

EXPOSURE

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Reduced Operative Time at Reduced Pressures



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A recent article¹ by Dr. Wimhofer et al. in the World Journal of Urology evaluated the perioperative outcomes of 642 patients who underwent robotic prostatectomies with the use of the AirSeal® System at lower pressures. In contrast to a significant number of major publications that concluded longer procedure times with use of reduced intra-abdominal pressure,² this study demonstrates that the use of the Valveless Trocar

System (VTS) was associated with a decreased mean operative time of **20.6 minutes**.

Even more interesting is the fact that an intra-abdominal pressure of **10 mmHg** was used with the AirSeal System, while only a marginal increase of **12 mmHg** was used with conventional insufflation. The authors note that the VTS minimizes variations in intra-abdominal pressures, sustaining a stable pneumoperitoneum, which allows for a lower setting while maintaining visualization of the operative field. This is due to the unique "ability [of the VTS] to maintain a stable pneumoperitoneum, even in the case of air leak and increased suctioning as a result of bleeding or smoke produced during electrocauterization. The maintenance of the intraperitoneal pressure decreased the time needed for reestablishment of the working space that is often seen with conventional insufflation."

Principal investigator Dr. Wimhofer states, "Although this study did not evaluate the effect of lower intra-abdominal pressure on reducing shoulder pain, medication use, and length of stay, many studies and meta-analyses^{2,3,4,5} have already validated such outcomes. At the Hospital of the Merciful Schwettern in Linz, Austria, our aim is to provide only the very best patient outcome."

Patient and Surgery Characteristics of Prostate Surgery by VTS type

	AirSeal System	Conventional	p-value
Mean Patient Characteristics (range)	N= 257	N=385	
Age (years)	62.3 (32.1-76.6)	62.6 (42.7-75.4)	0.614
ASA	1.8 (1-3)	1.7 (1-3)	0.064
BMI (kg/m ²)	27.6 (16.2-47.4)	27.3 (17.8-41.4)	0.357
Prostate Volume (ml)	41.6 (12-200)	41.8 (13-170)	0.897
Gleason score	6.6 (4-10)	6.4 (4.0-10.0)	0.098
PSA (ng/ml)	8.3 (0.59-69.7)	7.8 (.03-88)	0.426
Surgery Characteristics			
OR Time (minutes)	149.5 (45-325)	170.1 (65-340)	<.0001
EBL (ml)	256.6 (0-2000)	223.6 (0-1500)	0.369
Margins (positive)	26.3% (55)	24.1% (93)	0.548
Complications	0.5% (1)	0.8% (3)	0.639
Nerve Sparing	62.6% (156)	66.5% (250)	0.325
Node Dissection	49.8% (101)	45.4% (173)	0.729

1. George AK, et al. Utilization of a novel valveless trocar system during robotic-assisted laparoscopic prostatectomy. World Journal of Urology. DOI 10.1007/s00345-015-1521-8
2. Hua J, Gong J, Yao L, et al. Low-pressure versus standard-pressure pneumoperitoneum for laparoscopic cholecystectomy: a systematic review and meta-analysis. Am J Surg. 2014 Jul;208(1):143-50.
3. Gurusamy KS, Samraj K, Davidson BR. Low pressure versus standard pressure pneumoperitoneum in laparoscopic cholecystectomy. Cochrane Database Syst Rev. 2009 Apr 15;(2):CD006930

References cont'd on page 4



LOW IMPACT™
Laparoscopy
and Instruments

Published benefits of reduced intra-abdominal pressure include reduced shoulder pain, analgesic use, and length of stay. Because the AirSeal System eliminates the pressure spikes and drops seen with conventional insufflation, AirSeal enables the widespread use of reduced intra-abdominal pressure in laparoscopy. Coupled with the new line of Low Impact™ Instruments, SurgiQuest is now able to deliver LOW IMPACT™ Laparoscopy with clinical benefits inside and outside for patients, and financial benefits for hospitals. (see page 2 for further details.)

