

# The Role of Laparoscopy in the Management of Groin Hernia

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## ABSTRACT

**Introduction:** The advantage of using minimally invasive techniques over open techniques in the repair of groin hernias is still debated. Despite its more widespread use, an apparent dichotomy exists. While some surgeons continue to believe that no advantage is gained using the laparoscopic technique, others argue laparoscopic hernia repair (LHR) offers a quicker recovery with the use of a tension-free repair.

**Methods:** A mailing to the general surgeon members of the Society of Laparoendoscopic Surgeons, an international multidisciplinary laparoendoscopic society, was performed (mailing size=1680).

**Results:** Nine hundred and ninety-three surgeons responded (60%). Across all demographic variables, 60% of respondents performed approximately 27% of their hernia repairs laparoscopically (40% of respondents did not perform LHR). Surgeon age less than 45 was the only demographic characteristic that predicted the likelihood to perform LHR ( $p<0.0001$ ) and the percentage of hernias repaired laparoscopically ( $p<0.005$ ). Most respondents felt that the presence of bilateral hernias (73%) or a recurrent hernia (74%) were indications for LHR. Eighty-nine percent of respondents felt that LHR would still be performed 20 years from now. Surgeons expressed concerns regarding increased cost, the need for more anesthesia, and a lack of long-term follow-up for LHR.

**Conclusions:** Only surgeon age predicted the likelihood of a surgeon performing LHR or the percentage of hernias that would be repaired laparoscopically.

**Key Words:** Laparoscopy, Groin hernia, Laparoscopic hernia repair.

## INTRODUCTION

Since the introduction of laparoscopic hernia repair (LHR) by Schultz in 1990,<sup>1</sup> surgeons have compared this new technique against the traditional repairs of McVay, Bassini, Shouldice and Lichtenstein. Published series have shown that LHR offers less pain<sup>2,3</sup> and quicker recovery.<sup>4,5</sup> Despite these studies, the acceptance of this procedure has been slow. During a recent international laparoscopic meeting (Endo Expo of the Society of Laparoendoscopic Surgeons), much controversy arose regarding the role of LHR.

An apparent dichotomy of thinking led us to attempt to delineate the characteristics of surgeons who perform LHR. A mailing was sent to the general surgeon members of the Society of Laparoendoscopic Surgeons, an international multidisciplinary laparoendoscopic society. The index population consisted of 1680 laparoscopic general surgeons practicing in the United States. Respondents were questioned regarding demographics (age, residency training, practice setting and volume, and geographic location) and hernia preferences. They were also asked to comment on the present and future roles of laparoscopic herniorrhaphy, as well as indications for this procedure.

## METHODS

A mailing consisting of 1680 surveys was sent to all general surgeon members of the Society of Laparoendoscopic Surgeons (SLS) practicing in the United States. After receiving responses to an initial mailing, a subsequent mailing to non-responders produced a total response rate of 60% (n=993).

The respondents were asked to answer demographic questions regarding the following characteristics:

- Age;
- Residency training: university/university affiliate, community hospital, or foreign;
- Type of hospital: community, university/university affiliate, or both;
- Size of primary hospital: < 200 beds, 200-500 beds, or > 500 beds;
- Involved in resident training: yes, or no;
- Hospital locale: rural, urban, or suburban;
- Geographic location: Northeast, Southeast, Midwest,

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Northwest, or Southwest; and

- Case volume: < 10 cases/week, 10-20 cases/week, or > 20 cases/week.

Respondents were then asked to determine whether LHR had a role in any of the following scenarios:

- Patient is old (over 70 years of age);
- Patient is young (less than 20 years of age);
- Patient needs bilateral hernia repairs; or
- Presence of a recurrent hernia.

An assessment of the concerns of respondents for the following issues was then obtained. A five-point scale ranging from "Strongly Disagree" to "Strongly Agree" was used:

- LHR takes too long to perform;
- There are unnecessary risks associated with the use of mesh;
- There is a lack of long-term follow-up for LHR;
- LHR costs too much when compared to other herniorrhaphies;
- Anesthetic considerations are greater for LHR; and
- There is no benefit to the use of LHR.

All statistical calculations were made using SigmaStat software. Statistical methods used included t-Test, Chi-square Test, Mann-Whitney Rank Sum Test, and Spearman Rank Order Correlation.

## RESULTS

A summary of demographic statistics can be seen in **Table 1**. Forty percent of the respondents were under the age of 45. This characteristic proved to be the only demographic variable that was able to predict not only whether or not a surgeon performed LHR, but also the likelihood of performing herniorrhaphies laparoscopically (**Table 2**). Univariate and multivariate analyses revealed that surgeons under the age of 45 were more likely to perform LHR (72% vs. 55%; p<0.0001) and perform a higher percentage of hernia repairs laparoscopically (30.1% vs. 26.5%; p<0.005) than their older counterparts.

A majority of respondents felt that the presence of bilateral hernias (73%) and recurrent hernias (74%) were indications for LHR (**Table 3**). Surprisingly, 39% of those surgeons who do not perform LHR still felt that bilateral hernias were an indication for LHR, and 43% of these same respondents felt that recurrent hernia was an indication for LHR (**Table 4**).

For all respondents, only 27% of hernia repairs were performed laparoscopically, in sharp contrast to 95% of all cholecystectomies performed laparoscopically. When

asked if LHR would still be performed 20 years from now, 37% responded, "yes, routinely" and 52% responded "yes, occasionally." Thus, 89% of surgeons felt that LHR would be performed in 20 years.

