ULTRAVISION

J Case Report

Volume 4

The Future of Surgical Smoke & Mist Management

Utilizing Ultravision in Laparoscopic Surgery

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Profile

Watanabe Takanori

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Major Certifications / Licenses

- Certified surgeon / specialist / supervisor
- Certified by Japanese Society of Gastroenterological Surgery
- Certified by Japanese Society of Clinical Oncology Cancer Pharmacotherapeutics
- Japanese Gastroenterological Cancer Surgery Certified Doctor

Education / Career History

1996 Okayama University Medical School
1996 Okayama Saisei Hospital
1998 Sakaide Martin Hospital
2004 Himeji Red Cross Hospital

Interview

Please share with us your first experience using Ultravision.

In the laparoscopic gastrointestinal field, the use of LCS (ultrasonic) devices is prevelant, and many surgeons including myself face the same problem, low visibility in and around the surgical site due to surgical smoke and most of all, high concentrations of surgical mist. Before Ultravision, I would open a trocar insufflation port in order to clear the surgical mist/smoke from the surgical field. However this was a concern to me, becuase surgical smoke/mist are known to have carcinogenic properties, and the large amounts of CO2 released into the operating room may also have a long term effect on our health. Compared to smoke evacuation devices, Ultravision uses negative ions to clear smoke/mist particulate without the need for CO2 evacuation, which was very facinating and caught my interest. The unit is also very compact and light, not to mention noiseless, making it very user friendly.

As you have mentioned, smoke evacuation is not necessary with Ultravision. Have you experienced a difference in the amount of CO2 used in your procedures?

The reduction of CO2 is noticable compared to smoke evacuation device or "venting." The operating staff have also noticed the absence of "tissue smell" caused by the energy devices. The reduction in CO2 and the low running costs were major reasons which led me to start using Ultraivsion. For exapmle, in one comparitive experiment, the Ultravision unit was turned on and the amount of CO2 was measured during a 60 minute window. The amount of CO2 used during these 60 minutes was 28L, with a single instance of suction device usage. Next the Ultravision unit was turned off. During this "off phase" which lasted 10 minutes, low visibility was an issue and a suction device was used to clear the visual field numerous times. As a result, the amount of CO2 used during these 10 minutes was 18L. Reduction in abdominal pressure was also noticable during the "off phase," with pneumoperitoneum pressure dropping to 4-5mmHG at one point during the surgery, greatly reducing visibility.

Before Ultravision, how did you maintain visibility during your procedures?

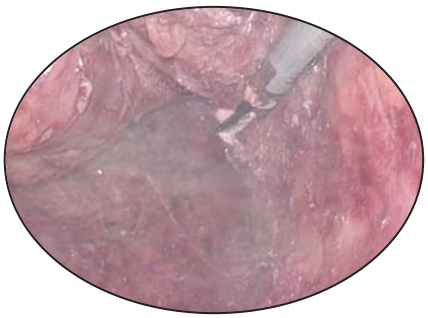
As stated before, before using Ultravision, I would open the trocar valve and release the smoke or mist into the operating room. Use of a suction irrigation device to clear the surgical site was also common, however, the abdominal pressure would drop significantly causing additional problems with visibility and CO2 usage. In colorectal procedures, dissection deep into the pelvic plane is necessary, therefore releasing the smoke and mist in this area through a trocar valve located a distance away takes time. Time used waiting for the surgical site to clear not only stresses the surgeon and staff, but also puts the patient at greater risk.

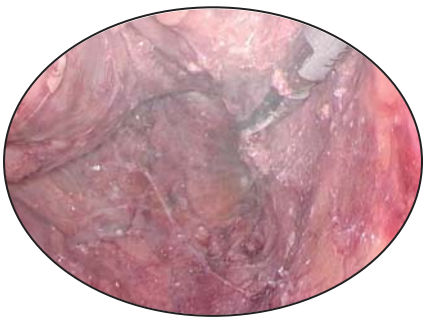
What are the major benefits you noticed with Ultravision?

Use of negative ions to clear surgical smoke and mist offer many benefits smoke evacuation devices can not. The abdominal pressure remains constant throughout the procedure because the CO2 is not pulled out of the abdomen. The insufflation rate is greatly reduced as a result, causing less dry CO2 to be introduced into the patient, which lowers the risk of any CO2 related side effects. For added benefit, the insufflator does not need to work as hard, emitting less noise for a quieter stress free surgery.