An Anesthesiologist's Perspective

Gabriel Eduardo Mena, MD of the MD Anderson Cancer Center discusses the multiple benefits of the AirSeal System over conventional insufflation in providing a "gentler" way to insufflate. Then, he discusses the effects of pneumoperitoneum on the cardiac and pulmonary systems of patients, especially those who present with morbid obesity.

(see page 3 for further details.)

- A recent publication describes the use of the AirSeal System in Transanal Minimally Invasive Surgery (TAMIS) as **"necessary to maintain a stable working space. It is easily applicable and can be used for every TAMIS procedure."**⁶
- In an abstract to be presented at SAGES 2015, the authors discuss the use of the AirSeal System in TaTME procedures as the ideal solution to reducing bellowing in the bowels while removing smoke and maintaining pneumorectum.⁷



SURGIQUEST
Laparoscopy Without Limits



Lower Pressures, Better Outcomes

Conventional abdominal insufflation technologies cause significant variation in intra-abdominal pressure,⁸ creating both spikes and drops in pressure during routine laparoscopy. The AirSeal® System's unique ability to maintain stable pneumoperitoneum and constantly evacuate smoke enables surgeons to operate at lower pressures without compromising exposure. The AirSeal System facilitates LOW IMPACT™ Laparoscopy with well-established clinical benefits for the patients and financial benefits for the hospitals.

Introducing LOW IMPACT™ Instruments

5 mm Conventional
Laparoscopic Instrument



LOW IMPACT
Laparoscopic Instrument



Manufactured by  abmedica® for SurgiQuest, Inc.

SurgiQuest has partnered with AB Medica France to bring to you the first full line of micro-laparoscopic instrumentation offering the feel, strength, and performance of 5 mm instruments.

The manufacturer is located in the central region of France, which has a rich history of innovation and advances in metallurgy science. The region is also well known for advancements in aerospace, defense, and surgical device manufacturing. With proprietary, state of the art materials and exceptional craftsmanship, AB Medica France has produced a world-class line of micro-laparoscopic instruments with application in every laparoscopic procedure.

In recent years, surgeons throughout France and Europe have offered their patients the many benefits associated with the AirSeal System and LOW IMPACT instruments. SurgiQuest is delighted to bring this complete LOW IMPACT solution to the U.S. surgical community.

In spite of the many limitations associated with traditional micro instru-

ments, micro-laparoscopy has been shown to improve cosmesis, decrease port-site pain, and reduce medication usage for patients.⁹ Dr. Elliot Greenberg, Assistant Professor of Surgery at Tufts Medical Center remarks, "Conventionally, I am constrained to doing only limited procedures with my current 3 mm instruments. With the LOW IMPACT line, I am able to use it for all my gynecological procedures."

SurgiQuest's LOW IMPACT instruments offer surgeons superior strength with minimal patient impact. With comparable shaft rigidity, along with the jaw length and strength of 5 mm instruments, LOW IMPACT instruments reduce wound sizes by a factor of four, resulting in a virtually scar-free operation. Combined with the many advantages of low pressure, the LOW IMPACT solution works on both the inside and outside of the patient to provide benefits for the patient, the surgeon, and the hospital.



"The LOW IMPACT instruments feel the same as 5 mm instruments for the surgeon, however I can assure you, the patients know the difference! The scars with these instruments are virtually invisible."

Professor Jean-Louis Benifla, MD
Chief of Service, Obstetrics & Gynecology
Rothschild Hospital, Paris, France



Dr. Benifla's Patient

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Physician's Purview



Gabriel Eduardo Mena, M.D.

Dr. Mena is a Board Certified Anesthesiologist and Associate Professor of Anesthesiology, Department of Anesthesiology and Perioperative Medicine at the MD Anderson Cancer Center, University of Texas in Houston. His research, abstracts, manuals, and teachings aids have been published in many editorials and book chapters. Dr. Mena has been a Reviewer of the Anesthesiology Journal since 2007. His work has earned him various honors and awards, such as the Clinical Clerkship Honors, Neurology, Cardiology & Infectious Diseases at Brown University in 1993 and The Foundation for Anesthesia Education and Research (FAER) selected by Baylor College of Medicine Anesthesiology Chairman, Residency Director, & Faculty for Outstanding Scholastic Performance and Research at the ASA Annual Meeting in San Francisco. Dr. Mena is currently the lead anesthesiologist on the Enhanced Recovery After Thoracic Surgery (ERATS) initiative at MD Anderson Cancer Center.

