

# Improved Outcomes during Robotic Prostatectomy Utilizing AirSeal Technology

Mona Yezdani, Sue-Jean Yu, Alexandra Lee, Benjamin Taylor, Alice McGill, Kelly Monahan and David Lee  
 Perelman School of Medicine, University of Pennsylvania (Philadelphia, PA, USA)

AUA-2016  
 MAY 6-10 SAN DIEGO  
 Abstract ID:  
 MP23-17



## INTRODUCTION AND OBJECTIVES

AirSeal is a newer technology utilizing an integrated access system during minimally invasive surgery. Its goal is to provide stable pneumoperitoneum and continuous smoke evacuation. A few small volume studies have compared AirSeal to the standard multicomponent insufflation system and have shown an improvement in stable pneumoperitoneum and ease of manipulating objects through the AirSeal port. In this study, we compare the standard system to the AirSeal system to evaluate potential benefits in a larger cohort.

## METHODS

We performed a single-institution, single-surgeon prospective study of 149 consecutive patients who underwent robotic prostatectomy from June 2014 to April 2015. Gas insufflation with CO<sub>2</sub> was performed using either standard multi-component insufflation with a 12mm Covidien Versa port bladeless trocar from June 2014 to October 2014 or with AirSeal system from November 2014 to April 2015. Multiple data points were assessed including total operative time, estimated blood loss, length of stay, and pain score at 0-6 hours, 6-12 hours, 12-18 hours.

## RESULTS

149 patients were analyzed with 79 in the control arm and 70 in the study arm. There was no significant difference between the study and control groups in mean age (62 vs. 61) or BMI (28 vs. 27). A significant difference was seen in total operative time with 146 minutes in the AirSeal group and 167 minutes in the control ( $p=0.0002$ ) and in intraoperative blood loss with mean of 132 ml in AirSeal group versus 215 ml in the control ( $p=.0031$ ). Pain scores for time 6-12 hours were significantly lower (3.3 vs. 4.1) in the AirSeal group compared to the control but were not significant for 0-6 or 6-18 hours (1.9 vs. 2.4 and 2.9 vs. 3.6, respectively). However, across all times, the numerical level given for pain was always less with AirSeal (Figure 1).



Figure 1: Post-Operative Pain Score Averages by Time Intervals

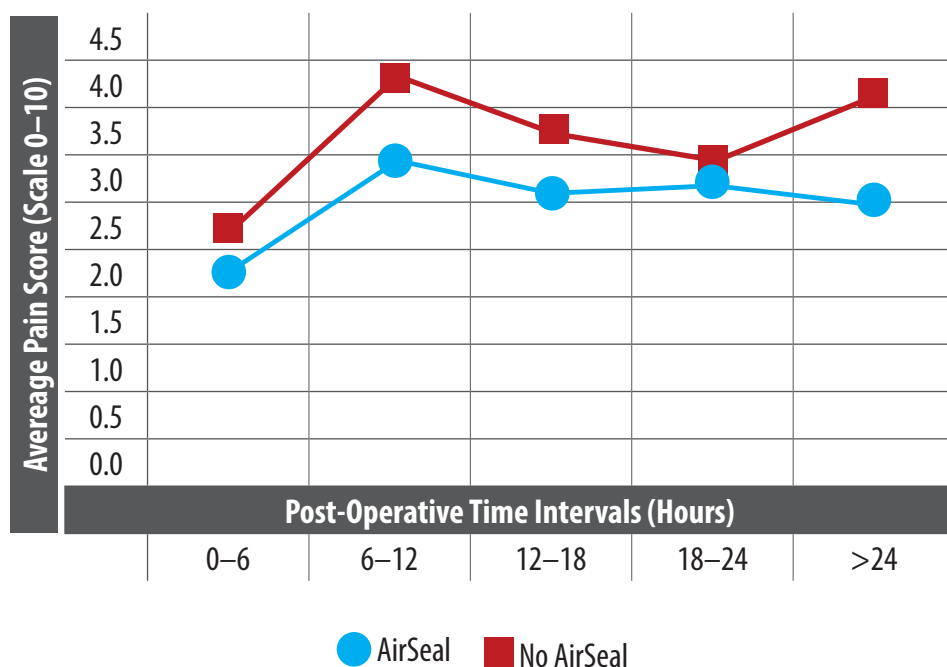


Table 1: Baseline Demographics between AirSeal and Control Groups

Baseline Demographics	Group 1 AirSeal	Group 2 Control	p Value
Number of Patients	70	79	—
Average Age (st. dev.)	62.1 (7.5)	61.3 (6.7)	0.4953
Average BMI [kg/m <sup>2</sup> ] (st. dev.)	28.47 (4.19)	27.41 (4.84)	0.1671
Average Operation Time [min] (st. dev.)	146 (36)	167 (25)	0.0002
Average Length of Stay [days] (st. dev.)	1.0 (0.2)	1.0 (0.2)	0.9231
Average Intraoperative Blood Loss [mL] (st. dev.)	132 (60)	215 (225)	0.0031
Number of Patients with Reported of Nausea (%)	2 (2.9)	6 (7.6)	0.2004
Number of Patients with Reported of Vomiting (%)	0 (0)	0 (0)	—

## CONCLUSIONS

This prospective study shows an advantage to using AirSeal compared to standard insufflation. There is significantly less operative time, intraoperative blood loss, and pain scores at 6-12 hours. This is most likely attributable to the stable pneumoperitoneum and improved visibility without the need for bedside interruption with suction or cleaning of the camera. Improved pain scores may be associated with the stable pneumoperitoneum without intermittent stretching of the muscles and incisions. Thus, the results of this study show that AirSeal can be advantageous during robotic prostatectomy. Further larger volume studies are required to assess for the utility of AirSeal in all robotic procedures.

## SOURCE OF FUNDING

The authors have no conflicts of interest to declare.