



# PUYALLUP SURGICAL CONSULTANTS

## OCCASIONAL SPECIMENS

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### Ventral/Incisional hernia

by Robert Marsh, M.D., FACS

Both the boon and the bane of the general surgeon, hernias of the anterior abdominal wall occur in anywhere between 2 and 11% of first-time incisions. Basically a failure of the abdominal wall to withstand the “burst strength” of changes in intra-abdominal pressure, hernias can occur through increases in pressure placed on the abdominal wall (especially the naturally weaker incisional scar) and global and local factors that diminish the strength of the abdominal wall. Systemic factors such as diabetes, obesity, age and steroid use contribute to the inability of wounds to heal prior to being acted on by pressure. Patients with connective tissue disorders- either genetic or acquired (i.e., by cigarette smoking)- have a higher incidence, as well. Factors increasing abdominal wall pressure (benign prostatic hypertrophy, constipation, and pulmonary disease) also predispose to hernia formation. By exerting profound lateral forces on the incision- especially in recumbency, obesity also promotes fascial separation. Technical factors, of course, also can contribute to local failures: placement of sutures too close to the wound edge, improper sterile technique and closure with tension

Experience has revealed smaller incisions are less likely to fail. The method of closure and the amount of tension at the time of closure both have been shown to influence hernia formation. While midline incisions offer the best access to the entire abdominal cavity, these incisions are more prone to hernia formation. Local wound factors such as hematoma, seroma and infection have all been shown to influence hernia formation by inhibiting normal wound healing.

A patient with an incisional hernia frequently complains of a bulge in the vicinity of their incision. The bulge (or hernia contents) may cause discomfort or be completely asymptomatic. Obesity, however, can make the palpation of such a bulge next to impossible until the hernia contents are quite large.

A CT scan should be performed in these patients in order to assist in the diagnosis. Quite often an incisional hernia can present as a series of small defects in the incision- the so-called “swiss cheese” hernia. While there are legitimate concerns regarding a bulge that does not completely reduce, most such incarcerations are chronic. Clinical factors to the contrary include: signs of distress, obstruction or increase in pain. The overlying skin may start to redden with the pressure of the underlying mass.

As mentioned, one of the tenets of a successful fascial repair is to perform the repair without tension. When a hernia occurs, it is presumably because there was essentially too much tension on the primary repair. In fact, primary repairs of incisional hernias (without mesh) have recurrence rates approaching 50%. For that reason, most surgeons advocate a tension free repair with mesh. While a discussion of the individual techniques is beyond the scope of this report, there are three basic mesh placement techniques: onlay, bridging and sub-fascial. Onlay requires complete or near complete primary fascial closure with a piece of mesh overlaying the repair working as a “buttress.” Bridging is the placement of the mesh across the defect, basically suturing the fascial edges to the mesh edges. Sub-fascial repairs place the mesh entirely below the fascia, relying on the pressure of the abdomen to hold it into place. The main goal for the sub-fascial repairs is to attempt to have 5 cm of “underlap” of the fascial edges.

While the advent of mesh usage decreased the rate of recurrence, the use of a foreign body near the abdominal viscera introduced new possibilities for complications. There is a possibility of visceral erosion into adjacent mesh. Traditional methods of placing omentum next to the mesh and coverage with peritoneum both decrease the incidence of infection and erosion, but neither eliminate it. Newer meshes with a tem-

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porary biological barrier may decrease this incidence further. Infection of mesh via either an infected seroma/hematoma or fistula mandates mesh removal- consigning the patient to a large and complicated surgery. Postoperative seroma is very common after hernia repairs as the space-occupying hernia sac no longer occupies the space and this fills with fluid. The challenge is preventing infection of the seroma. Infection of mesh or the dehiscence of skin overlying it (creating a chronic infection) frequently mandates mesh removal. This surgery is quite often cumbersome and requires the closure of the defect primarily or with a biologic mesh.

In order to avoid the use of mesh, a method called “component separation” has been advocated by some surgeons. This method allows the primary closure of the incision after the creation of relaxing incisions in the lateral abdominal wall to facilitate the coaptation of the fascia edges. This approach has the advantages of no foreign body usage and a comparable recurrence rate to mesh repairs. The creation of flaps to facilitate access to the lateral abdominal wall can put the skin edges under vascular compromise, however.

Another exciting development in the treatment of incisional hernias is the emergence of laparoscopic repairs. Improved optics and instrumentation have facilitated the reduction of such hernias without bowel injury and bleeding. The “global” access the laparoscope offers to the anterior abdominal wall allows for a large “mesh to defect size” ratio. While there are technical factors that can cause early recurrences (too much tension, poor affixation to the abdominal wall), recent instrumentation and technical changes have decreased the incidences of this, as well. The placement of the mesh entirely under the abdominal wall allows for the theoretical advantage of intraabdominal pressure holding the mesh into place- not

unlike patching an inner-tube from the inside. Large midline hernias, however, prove to be a significant challenge for a laparoscopic repair. Placement of cannulae and poor lines of sight can make such a repair difficult, if not dangerous.

