Published in final edited form as:

Am J Surg. 2007 November ; 194(5): 659–662. doi:10.1016/j.amjsurg.2007.08.002.

Current Opinions About Laparoscopic Incisional Hernia Repair - A Survey of Practicing Surgeons

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Abstract

Background—Incisional hernias are common. The optimal repair is one of the most analyzed and debated topics. There is no consensus as to the appropriate surgical technique.

Methods—An IRB approved protocol was designed using an internet-based survey site (www.surveymonkey.com) to assess practices and opinions regarding incisional hernia repair.

Results—Of 766 surgeons, 204 (27%) responded. Most respondents practice in an academic, urban hospital. 85–96% performed basic laparoscopic procedures. The median percentage of laparoscopic to total hernia repair was <10%. Use of the laparoscopic technique was associated with a higher volume of hernia repair ($r_{\text{Spearman's}}=0.315$, $p=0.001$), concurrent advanced laparoscopic experience (z Wilcoxon rank sum = -2.348, $p=0.019$) and completion of a laparoscopic fellowship (z Wilcoxon rank sum = -3.317, $p=0.001$). When asked how many would start to perform laparoscopic hernia repair, 81% indicated “no”. In that group, 52% indicated that a lack of improved results was the main reason, followed by risk of enterotomy > operative time > cost > experience. Those who would start indicated that the main reason was patient request (54%). Among those that use the laparoscopic technique, 85% indicated that they would perform more. The main reason for this was a lower recurrence rate (42%).

Conclusions—There continues to be a lack of consensus on the most appropriate repair method of incisional hernias. Surgeons with experience with advanced laparoscopic techniques, laparoscopic fellowship training, and higher volume of hernia repair are more likely to use a laparoscopic approach.

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Summary Statement: This survey of practicing surgeons reveals remarkable consistency in the use of mesh, a preference for a traditional open repair of incisional hernia and a positive outlook on the laparoscopic approach from those that use it. Use of the laparoscopic technique for incisional hernia repair is associated with volume of hernia repair procedures, use of other advanced laparoscopic techniques and the completion of a laparoscopic fellowship.

Keywords

survey; laparoscopy; incisional hernia

Introduction

Incisional hernias are a common complication of surgical procedures. Risk factors for their occurrence have been well documented. [1] Multiple procedures, techniques, and materials have been developed for the treatment of incisional hernias, but none have been universally accepted or effective.[2–4] Consequently, the surgical community continues to debate the ways to repair these abdominal wall defects and there is no consensus on the best management.

Minimally invasive techniques have changed the approach to multiple surgical conditions including incisional hernia. The theoretical advantages of a minimally invasive approach to incisional hernia repair are well described. [2,4–9] To this date, there have been several direct comparisons of the open hernia repair techniques to the laparoscopic techniques with favorable, but not conclusive results. [5,10–19] Despite the support of this new technique, there are many who remain unconvinced of any advantage of the laparoscopic approach to the repair of incisional hernias. Surveys of practicing surgeons in West Scotland reveal a lack of utilization of laparoscopic hernia repair and variation in techniques for repair of incisional hernia.[20, 21]

Opinions of currently practicing surgeons in the United States are unknown. As well, it is unclear how often this technique is utilized. Therefore the purpose of this study is to identify current practice trends and opinions about hernia repair in the US.

Methods

An on-line survey instrument using a commercially available survey sponsor (www.surveymonkey.com) was designed by the authors (ACA, CFB). This survey site allowed us to send the invitations and then anonymously, and securely, collect the responses. The respondents were limited to a single response. This survey was sent out to practicing surgeons in the US whose names and e-mail addresses were obtained from publicly available membership lists of surgical professional organizations. The institutional review board (IRB) approved the protocol and survey instrument with the requirement that the authors not have any access to protected health information of the individual respondents. The IRB granted a waiver of both HIPPA and written Informed Consent.

The survey was designed to collect the type of data we needed to answer our study question. The survey employs basic conditional logic, and, therefore, the denominator for each question differs. Respondents were encouraged to add free text comments. After the survey support site received the responses, all data were downloaded. We determined the response rate by comparing the successfully sent invitations (sent - returned = successfully sent) to the number of responses. Statistical methods included standard descriptive statistics, Spearman rank order correlation, and Wilcoxon sign rank tests. For all inferential tests, α was set at 0.05. Data were analyzed using SPSS version 15.0 (Chicago, IL).

Results

Of 766 surgeons surveyed, 204 (27%) responded. Data are presented in table 1. Three quarters of the respondents report that repair of incisional hernias is a part of their practice. The majority (85%) of respondents describe their practice as being in an academic, urban hospital

environment. Although 12% report completing a laparoscopic fellowship, a majority of respondents (85–96%) perform basic laparoscopic procedures (cholecystectomy, appendectomy, or diagnostic laparoscopy) and many (14–52%) perform advanced laparoscopic procedures (gastric bypass, colon resection, inguinal hernia repair, splenectomy, adrenalectomy). The respondents performed incisional hernia repair procedures at a median rate of 24 cases per year (range 3–100). The median percentage of laparoscopic to total hernia repair was <10% (range 0–100%). The median length of time respondents reported employing the laparoscopic technique was 3–5 years.