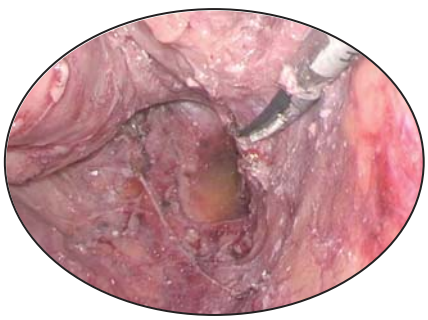
Please share the reasons you continue to use Ultravision and your thoughts on the potential of this device.

With typical smoke evacuation devices, the device may work well under certain circumstances but not so well in others. Some evacuators also require specialized devices which are compatible, greatly limiting the freedom to personalize the devices used in your surgery and increasing overal cost. I often use my LCS device similarly to scissors, activating the device continuously while opening and closing the jaws to dissect tissue. This technique is effective for fast tissue dissection but causes high amounts of surgical mist to be produced which was a major concern before using Ultravison. During deep pelvic dissection, the scope also needs to be inserted far into the patient close to the energy devices. Therefore fogging of the scope lens is unavoidable even with Ultravision. However, the negative ions work rapidly even in these deep areas, clearing the surgical site without delay. What surprises me even to this day, is after cleaning and reinserting the scope, the surgical site is so clear, as if someone not only wiped the scope lens, but had also wiped the inside of the patient.





LCS Activated



LCS paused, 2~3 seconds

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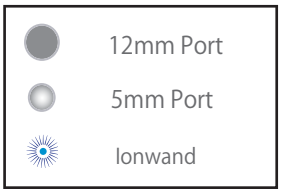
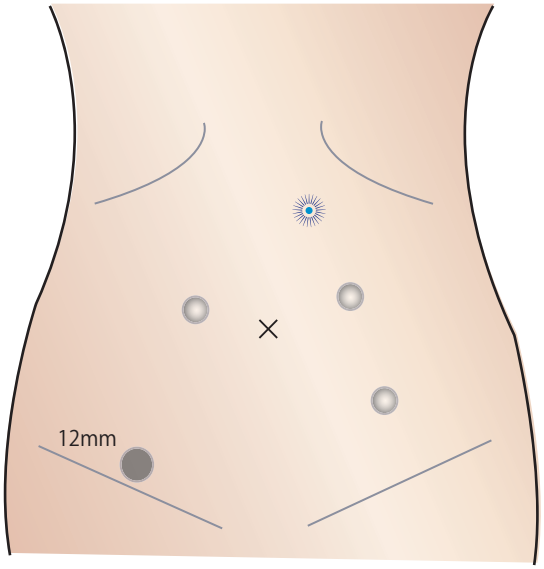
Please share with us the position in which you insert the 3mm Ionwand?

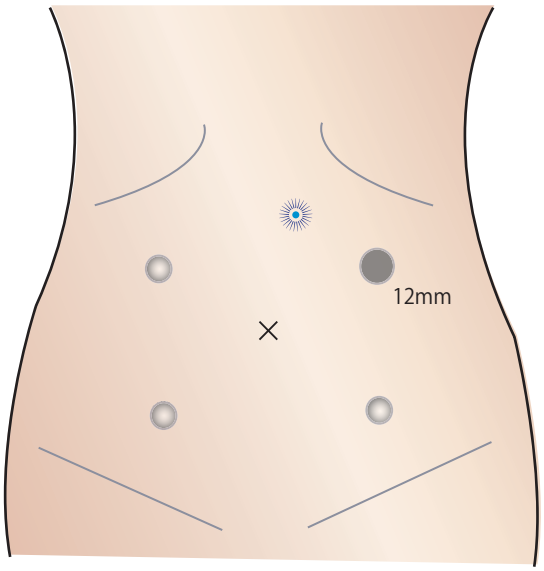
The Ionwand is placed at the left side of the patient, near the hepatic falciform ligament. Initially, the Ionwand was placed in different locations depending on the surgical site, but contact between Ionwand and instrument was sometimes an issue. Placing the Ionwand in this location does not cause any issue with instrument, scope, or organ contact. This position is slighty far from the surgical site, but there should not be any issue with the negative ions clearing the smoke / mist, even in deep areas.



Surgical site on Left side



Surgical site on Right side



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