

## Student-Designed Retractor Retains Organs During Open Abdominal Surgery

A year ago, [Medgadget](#) [1] originally reported news about a device designed by students and clinicians at Johns Hopkins University to help surgeons move bowels out of the way. A year later, the device has been FDA-cleared and is being marketed by Seguro Surgical.

According to the [product page](#) [2]:

Lap Pak is a simple yet effective medical device that is employed during abdominal surgery to safely retain the bowels away from the surgical field. The device is a one piece silicone product that can be placed in the abdomen in one easy motion, and stays securely in place for the entire surgery without the need for repositioning. The use of Lap Pak eliminates the use of cotton pads for bowel packing. Cotton pads are a known cause of adhesions and granuloma that have been demonstrated to result in intestinal obstructions and female infertility.



### **“Bowel Packing” - the current method**

During many of the 2.7 million open abdominal surgeries (laparotomies) performed each year in the US, surgeons use cotton gauze pads and retractor systems to hold the bowels away from the surgical site, a process called "bowel packing". Placing these pads and holding them in place correctly using a retractor system prior to commencing surgery is a time consuming process which has to be repeated as many as 2 or 3 times during open abdominal surgery. Additionally, the gauze can dehydrate the bowel tissue during the surgery and allows hard metal retractors to cause pressure points on the bowels and is commonly forgotten in the intestines.

Once the surgery is complete the gauze pads are removed leaving microscopic fibers and cotton based debris in the surgical site. In several peer reviewed studies these fibers and debris have been clearly demonstrated to initiate the formation of adhesions. When the abdominal organs are traumatized or exposed to foreign materials, inflammation and other repair processes initiate formation of abnormal bands of tissue within the abdomen. Such adhesions may involve the bowels and other organs, including, in women, the reproductive organs. In many cases this can lead to bowel obstruction, infertility in women, chronic pain and complications during future surgeries.

Thus patients who have open abdominal surgeries are at a significant risk of complications due to adhesions which can have a significant detrimental impact on the patient's quality of life. Adhesions also have a major economic impact on the cost US healthcare. It is estimated that up to 93% of patients undergoing a laparotomy procedure will develop abdominal adhesions that can result in chronic abdominal pain, small bowel obstruction and, in females, infertility, with a lifelong risk for re-operation to clear such problems. Over 33% of patients undergoing abdominal surgery will have at least one hospital admission in the 10 years following surgery to treat adhesions caused by their initial surgery. In women, the problem is particularly significant in that post operative adhesions occur as a result of up to 90% of all major gynecological surgical procedures and estimates suggest that up to 20% of cases of infertility are secondary to adhesions. Over 400,000 adhesiolysis operations are performed to remove post operative adhesions' complications in the US each year at an approximate cost of \$2 billion to the US healthcare system. Recently the cost for treating bowel obstructions resulting from adhesions was estimated at a staggering \$3.5 billion.

## **“Bowel Packing” - an alternative method**

Lap Pak is an innovative device made of soft, contoured medical grade silicone that can be used in place of cotton pads during bowel packing, thus reducing the cotton fibers and debris left in the surgical site. The soft contoured but supportive shape of the device cushions the bowels and reduces the opportunity for the retractors to cause pressure points and this reduces potential damage and initiation of adhesions. Additionally Lap Pak does not dehydrate the bowel.

The one piece design of Lap Pak enables quick and easy placement in less than half the time taken to pack using traditional products. The thickened body of Lap Pak safely distributes the pressure applied by retractor blades to gently hold the intestines securely in place, while the side flaps prevent the intestines from escaping and intruding into the surgical space. Various sizes make it suitable for almost all cases of open abdominal surgery but the one-piece design reduces the probability for the Lap Pak to be left in the site upon completion of the surgery.

Lap Pak reduces the time required for bowel packing, is unlikely to be left in the abdomen, reduces trauma and dehydration of the bowels, and doesn't leave debris that causes adhesions and granuloma.

Overall, Lap Pak is an innovative product for surgeons to increase patient safety.

## **Source URL (retrieved on 01/26/2015 - 5:50am):**

<http://www.surgicalproductsmag.com/videos/2010/10/student-designed-retractor-retains-organs-during-open-abdominal-surgery>

## **Links:**

[1] [http://www.medgadget.com/archives/2010/10/lap\\_pak\\_from\\_seguro\\_surgical\\_get](http://www.medgadget.com/archives/2010/10/lap_pak_from_seguro_surgical_get)

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[2] <http://www.segurosurgical.com/Products/LapPak/Default.aspx>