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**ROBOTIC VERSUS LAPAROSCOPIC ONE
ANASTOMOSIS GASTRIC BYPASS: A
PROPENSITY SCORE-MATCHED
COMPARATIVE STUDY OF
PERIOPERATIVE OUTCOMES IN 200
PATIENTS**

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TORONTO 2026

**The Future of Obesity Management:
From Weight Loss to Health Gain**



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Disclosure Slide

☐	No, nothing to disclose
☒	Yes, please specify:

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J&J		X						
Medtronic		X						
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DYNAMIC MANUSCRIPT



Robotic versus laparoscopic one anastomosis gastric bypass (OAGB): a propensity score-matched comparative study of perioperative outcomes in 200 patients

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BACKGROUND

Metabolic Bariatric Surgery Is Transforming: Are We Keeping Pace?

OAGB: A Rising Procedure

One anastomosis gastric bypass (OAGB) is now the **third most-performed bariatric procedure globally**, recognized for its efficacy, technical reproducibility, and favorable metabolic outcomes.

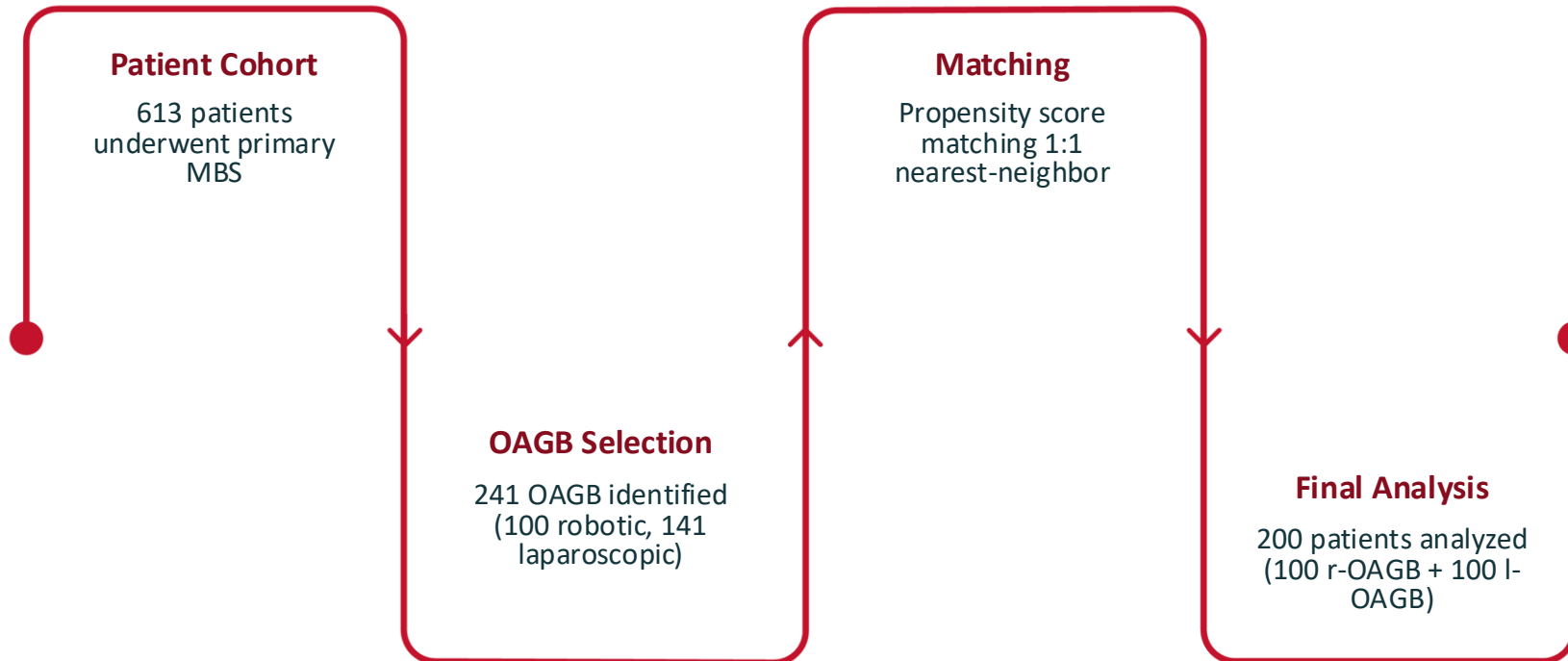
The Robotic Question

Laparoscopy remains the conventional approach for OAGB, while robotic-assisted surgery is increasingly adopted. However, comparative data between robotic and laparoscopic OAGB remain limited.



Study Design & Patient Selection

Retrospective analysis of a prospectively collected database at the Bariatric and Endocrine-Metabolic Surgery Unit, University of Naples "Federico II" (January 2023 – December 2025). All procedures performed by a single expert laparoscopic surgeon. The first 21 r-OAGB cases from the institutional learning curve were excluded.



PSM used a logistic regression model incorporating age, sex, ASA classification, preoperative BMI, and Charlson Comorbidity Index (CCI). A 1:1 nearest-neighbor matching yielded 100 matched pairs. Power analysis confirmed N=100 per group was adequate ($\alpha=0.05$, power=0.80, minimum required N=88).