Each repair listed above, *as long as it is performed without tension*, has a recurrence rate on the order of 4-8%. The systemic factors at play with the original closure are quite often still present at the time of secondary closure. They have comparable fistula and infection rates- although the component separation technique has a lower fistula rate. Improvements in mesh characteristics, instrumentation and a better understanding of wound healing should decrease this rate further over time.



Figure 1: CT scan image showing hernia

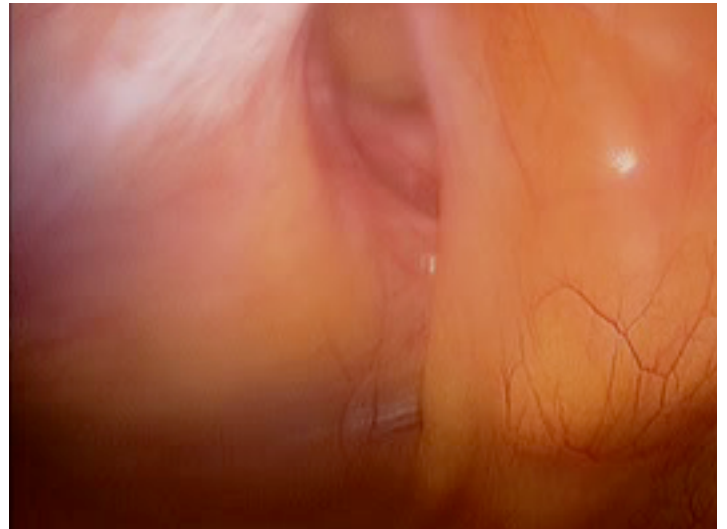


Figure 2: Laparoscopic image of hernia



Figure 3: Mesh repair shown laparoscopically

## • Surgeon Profile— Robert E. Marsh, M.D., FACS

Dr. Robert E. Marsh was raised here in the Puyallup area. His father is a local primary care physician. After graduating from Governor John R. Rogers High School, Rob went on to Oregon State University. He then went on to Oregon Health Sciences University in Portland, Oregon (following in his father's footsteps).

His surgical residency was at Creighton University in Omaha, Nebraska. While there he did research in gastroesophageal reflux disease and the surgical treatment of the same. He had the honor of working with the current editor

of the textbook *Hernia*, Dr. Fitzgibbons. In fact, he wrote a chapter for that book. He has been interested in the laparoscopic and conventional repairs of inguinal and incisional hernias since that time.

Rob is married and has three children- the oldest about ready to start high school. He is an avid, albeit decidedly average, golfer. He and his family enjoy traveling and recently completed a two week trip to London, UK. He was able to visit the stadium of his favorite football team while there.



# ClarityHealth

As noted in the last issue of Occasional Specimens, we are now members of ClarityHealth. The reasons for this are multiple. ClarityHealth Services provides a secure web-based patient Referral Service that empowers physicians to collaborate more effectively and efficiently with their referral networks. Clarity's Referral Service provides the means for referring practices (Primary Care or Specialists) to exchange information with a Specialist, allows Specialists to share their referral protocols and information requirements with referring practices, and the community of providers caring for a common patient to share results.

- ClarityHealth's service provides a cost-effective means to overcome the challenges with current approaches to Referral Management:
- ClarityHealth is not simply technology but a service solution; helping connect physicians and share information across a medical community;

- ClarityHealth can be used to manage referrals for all patients and to any provider regardless of whether they subscribe to the service;
- Any provider in a Care Community can subscribe to ClarityHealth and share information with a patient's online care team across multiple care settings;
- ClarityHealth relieves clinics of the task of coordinating insurance information in a consistent way that all providers can trust;
- ClarityHealth is a workflow solution that saves time and is effective in both highly automated as well as paper-based practices."

Please contact our practice manager Candace (841-9640) for any problems that you might encounter with connecting. As always, we would like to explore all possible means of better serving you in the community.



## How to Reach Us!

Our surgeons welcome direct calls to their cell phones for any concerns. If they are in surgery, they'll get back to you as soon as possible. Just leave a message on the cell phone. You may also leave any of us a text message (SMS) and we'll return your call as soon as possible. If you don't need a specific surgeon, or are unable to contact us after a reasonable period of time, call the office to speak with one of the surgeons in the clinic or to contact the doctor on call:

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