Among respondents that do not presently perform laparoscopic incisional hernia repair, 82% indicated they would not begin. Of these, the majority (52%) indicated that they believe the results of laparoscopic repair are “not better than the traditional open repair”. Other reasons included: risk of enterotomy > longer operative time > higher cost > lack of experience. It is interesting to note that the 19% of surgeons who report that they were going to start to perform laparoscopic hernia repairs indicated that the main reason was patient request (54%); whereas only 31% reported that improved results reported in the literature prompted adoption of the laparoscopic technique.

Among those that use the laparoscopic technique, 85% indicated that they would perform more. The main reason for this was that the laparoscopic approach was associated with a lower recurrence rate (42%). Additional reasons included fewer number of complications > less pain > shorter hospital stay > patient request > easier procedure to perform. Use of the laparoscopic technique was associated with a higher volume of hernia repair ($r_{\text{Spearman's}}=0.315$, $p=0.001$), concurrent advanced laparoscopic experience (z Wilcoxon rank sum = -2.348, $p=0.019$) and completion of a laparoscopic fellowship (z Wilcoxon rank sum = -3.317, $p=0.001$).

Our survey identifies a wide acceptance of the use of mesh to repair even small hernia defects. In fact, mesh repair was reported in over 86% of procedures for repair of incisional hernias from 3 to over 10 cm in diameter. However, for hernias smaller than 3 cm in diameter only 48% of respondents offered repair with mesh. When asked if they would offer surgical repair to all patients 75% answered “no” and the main reasons were presence or absence of symptoms (78%) then patient comorbidities (45%) followed by hernia size (35%). Most (80%) reported that they do not use a bowel preparation in their patients prior to the repair of an incisional hernia.

When asked about the specific management of complications associated with incisional hernia repair, most (56%) report that they would delay placement of mesh if an enterotomy was identified. However, 3% of respondents reported they would place mesh regardless of the amount of spill identified during an incisional hernia repair. Among those that would postpone mesh placement the median interval was 4 weeks (range 3 days to 6 months). Nine out of ten respondents stated that they use intra-abdominal tacks and transfascial sutures to secure the mesh during the incisional hernia repair compared to tacks (6%) or sutures (4%) alone.

Discussion

Incisional hernias continue to complicate current surgical practice. The repair of an incisional hernia continues to be a challenge and many operations have been described to repair this defect. Currently there is no consensus regarding the best approach to incisional hernia repair. [21,22] Our survey of practicing surgeons echoes this lack of consensus. We identified a median utilization rate of less than ten percent for the laparoscopic approach with respondents indicating that they believe the results are not better than the open repair. Despite the apparent lack of utilization, there exists a definite interest in adopting the laparoscopic hernia repair technique. The forces influencing the interest in the repair are complex and include patient

request and a belief that the procedure is associated with lower recurrence, shorter recovery and less pain. Interestingly, but not surprisingly, use of the laparoscopic approach is associated with higher volume of hernia repair procedures. We identified a significant relationship between advanced laparoscopic experience and use of a laparoscopic approach to incisional hernia repair.

Our survey identified a remarkably strong consensus among the respondents with respect to use of mesh and management of complications associated with incisional hernia repair. A majority of respondents indicate the use of mesh for all hernia repairs, especially for those fascial defects greater than 3 cm in diameter. This is consistent with multiple published reports about the improved outcomes of hernia repair when mesh is employed.[1,3,4,23] Another area of solidarity relates to the way mesh is secured. Controversy regarding the means of securing the mesh exists in the literature. Some espouse use of intra-abdominal tacks or transfascial sutures alone. Others recommend the use of both.[6,23–25] Respondents in our survey almost uniformly employ both. In the face of the consensus regarding use of mesh and methods of securing the mesh, we conclude that the lack of consensus regarding the use of the laparoscopic technique for incisional hernia repair is not simply a lack of knowledge of the literature related to hernia repair. Rather, it is more likely related to differences in interpretation of available data and experience of the practitioners.

Fear of enterotomy was an identified impediment to a more widespread acceptance of the laparoscopic incisional hernia repair technique. This is a widely recognized complication of both open and laparoscopic hernia repair techniques.[1,4,7,11–13,15,18,23,25–30] Respondents in our survey approach this complication conservatively, that is by delay of mesh placement for several weeks. It is interesting to note that 3% would place mesh in a field regardless of the presence of spillage of enteric contents.