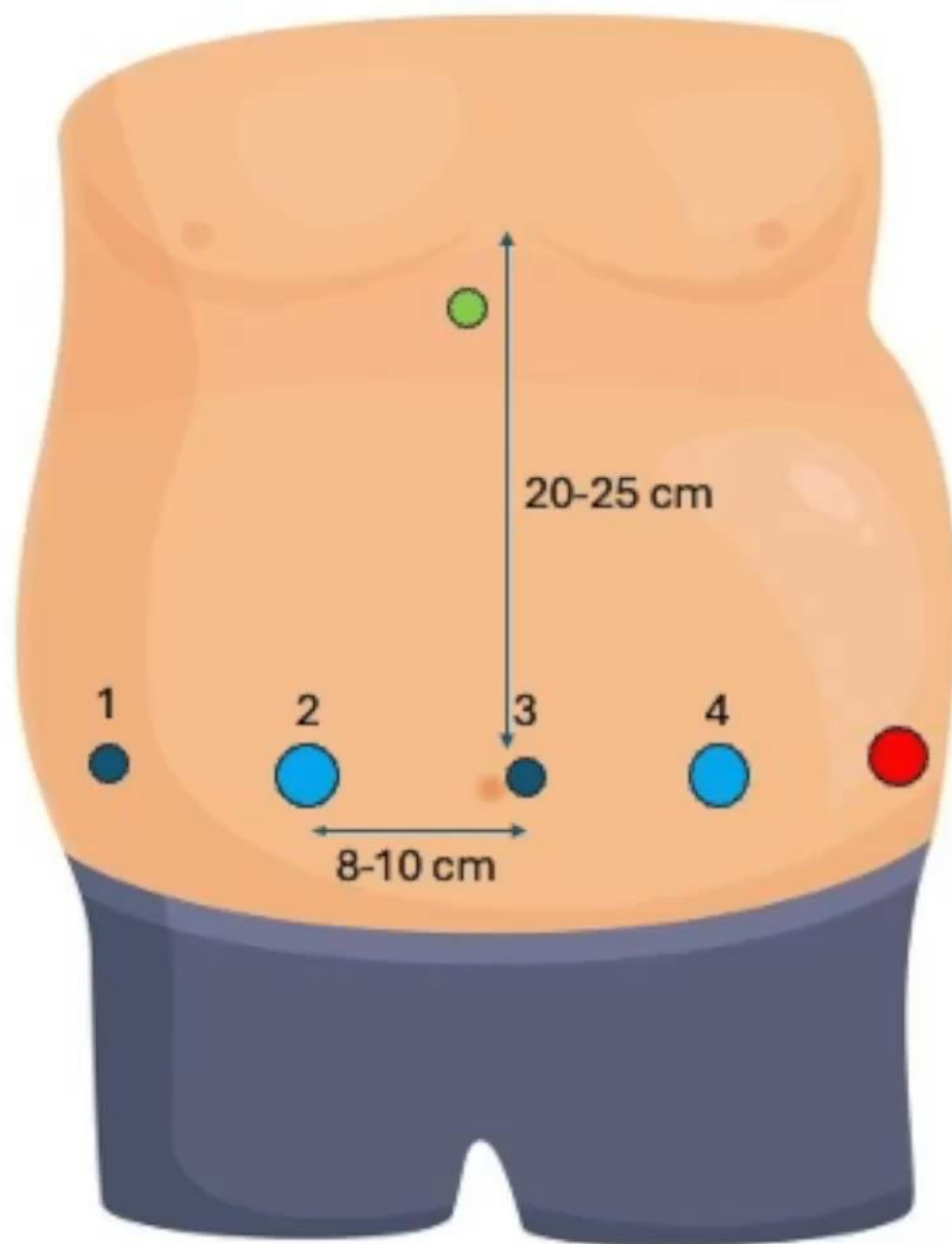
METHODS

Baseline Characteristics: Propensity Score-Matched Cohort

Variable	r-OAGB (n=100)	l-OAGB (n=100)	p-value	Significance
Age (years, mean $\pm$ SD)	42.70 $\pm$ 9.40	42.0 $\pm$ 11.30	0.6344	NS
Female sex, n (%)	80 (80%)	78 (78%)	0.9999	NS
BMI (kg/m ² , mean $\pm$ SD)	46.70 $\pm$ 5.00	47.80 $\pm$ 4.50	0.1036	NS
ASA I / II / III (%)	20 / 30 / 50	16 / 28 / 56	0.5813–0.8763	NS
CCI (mean $\pm$ SD)	2.71 $\pm$ 0.45	2.53 $\pm$ 0.50	0.0081	Significant*

- Baseline characteristics were well balanced after matching, with a small residual difference in CCI. The residual CCI imbalance was considered clinically negligible





- 5 mm: Liver Retractor
- 8 mm: Cadiere Forceps
- 12 mm: Bipolar Forceps, Sureform Stapler 60
- 8 mm: 30° Endoscope Plus
- 12 mm: Vessel Sealer, Sureform, Needle Driver
- 12 mm: Air Seal – assistant port

Intraoperative Results: Operative Time & Safety

112.9

r-OAGB (min)

Mean operative time $\pm$ SD 10.70 min

107.7

l-OAGB (min)

Mean operative time $\pm$ SD 12.48 min

12.1

Robotic Docking (min)