Driving Enhanced Recovery After Surgery (ERAS) Adoption - Anesthesia Management Perspective

At MD Anderson Cancer Center, we have been using the AirSeal® System in both laparoscopic and robotic-assisted gynecologic, urologic, and other procedures. As part of the team on driving the ERAS initiative at MD Anderson Cancer Center, I have made some very interesting and positive findings from an anesthesia perspective that I'd like to share with you here.

Since we started using the AirSeal System, I've personally noticed that patients are much easier to manage from an anesthesia perspective. The main benefits are to the cardiovascular and pulmonary systems. I have to compensate less for the traditional effects of conventional pneumoperitoneum. Patients do better when they are under general anesthesia for a shorter amount of time, and when the intra-abdominal pressure (IAP) is lower than 15 mmHg. From various studies and from our own anecdotal experiences, the AirSeal System allows us to accomplish both – shorter procedural times where the patient is under anesthesia and a stable working platform⁹ at lower IAP. I have noticed a significant decrease in peak inspiratory airway pressure and mean airway pressure while using the AirSeal System. These benefits are extremely important when taking care of obese patients that have increased airway resistance and decreased pulmonary compliance from baseline.

Conventional pneumoperitoneum has a number of well-known hemodynamic drawbacks including decreased cardiac output and increased systemic and pulmonary vascular resistance. In my experience, using very precise and beat-to-beat intraoperative hemodynamic monitoring tools, the AirSeal System causes less cardiovascular and hemodynamic impact when compared to the conventional CO₂ delivery systems.

More over, increased intra-abdominal pressure and abdominal expansion causes a cephalic shift of the diaphragm, leading to an increase in intrathoracic pressure and significantly limiting lung expansion. This reduces both functional capacity and compliance in the lungs. In patients with COPD, this can lead to hypoxemia, an abnormally low level of oxygen in the blood. In cases where the intra-abdominal pressure is greater than 15 mmHg, there can also be decreased blood flow to the stomach, duodenum, jejunum, and liver.

Obese and other difficult to manage patients provide additional challenges for the anesthesiologist.¹⁰ One of the most difficult is the pulmonary physiologic changes in obese patients, which are seen after initiation of pneumoperitoneum, where there is a significant decrease in lung volumes and functional residual capacity. These changes can lead to hypoventilation and stimulation of the sympathetic system that can lead to tachycardia, hypertension and arrhythmias. The final product is increased morbidity from pulmonary complications such as pulmonary infections.¹¹

In our experience, the AirSeal System offers an integrated solution to these traditional challenges and we plan to further study its impact on MIS. I truly believe in delivering unparalleled patient care at MD Anderson Cancer Center and that every patient undergoing laparoscopic surgery and general anesthesia can and should benefit from the routine use of the AirSeal System.



Introducing LOW IMPACT™ Instruments *(continued on page 2)*



"When I first tried the SurgiQuest's LOW IMPACT Instruments, I found virtually no difference in the shaft rigidity, ability to grasp tissue and comfort of the handle. Comparatively, in my hands, they felt identical to my 5 mm instruments; I almost don't even know why I would need 5 mm instruments now."

