Transitioning from Laparoscopic to Robotic Bariatric Surgery: Early Comparative Experience in a Publicly Funded Health Care System

Ali Safar[1,2], Rachel Hart[1,2], Jeffrey Hawel[1,2], Christopher M Schlachta[1,2], Ahmad Elnahas[1,2]
[1] *Division of General Surgery, Western University, London, ON, Canada*
[2] *Canadian Surgical Technologies and Advanced Robotics (CSTAR), London Health Sciences Centre, London, ON, Canada*

BACKGROUND:

Laparoscopy remains the standard approach to bariatric surgery in Canada's publicly funded health care system. However, robotic-assisted techniques may potentially address some of the limitations of laparoscopy. We aimed to evaluate early outcomes of transitioning from laparoscopic to robotic-assisted bariatric surgery, with a focus on the learning curve and outcomes at a Canadian Academic Bariatric Center of Excellence.

METHODS:

In this prospective single-center study, all patients undergoing either laparoscopic or robotic primary or revisional bariatric surgery between February 11, 2025, and June 26, 2025, were included. Demographic, operative, and clinical data were prospectively collected. Outcomes of interest included operative time, hospital length of stay (LOS),and 30-day readmission, reoperation, and mortality.

RESULTS:

A total of 103 bariatric procedures were performed during the study period, including 58 robotic and 45 laparoscopic cases. Among the robotic cohort, 48 were Roux-en-Y gastric bypass (RYGB), 8 sleeve gastrectomy (SG), and 2 revisional/reversal cases, representing 59%, 42%, and 50% of all RYGBs, SGs, and revisional cases, respectively.

Table (1): Baseline characteristics and postoperative outcomes of the study cohort

	Robotic cases (n=58)	Laparoscopic cases (n=45)	P value
Age, y, median (SD)	47 (19)	50 (15)	0.11
BMI, kg/m², median (SD)	47 (10)	49 (12)	0.13
30-day readmission, n (%)	3 (5)	4 (8)	0.46
30-day reoperation, n (%)	1 (1.7)	0 (0)	0.38
30-day mortality, n (%)	0 (0)	0 (0)	NA

- Median hospital LOS for either cohort was 24 hours.
- For robotic RYGB without concomitant hernia repairs, the median operative time decreased from 149 minutes in the first 10 cases to 138 minutes in subsequent cases.
- Surgical trainees participated primarily as bedside assistants, with console exposure in approximately 20% of early robotic cases.

CONCLUSION:

The robotic approach to bariatric surgery, particularly RYGB, was successfully introduced within a structured multidisciplinary publicly funded program with no compromise to early patient outcomes. Technical efficiency improved with experience, supporting a gradual learning curve. Further experience will determine whether efficiency and patient outcomes can be improved over the laparoscopic approach.