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Comprehensive Perioperative Approach in a Morbidly Obese Patient Undergoing RYGB - A Case Based Insight

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Abstract: ***This case report presents perioperative anaesthetic management of a super morbidly obese patient with obstructive sleep apnea undergoing bariatric surgery within an enhanced recovery pathway. The report highlights the value of multidisciplinary preparation, detailed airway planning, individualized drug dosing, lung protective ventilation, and multimodal opioid sparing analgesia in managing extreme physiological risk. Use of THRIVE preoxygenation, ramp positioning, videolaryngoscopy, desflurane-based anaesthesia, dexmedetomidine infusion, TAP block, and structured postoperative respiratory support contributed to stable intraoperative conditions and smooth recovery. Attention is given to challenges related to airway security, altered pharmacology in obesity, postoperative respiratory vulnerability, and pain control. The case also reflects how enhanced recovery protocols can support reduced complications, early mobilisation, shorter hospitalization, and improved patient outcomes in bariatric anaesthesia practice.***

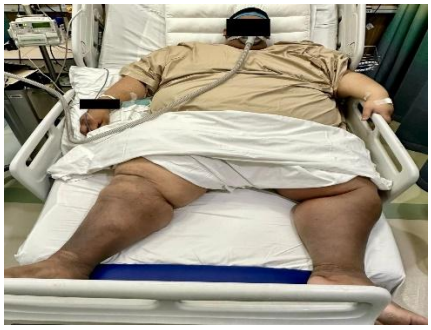
Keywords: Bariatric anaesthesia, enhanced recovery, morbid obesity, difficult airway management, multimodal analgesia, RYGB (Roux-en-Y Gastric Bypass)

1. Introduction

Bariatric surgery presents a unique anaesthetic challenge due to the complex physiological alterations associated with severe obesity. Enhanced recovery after surgery (ERAS) programs have been shown to improve postoperative recovery and reduce hospital stay, complications, readmission, and cost in multiple types of surgery [1]. It strongly recommends a multidisciplinary peri operative approach. For bariatric surgery, recent evidence has shown that ERAS protocols successfully improve analgesia, reduce opiate consumption, shorten the length of hospital stay, and lower costs [2,3]. Meticulous peri-operative planning, anticipation of airway and respiratory challenges, the use of multimodal anaesthesia and individualised care, guided by the patient's anatomy, comorbidities, and surgical requirements, is essential to achieving favourable outcomes

Pre OP

A 27year old male was brought to the hospital with the chief complaint of morbid obesity with obstructive sleep apnea syndrome. He was started on BiPAP machine at night 1 month ago. He is a known case of hypothyroidism on T. Thyronorm 25mcg OD. (TSH- 7.0 mIU/L)



On examination: weight: 300kg, height: 172 cm, BMI: 101.

Airway Examination: MO: 4 cm; MPC: 4 short neck, heavy jaw, central obesity, teeth intact.

A thorough preop evaluation was done involving a multidisciplinary team which included a bariatric surgeon, dietician, psychologist, physician and anaeasthetist. All investigations were done which included: CBC, LFT, RFT, ABG, CXR, ECG 2D ECHO. Obesity surgery mortality risk score was assessed preoperatively. (TSH- 7.0 mIU/L)

Preparation- Patient was thoroughly counselled and reassured about perioperative course and postoperative analgesia. Patient was kept nil by mouth 10 hrs before the surgery.

Buvalor patch 10 mg was applied approximately 20 hrs before surgery.

Drugs given 2 hrs before surgery:
1) T. Pregabalin 75 mg
2) T. Pyrigesic 1 gm
3) T. Dexamethasone 8 mg
4) T. Zycel 200 mg
5) Inj perinorm 10 mg

Intra OP:

On the day of surgery patient was wheeled in, NBM was confirmed, all routine ASA standard monitors were attached and vitals noted. Difficult airway cart was prepared with THRIVE machine and fibre optic bronchoscope on standby. Patient had a 22G iv cannula in left hand. IV fluids were started at 100ml/hr. baseline RBS was done (120mg/dl). For intubation RAMP position was given to the patient. Patient was pre oxygenated for 3 minutes using THRIVE at 15L/min and pre medicated with Inj Ketamine 20mg, Midazolam 1 mg, Phenargan 10mg, Loxicard 100mg. Patient was induced using 200mg propofol and 100mg scoline. Videolaryngoscopy was done using CMAC blade no. 4 and patient was intubated using 8.5 cuffed portex tube fixed at 21cm. The position was confirmed using capnograph and 5 point auscultation. Tube was taped with dynaplast and eyes covered with micropore. Once the patient was out of the effects of scoline, 100mg Rocuronium was given. Gastric tube (37 fr) was inserted orally after proper lubrication and fixed at 37 mark. Suctioning done.

Zonac suppository 200 mg inserted.

Patient was maintained on O2 + air + Desflurane

After induction a 20G iv cannula was secured in the right hand. BIS monitors were attached. Patient was started on Dexmeditomidine infusuin (5mcg/ml) at 5 ml/hr. Proper padding was done with gel pads and gamgee rolls. Patient was strapped to the bed properly.

