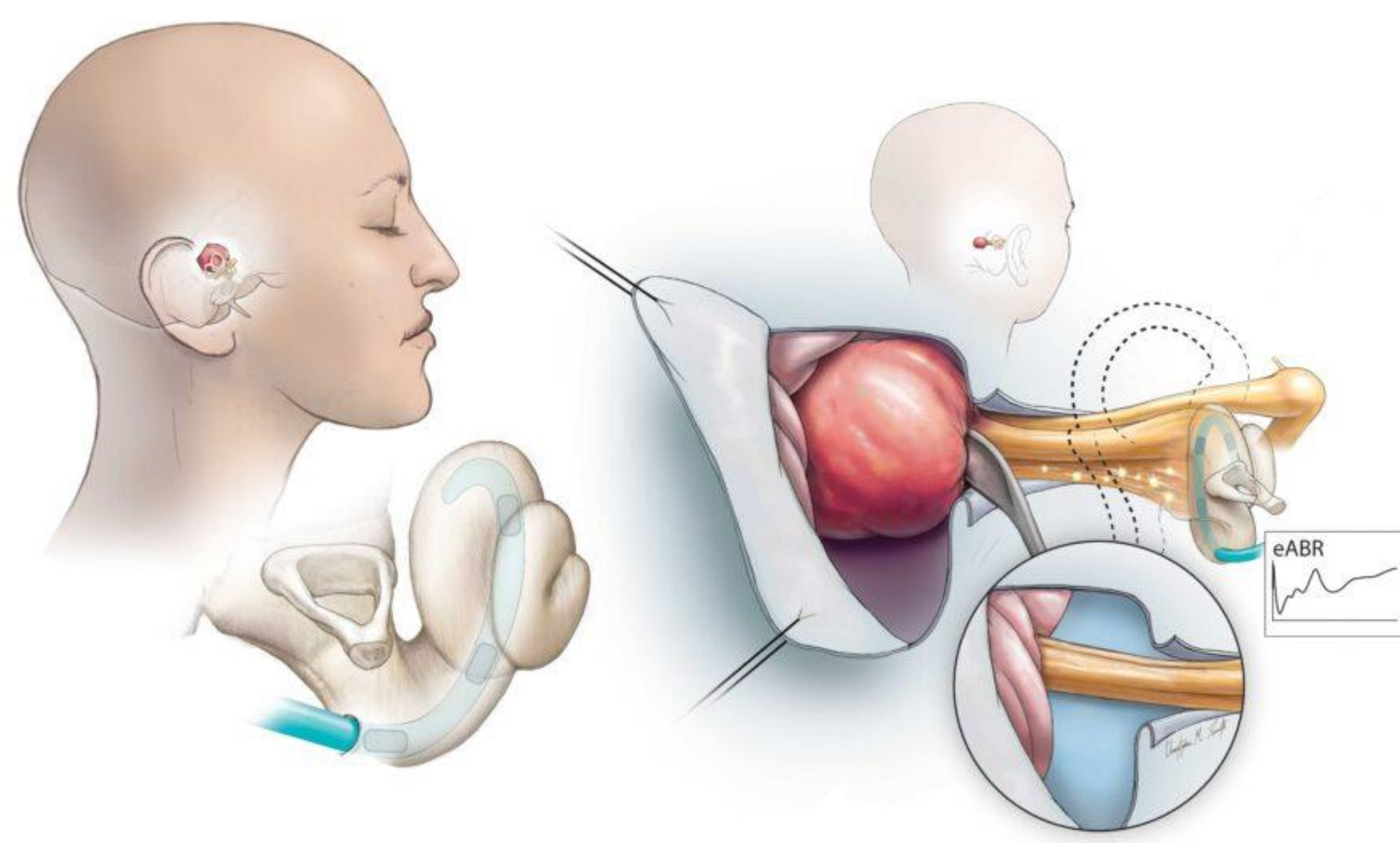


# Factors Influencing Surgical Outcomes in Vestibular Schwannoma Resection

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## Background

- Vestibular schwannoma surgery is a complex procedure often requiring significant operating room time and potentially high estimated blood loss (EBL)
- Identifying variables influencing surgical time and EBL can improve perioperative planning, patient outcomes, and resource allocation.
- This retrospective study aims to analyze patient data to determine factors associated with surgical time and EBL in vestibular schwannoma resection.