David Earle, MD, Director of Minimally Invasive Surgery
Baystate Medical Center

See AirSeal® System in Action

Upcoming Conferences and Courses:

AZUS Arizona Urological Society Annual Meeting – Loews Ventana Canyon, Tucson, AZ	April 10 - 12, 2015
TaTME Course – EU Hospital Clinic, Barcelona, Spain – tاتمecourse.com	Multiple Dates
SAGES – Gaylord Opryland Hotel & Convention Center, Nashville, TN	April 15 - 18, 2015
Cleveland Clinic Women's Health Institute GYN Surgery Week – Marriott Harbor Beach Hotel, Fort Lauderdale, FL	April 15 - 18, 2015
45th Annual Meeting of the Felix Rutledge Society – University of Texas MD Anderson Cancer Center & Hilton Galleria, Houston, TX	April 29 - May 1, 2015
AUA – New Orleans Morial Convention Center, New Orleans, LA	May 15 - 19, 2015
16th Belgian Surgical Week – Het Pand, Ghent, Belgium	May 7 - 9, 2015
SEUD Congress 2015 Endometriosis and Women's Reproductive Life – Paris Marriott Rive Gauche, Paris, France	May 7 - 9, 2015
TaTME Course US Advanced & Basic – Florida Hospital, Celebration, FL	May 8, 2015
ASCRS – Hynes Convention Center & Sheraton Boston Hotel, Boston, MA	May 30 - June 3, 2015
23rd International Congress of the E.A.E.S – Palace of Parliament Convention Center, Bucharest, Romania	June 3 - 6, 2015
Challenges in Laparoscopy & Robotics (CIL) – Hilton Convention Center, Istanbul, Turkey	June 4 - 6, 2015
SERGS 4th (European Symposium on Robotic Gynecological Surgery) – Wyndham Grand Istanbul Levent, Istanbul, Turkey	June 11 - 13, 2015
NYU Multispecialty Robotics Course – NYU Langone Medical Center, New York, NY	June 12 - 13, 2015
BAUS 2015 Annual Scientific Meeting – Manchester Central Convention Complex, Manchester, England	June 15 - 18, 2015

Training Sites:

Intuitive Surgical, Sunnyvale, CA • Intuitive Surgical, Norcross, GA • IRCAD, France • Nicholson Center, Celebration, FL •
Methodist MITIE Lab, Houston, TX • Surgical Innovation and Robotics Institute at Memorial Hermann (SIRI), Houston, TX •
C.A.S.E. (Center of Advanced Simulation Education) at Acibadem University, Turkey • ORSI, Belgium

References:

4. Joshipura VP, Haribhakti SP, Patel NR, et al. A prospective randomized, controlled study comparing low pressure versus high pressure pneumoperitoneum during laparoscopic cholecystectomy. *Surg Laparosc Endosc Percutan Tech.* 2009 Jun;19(3):234-40. 5. Yasir, M. Mehta KS, Bandy V, et al. Evaluation of post operative shoulder tip pain in low pressure versus standard pressure pneumoperitoneum during laparoscopic cholecystectomy. *Surgeon.* 2012 Apr;10(2):71-4. 6. G. Bisleri, et al. AirSeal system insufflator to maintain a stable pneumorectum during TAMIS. *Tech Coloproctol.* Jan 2015, Vol 19, Issue 1, pp 43-45. 7. Sam B Atallah, MD, FACS, FASCRS, Matthew R Albert, MD, FACS, FASCRS. The use of a valveless trocar insufflation system for TAMIS and transanal TME. *Florida Hospital. Abstract SAGES 2014*. 8. Hofmann M, Bucur P, Abedi G, et al. Prospective Randomized Study Comparing the Physiologic Effects of Valveless Insufflation and System and Conventional Laparoscopic Insufflator. Presented at 2014 AUA Meeting. Publication Pending. 9. Sajid MS, Khan MA, Ray K, Cheek E, Baig MK. Needleless versus laparoscopic cholecystectomy: a meta-analysis. *ANZ Journal of Surgery* 2009; 79(6): 437-442. 10. Postoperative Hypoxemia in Morbidly Obese Patients with and without Obstructive Sleep Apnea undergoing Laparoscopic Bariatric Surgery. Shireen Ahmad et al. *Anesthesia&Analgesia* Vol.107, No.1, July 2008. 11. Intraoperative Ventilatory Strategies for Prevention of Pulmonary Atelectasis in Obese Patients Undergoing Laparoscopic Bariatric Surgery. Hesham F. Talab et al. *Anesthesia & Analgesia* Vol. 109, No. 5, November 2009



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