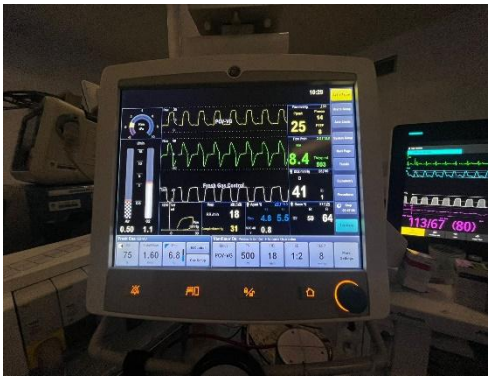
Flotron pumps were applied on legs and Warmer was applied.

Patient was placed in reverse Trendelenburg position, with the legs placed in gutters with a foot support and arms placed out on boards.

All pressure points were adequately padded. A single shot of Cefuroxime was given before the incision after giving a test dose, no adverse reaction noted.

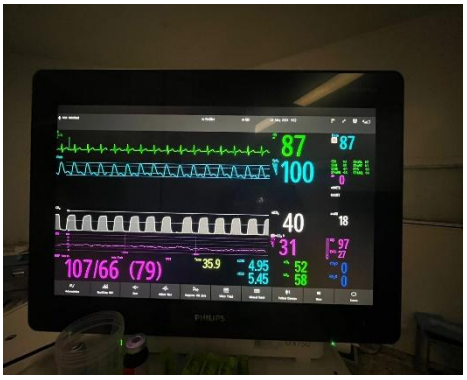
Painting and draping was done and surgeon gave port infiltration with a mixture consisting of Xylocard 2% 20 cc, Ropivacaine 0.75% 20 cc, Dexamethasone 8 mg, Clonidine 100 mcg and 100 ml NS.

50mcg fentanyl was given before the surgical incision.



BIS of 40-60 was maintained intraop throughout the surgery

Temp of 36 degree was maintained.



Inj Paracetamol 1 g, Inj Ondansetron 8 mg was given towards the end of surgery.

Leak test was confirmed with methylene blue dye and bougie was removed after suctioning.

The remaining infiltration mixture was used to give a TAP Block and port infiltration before closing, abdomen was deflated thoroughly

At the end of the surgery, a recruitment maneuver was performed. The patient was reversed using 400mg Suggamadex, and MAC was brought to 0, BIS of 95. The patient was extubated in semi sitting position after he was awake. A Thorough oral cavity suctioning was done and patient was observed for 10 minutes in OT.

He was then shifted on 8L 02 via face mask to HDU for observation. Patient was conscious oriented and following commands.

Post OP:
The patient was put on intermittent CPAP and was started on PCA (100mg loxicard+ 200mg ketamine + 15mg phenargan) at 1ml/1ml/10min lockout interval. Inj Tramadol 100mg in 100ml NS was given slowly over 15 minutes.

Pain scale was assessed every 6 hourly using VAS score.

Patient was discharged after 3 days without any complains of pain nausea or vomiting.

2. Discussion

The morbidly obese patient is at increased risk for difficult mask ventilation and tracheal intubation owing to excess soft tissue, limited neck mobility, and reduced pharyngeal area. These patients commonly exhibit reduced functional residual capacity (FRC), increased oxygen consumption, rapid desaturation during apnoea, and a higher incidence of difficult airway management. In the present case, thorough pre-operative assessment and optimisation were essential to minimise peri-operative risk. In this case, the use of videolaryngoscope, RAMP position, pre oxygenation with THRIVE contributed to a successful first-attempt intubation. Continuous vigilance is required, as airway obstruction may recur during emergence due to residual sedation or obstructive sleep apnoea (OSA). Lung-protective ventilation- using moderate PEEP, low tidal volumes (6–8 mL/kg ideal body weight), and recruitment manoeuvres

helped maintain a stable intra operative oxygenation throughout the surgery, highlighting the importance of a ventilatory strategy tailored to obese physiology.

Drug dosing in obesity is complex due to altered body composition, increased cardiac output, and changes in drug clearance. Induction agents, opioids, and neuromuscular blockers must be dosed according to ideal body weight (IBW), lean body weight (LBW), or total body weight (TBW), depending on the pharmacokinetic profile. In this case, appropriate weight-based dosing reduced the risk of prolonged sedation or inadequate neuromuscular blockade. Enhanced recovery is supported by the use of short-acting anaesthetic drugs with predictable pharmacokinetics in obese patients. BIS monitoring helped to avoid over or under dosing of local anaesthetics.

Given the high prevalence of OSA, minimizing opioid use is crucial to prevent post-operative respiratory depression. The implementation of multimodal analgesia with the use of paracetamol, Tramadol, Diclofenac suppository, TAP block, local infiltration and low-dose ketamine significantly enhanced recovery. The adjunct with TAP block in bariatric surgery was demonstrated to improve the postoperative analgesia [4, 5], and remained effective till 48 h after the block [6]. The patient benefited from dexmedetomidine, leading to improved postoperative comfort and reduced opioid requirements. It is also evidence that the perioperative administration of dexmedetomidine could reduce opioid use and facilitate recovery [7, 8]. This patient had no incisional or viscereal pain in the post- operative period.

Obese patients are at increased risk for hypoventilation, airway obstruction, and thromboembolic events in the recovery period. Close monitoring in PACU, early mobilisation, and the use of CPAP ensured an uncomplicated recovery.

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