## Methods

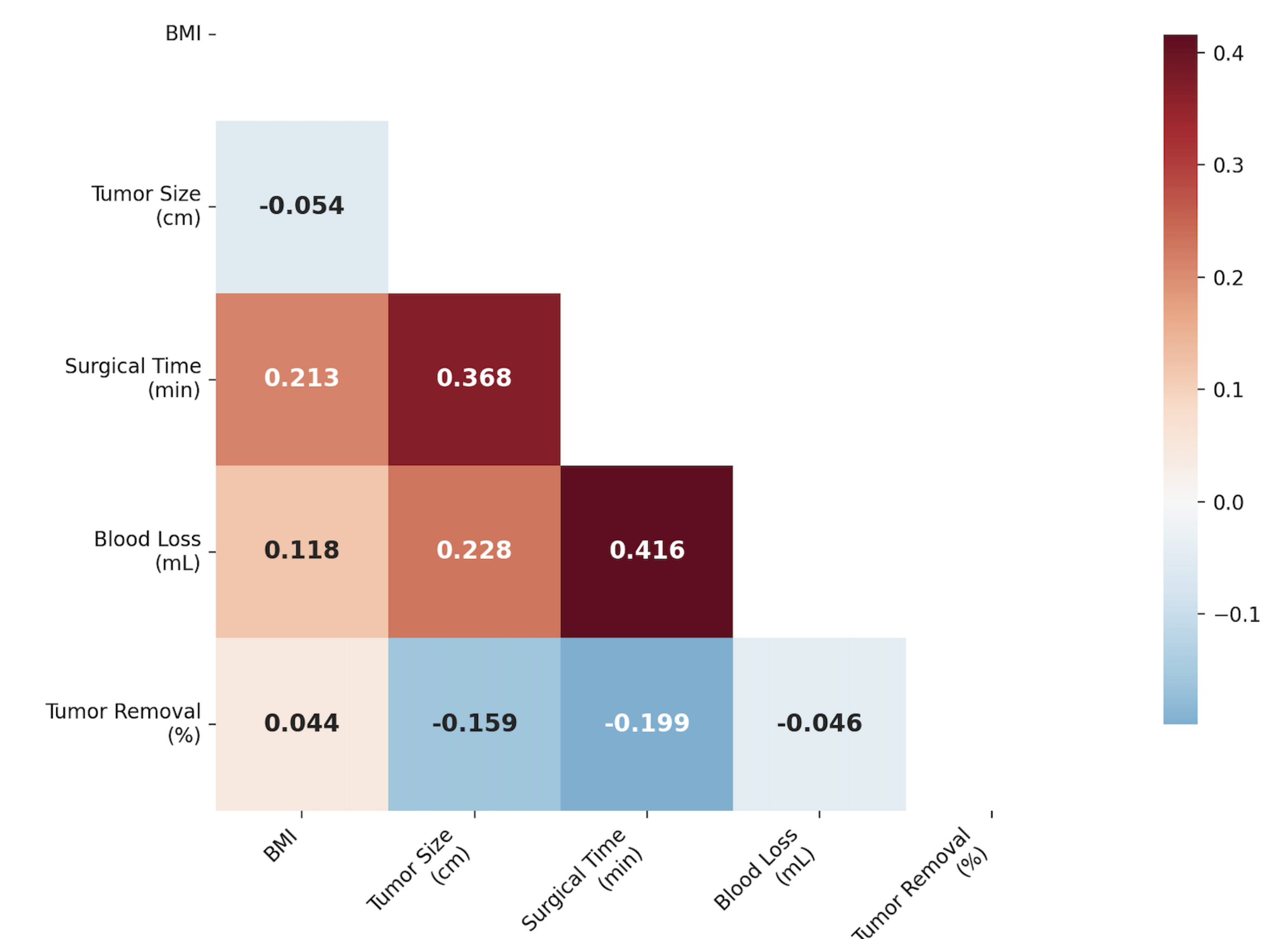
- A retrospective review of patients undergoing vestibular schwannoma resection at an academic medical center from 2014 to 2024 was conducted.
- The primary outcomes were total surgical time and EBL, with independent variables including body mass index (BMI), estimated blood loss, tumor size on MRI, approximate tumor removal percentage, prescription radiation dose, surgical time, and sex.
- Spearman correlation and Kruskal-Wallis tests were employed to assess associations.



## Results

- Data from 147 patients were analyzed. The following include statistically significant relationships
- Higher BMI ( $p = 0.0179$ ,  $n = 113$ ,  $r = 0.222$ ), larger tumor size ( $p < 0.0001$ ,  $n = 147$ ,  $r = 0.426$ ), and increased blood loss ( $p < 0.0001$ ,  $n = 110$ ,  $r = 0.416$ ) were associated with increased surgical times.
- Conversely, a higher tumor removal percentage ( $p = 0.0001$ ,  $n = 97$ ,  $r = -0.380$ ) was associated with reduced surgical time.
- Higher radiation doses ( $p = 0.0305$ ,  $n = 20$ ,  $r = 0.485$ ), larger tumor size ( $p = 0.0023$ ,  $n = 131$ ,  $r = 0.264$ ), male sex ( $p = 0.0305$ ,  $n = 147$ ,  $h = 4.679$ ), and longer surgical times ( $p < 0.0001$ ,  $n = 110$ ,  $r = 0.416$ ) were associated with increased blood loss.
- Males had on average 72.7 mL increased blood loss

Correlation Matrix: Key Surgical Outcome Variables (Acoustic Neuroma Surgery,  $n=147$ )



## Conclusion

This study identifies BMI, estimated blood loss, tumor size, surgical time, and male sex as significant factors impacting surgical outcomes in vestibular schwannoma resections. These findings highlight opportunities for preoperative optimization and intraoperative strategies to minimize bleeding and enhance patient safety.

Key Factors Associated with Acoustic Neuroma Surgical Outcomes