Mean docking time $\pm$ SD 3.53 min

0

Conversions

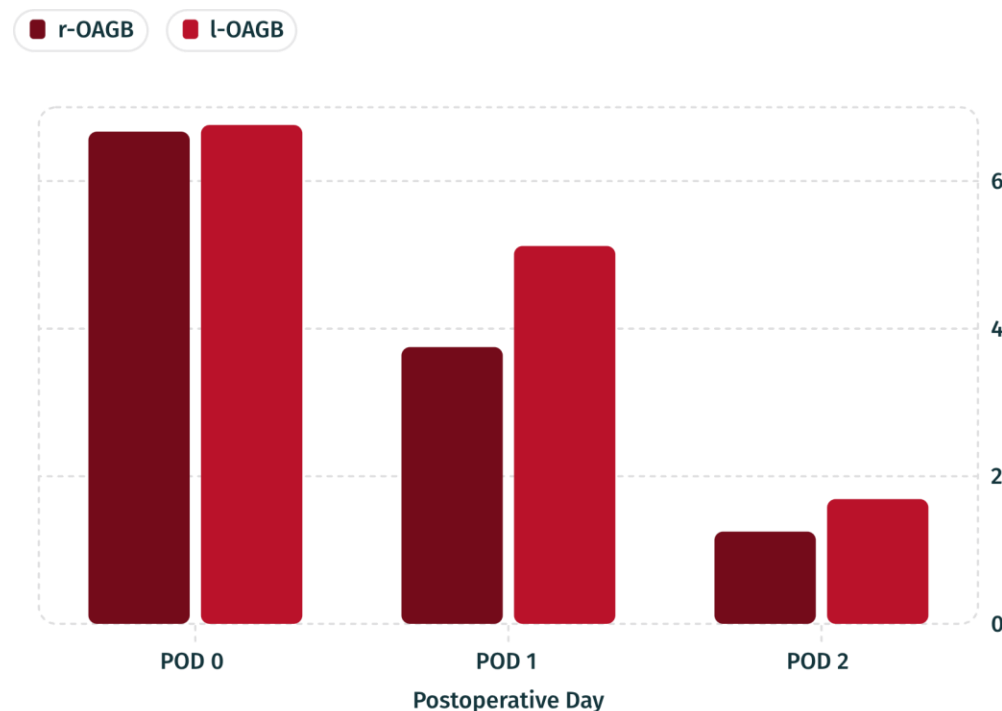
No conversions to laparoscopy or open surgery in either group

Operative time was significantly longer in the robotic group, while no conversions or intraoperative complications were observed in either group.



Postoperative Pain: A Significant Robotic Advantage

Visual Analogue Scale (VAS) — Matched Cohort



Key Findings

Pain scores were comparable at POD0 ($p = 0.6904$).

However, the robotic group demonstrated **significantly lower VAS scores** at:

- **POD1:** 3.75 vs. 5.12 ($p < 0.0001$)
- **POD2:** 1.25 vs. 1.69 ($p = 0.0150$)

This suggests that less traumatic tissue manipulation with robotic instruments may translate into improved early postoperative comfort. PONV rates were low and comparable across all time points, with no significant intergroup differences.



Complication Rates & Hospital Length of Stay

Anastomotic Leaks

0 cases in both groups. No reoperations or 30-day readmissions recorded across the entire matched cohort.

Surgical Site Infections

1 SSI in l-OAGB (1%); 0 in r-OAGB. No statistically significant difference ($p = 0.9999$).

Abdominal Wall Bleeding

1 case in r-OAGB (1%); 0 in l-OAGB. No statistically significant difference ($p = 0.9999$).

Hospital Stay

r-OAGB: 4.30 ± 3.50 days vs. l-OAGB: 5.60 ± 7.60 days ($p = 0.1219$). Non-significant trend favoring robotic approach.

All postoperative morbidities were classified using the **Clavien-Dindo system**. Severe complications (CD grade ≥ 3) were absent in both groups, reinforcing the safety profile of OAGB regardless of surgical approach.



Limitations & Economic Considerations

Key Limitations

- Single-center, retrospective pilot design limits generalizability
- No long-term follow-up (marginal ulcers, biliary reflux, weight loss maintenance)
- No formal cost-effectiveness analysis performed
- Biliary reflux not systematically assessed
- Residual CCI imbalance post-matching (clinically negligible)

Cost Context

Italian reimbursement is ~€5,112 per bariatric procedure. While robotic costs are higher, reduced morbidity and shorter stays may offset investment in high-volume centers — particularly for complex or super-obese patients (BMI >50).



CONCLUSIONS

Comparable Safety Profile

r-OAGB and l-OAGB showed favorable perioperative safety, with no conversions and very low complication rates.

Robotic Pain Advantage

VAS scores were significantly lower after r-OAGB on POD1 and POD2

Longer Operative Time

Robotic OAGB was associated with a modest increase in operative time.

Next Steps

Larger prospective multicenter studies are needed to evaluate long-term outcomes, high-risk populations, and cost-effectiveness.



Thank You



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