Repair of asymptomatic hernias is of interest to both patients and physicians. Watchful waiting has been espoused by some for inguinal hernias[31] and questioned by others.[32] Over three quarters of respondents indicate that they use watchful waiting for asymptomatic hernias, especially when comorbidities make operative risks high. Long-term effects of this approach are unknown. Quality of life is a consideration in the decision to implement an expectant approach to the asymptomatic incisional hernia. No clear advantage to the laparoscopic hernia repair in terms of quality of life, return to work and recurrence has been identified.[16,26]

Of interest in this study, those that stated that they would not start using the laparoscopic technique for incisional hernia repair indicated that it was because the outcomes were no different. Multiple prospective trials have been completed to answer this question.[10,14,15,17–19,25,29] These trials have been contradictory in their conclusions. They have been generally small trials without significant numbers of events to make powerful conclusions. Even meta-analyses have been inconclusive regarding the possible benefits in recovery, recurrence, and cost.[26,29] Our results echo this controversy. Namely, that each group bases their use or avoidance of the laparoscopic technique based on the perceived conclusions of the literature.

Our study has a modest response rate of 27%. Thus, our conclusions might be subject to a response bias and may only be valid in our population of responders. Despite this, our survey has a greater number of respondents than previous survey studies of this subject.[20,21]

The authors developed this survey instrument based on the concepts and controversies that were felt to be important in the decision to use or not use the individual techniques of ventral incisional hernia repair among surgeons. This study surveyed opinions and perceptions of surgeons and was not designed to identify which technique performs better in patients. Additional randomized studies will likely need to be completed to identify which technique

performs best in patients with incisional hernias. Cost, quality-of-life and recurrence are critical areas that need to be addressed in these additional studies.

Finally, there are potentially unmeasured factors that would explain or change the conclusions of this study. The survey was entirely digital from invitation to completion. As such, invitees unfamiliar or uncomfortable using the internet or a computer to complete a survey might not respond. While we concede this as a possibility, we would expect the more technologically savvy individuals to be inclined to prefer a technologically “advanced” approach to hernia repair.

Our findings do not appear to suffer from a significant response effect in this regard. Additionally, most of our respondents practice in a similar environment. Responses from surgeons outside of the academic urban environment might identify different practice patterns or different reported reasons for adopting or avoiding the various techniques.

Conclusions

This survey identifies a wide acceptance of the use of mesh to repair even small hernia defects. However, there is still no universally accepted technical approach to the repair of incisional hernias in the United States. Those surgeons who have experience with advanced laparoscopic techniques, have a higher volume of hernia repair in their practice, or have completed a laparoscopic fellowship are significantly more likely to use the laparoscopic hernia repair technique. Given the choice, the majority of surgeons who responded to our survey still prefer an open hernia repair possibly due to a lack of consensus in the published data to support the theoretic benefits of the laparoscopic approach.

Acknowledgment

Jake Hathaway

Dr. Adam Alder is partially supported by NIH K12 RR023251-03.

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Table I

Data presented as percentages or median (range). Statistical tests indicated.

Response rate	204/766 (27%)
Demographics	
Do you repair incisional hernias	70/90 (75%)
Median number of hernia repairs	24/year (3 – 100/yr)
Laparoscopic Fellowship	19/155 (12%)
Academic Urban Hospital	131/154 (85%)
Perform Cholecystectomy	147/154 (96%)
Perform Advanced Laparoscopic procedures	14–52%
Length of time using laparoscopic incisional hernia repair technique	3–5 years (1 - >10 years)
What percentage of hernia repairs do you perform laparoscopically?	<10% (0 – 100%)
Do you anticipate performing more?	87/102 (85%) indicated yes
Lower recurrence rates, fewer complications, and patient request	
Do you anticipate starting to perform this procedure?	56/69 (81%) indicated no
Results no better than open repair	
How do you secure the mesh	Tacks only 6/96 (6%) Transfascial sutures only 4/96 (4%) Both 86/96 (90%)
Would you repair the defect with mesh?	<3cm - 75/155 (48%) 3–5 cm - 134/155 (86%) 5–10 cm - 151/155 (97%) >10 cm - 151/155 (97%)
If you encounter an enterotomy, how would you proceed?	Place mesh regardless of spillage - 3/96 (3%) Place mesh only if minimal spillage - 39/96 (41%) Would not place mesh - 54/96 (56%)
How long would you delay after an enterotomy?	4 weeks (range 3 days – 6 months)
Do you routinely bowel prep patients?	Yes - 32/159 (20%)
Volume of hernia repair was correlated with use of the laparoscopic technique	$r_{\text{Spearman's}}=0.315$ ($p=0.001$)
Use of other advanced procedures predicts use of laparoscopic hernia repair	z Wilcoxon rank sum $=-2.348$ ($p=0.019$)
Completion of a laparoscopic fellowship predicts use of laparoscopic hernia repair	Wilcoxon rank sum $=-3.317$ ($p=0.001$)