

## Airway Complications in Morbidly Obese Patients undergoing General Anaesthesia: A Systematic Review

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### INTRODUCTION & AIM

- The risk of airway complications in obese patients (BMI  $\geq 30$  kg/m<sup>2</sup>) undergoing general anaesthesia is well-established.
- The challenge for anaesthetists now lies with the growing population of morbidly obese patients (BMI  $\geq 40$  kg/m<sup>2</sup>), who have greater comorbidities and more significant cardiovascular risk.

**AIM:** To identify the airway complications encountered in morbidly obese patients, in comparison to non-morbidly obese patients.

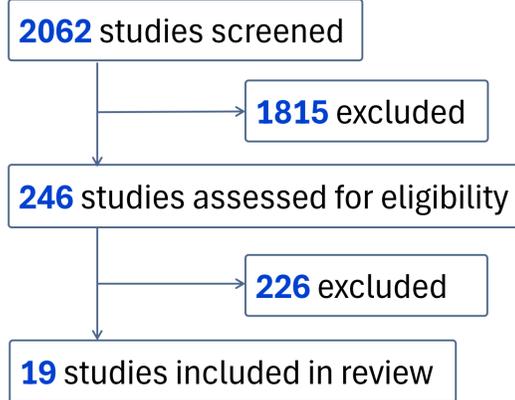
Correctly Positioned Morbidly Obese Patient (Godoroja, 2020)



### METHOD

Systematic review using PRISMA 2020 guidelines, registered in PROSPERO CRD420251005662.

- Inclusion:** Peer-reviewed (2015-2025) cohort studies, randomised control trials, case-control studies and large case series (>10) focussing on airway challenges.
- Exclusion:** Systematic reviews, case reports, small case series, non-general anaesthetic and patients <18 years.



Classification	BMI (kg/m <sup>2</sup> )
Underweight	$\leq 18.5$
Normal Weight	18.5-24.9
Overweight	25-29.9
Class I Obesity	30-34.9
Class II Obesity	35-39.9
<b>Class III Obesity</b>	<b><math>\geq 40</math></b>

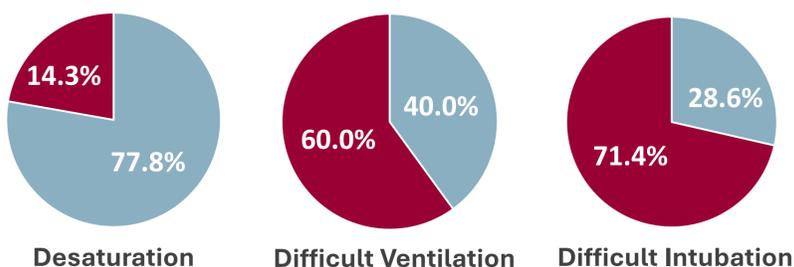
### RESULTS & DISCUSSION

	Ball 2018	Romanski 2019	Sinha 2017	Hartsuyker 2023	Kendale 2016	Wu 2022	Saraçoğlu 2024	Philips 2018	Rosén 2021	Sharma 2024	Reale 2022	Dohrn 2016	Raju Vegesna 2020	Acikgoz 2015	Babayigit 2022	Moon 2019	Liu 2024	Johnston 2015	Myint 2022	
Desaturation																				
Difficult Intubation																				
Difficult Ventilation																				
Difficult Laryngoscopy																				
Airway Device Failure																				
Reduced Apnoea Time																				
Other Airway Complications																				
Length of Stay in Hospital																				

Associations between morbid obesity (compared to BMI <40 kg/m<sup>2</sup>) and airway complications, a summary of included publications:

Positive Association  
No Association

Airway complications associated with morbid obesity (compared to BMI <40 kg/m<sup>2</sup>):



### CONCLUSION

- Perioperative desaturation was the most reported complication with a significant association to morbid obesity.
- The association between morbid obesity and difficult ventilation and intubation was not statistically significant.
- Further research is needed to standardise criteria used to predict complications in morbidly obese patients and inform best practice for safe and effective airway management.

(1) Liew, W. J., Negar, A., & Singh, P. A. (2022). Airway management in patients suffering from morbid obesity. Saudi Journal of Anaesthesia, 16(3), 314-321. [https://doi.org/10.4103/sja.sja\\_90\\_22](https://doi.org/10.4103/sja.sja_90_22) (2) Hardt, K., & Wappler, F. (2023). Anesthesia for Morbidly Obese Patients. Deutsches Ärzteblatt International, 120(46), 779-785. <https://doi.org/10.3238/arztebl.m2023.0216> (3) McKechnie, A., Iliff, H. A., Black, R., Ahmad, I., Chesworth, A., Chesworth, P., Davis, N., & Griffiths, C. (2025). Airway management in patients living with obesity: best practice recommendations from the Society for Obesity and Bariatric Anaesthesia: Endorsed by the All Wales Airway Group, Scottish Airway Group and Difficult Airway Society. Anaesthesia, 80(9), 1103-1114. <https://doi.org/10.1111/anae.16647>