Retrospective Study Of The AirSeal® System For Laparoscopic Bariatric Surgery

James A. Rydlewicz*, MD, Andrew J. Suzo, BS, Bradley J. Needleman, MD
The Ohio State University Wexner Medical Center, Department of Surgery, Division of General and Gastrointestinal Surgery, Center for Minimally Invasive Surgery, Columbus, OH, USA 43210

INTRODUCTION

The AirSeal® System (SurgiQuest, CT) consists of a surgical trocar, tubing/filter set, and re-circulation and filtration control unit used to create and maintain a port of entry during laparoscopic surgery. The device enables peritoneal access with a novel mechanism to maintain pneumoperitoneum. Specifically, it creates a pressure barrier which acts as an invisible seal to maintain pneumoperitoneum during the course of surgery.

This is a post-market study of the AirSeal® system to further establish the safety, efficacy, and utility of the AirSeal® trocar in laparoscopic bariatric surgery.

METHODS

This is a single institution, retrospective chart review. 200 charts, randomly selected, were reviewed of patients who underwent laparoscopic bariatric surgery during an eight-year period (October 1, 2005 – February 1, 2013). Two cohorts of patients undergoing laparoscopic bariatric surgery with either a 10mm AirSeal® trocar or a 12mm Standard Versastep trocar were retrospectively evaluated (100 in each cohort).

Operative times, blood loss, hemodynamic values, and end tidal CO2 were analyzed. Both cohorts had statistically similar age, body mass index, and surgical technique.

RESULTS

One hundred patients underwent a laparoscopic Roux-en-Y gastric bypass using the AirSeal® system. Patients had a mean BMI of 50.0 (range 40.4 - 84.5) and mean age of 45.4 (range 18 - 69). Mean operative time was 83.6 mins (range 46 – 130) with mean estimated blood loss of 34.6 cc.

One hundred patients underwent a laparoscopic Roux-en-Y gastric bypass using a standard Versastep port. Patients had a mean BMI of 48.7 (range 36.4 - 81.4) and mean age of 46.9 (range 21 – 67). Mean operative time was 95.9 mins (range 57 – 200) with mean estimated blood loss of 45.0 cc.

Both cohorts had similar hemodynamic profiles (BP, HR), ventilator settings, and end tidal CO2. The AirSeal® system group saved 12.3 mins in the operating room on average. This saves about $345.00 per case on operating room time.

CONCLUSIONS

The AirSeal® system in laparoscopic bariatric surgery is safe and leads to decreased operative times. This potentially has cost saving measures by decreasing the operating room time costs.

*Dr. Rydlewicz would like to acknowledge the Foundation for Surgical Fellowships