Finally, surgeons were asked to comment on their concerns regarding the performance of LHR (**Figure 1**). Of all these issues, respondents were most concerned about the increased cost of the procedure, the lack of long-term follow-up, and the need for increased anesthesia associated with LHR.

## DISCUSSION

Since its introduction by Schultz in 1990, laparoscopic herniorrhaphy has met with significant controversy.<sup>5,6</sup> Proponents of the laparoscopic approach argue that it offers a more sound anatomic repair with quicker recovery, less pain and less postoperative complications.<sup>7,8</sup>

<b>Table 1.</b> Demographic distribution of respondents.	
	<b>% of Respondents</b>
<b>Type of Residency</b>	
Community	23 %
University	76 %
Foreign	1 %
<b>Hospital Type</b>	
Community	70 %
University	13 %
Both	17 %
<b>Hospital Size</b>	
< 200 beds	40 %
200 - 500 beds	46 %
> 500 beds	14 %
<b>Teaching Hospital</b>	
Yes	64 %
No	36 %
<b>Hospital Location</b>	
Rural	30 %
Suburban	26 %
Urban	44 %
<b>Practice Volume</b>	
< 10 cases/week	31 %
10 - 20 cases/week	56 %
> 20 cases/week	13 %
<b>Geographic Location</b>	
Northeast/Southeast	55 %
Midwest	30 %
Northwest/Southwest	14 %

**Table 2.**  
Impact of demographics on herniorrhaphy preference.

	% performing LHR	% hernias performed as LHR
<b>Type of Residency</b>		
Community	62 %	27.2 %
University	60 %	27.1 %
Foreign	57 %	34.0 %
<b>Hospital Type</b>		
Community	62 %	28.0 %
University	60 %	21.3 %
Both	59 %	29.5 %
<b>Hospital Size</b>		
<200 beds	64 %	27.7 %
200-500 beds	56 %	27.1 %
>500 beds	66 %	29.6 %
<b>Teaching Hospital</b>		
Yes	61 %	24.2 %
No	61 %	29.5 %
<b>Hospital Location</b>		
Rural	61 %	27.2 %
Suburban	61 %	27.2 %
Urban	61 %	27.9 %
<b>Practice Volume</b>		
<10 cases/week	57 %	27.5 %
10-20 cases/week	61 %	26.7 %
>20 cases/week	66 %	33.7 %
<b>Surgeon Age</b>		
<45 years of age	72 % *	30.1 % **
>45 years of age	55 % *	26.5 % **
<b>Geographic Location</b>		
Northeast/Southeast	59 %	27.1 %
Midwest	59 %	27.9 %
Northwest/Southwest	61 %	28.4 %

\* p < 0.0001

\*\* p < 0.005

**Table 3.**

All respondents asked: Is there a role for laparoscopic hernia repair in any of the following situations?

	Yes	No
Elderly Patient (>70 years)	42%	58%
Young Patient (<20 years)	44%	56%
Bilateral Repairs	73%	27%
Recurrent Hernia	74%	26%

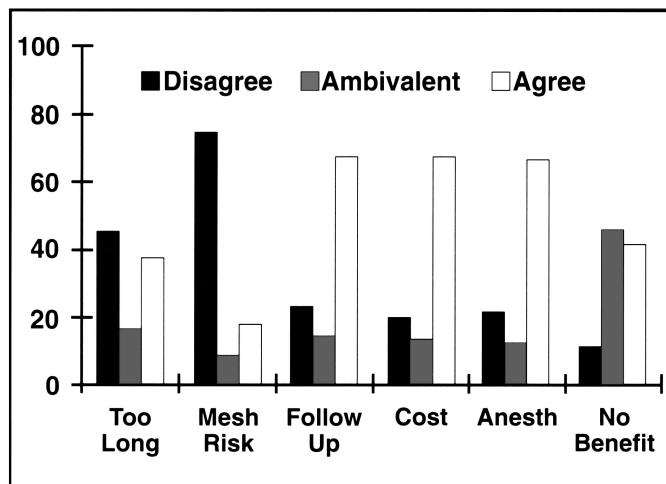
Others argue against the procedure, citing the need for extra anesthesia as well as the issues of increased cost and lack of long-term follow-up.<sup>9,10</sup>

Since there had been no prior attempts at delineating which surgeons perform LHR, we set out to try to identify

**Table 4.**

Role of laparoscopic hernia repair.  
Comparison between respondents who perform LHR and those that do not perform LHR.  
Values are the percentage responding "yes" to the question: Is there a role for laparoscopic hernia repair in any of the following situations?

	Does not perform LHR	Performs LHR	
Elderly Patient (> 70 years old)	12%	63%	p < 0.0001
Young Patient (< 20 years old)	15%	62%	p < 0.0001
Bilateral Hernia	39%	95%	p < 0.0001
Recurrent Hernia	43%	96%	p < 0.0001



**Figure 1. Histogram of surgeon responses to statements about LHR:** (1) LHR takes too long to perform; (2) There are unnecessary risks associated with the use of mesh; (3) There is a lack of long term follow-up for LHR; (4) LHR costs too much when compared to other herniorrhaphies; (5) Anesthetic considerations are greater for LHR; (6) There is no benefit of LHR over other herniorrhaphies.

fy the characteristics of surgeons who feel LHR has a role in the repair of groin hernias. To this end, a questionnaire was designed and mailed to the general surgeon members of the Society of Laparoendoscopic Surgeons (SLS). This organization was selected in order to sample the opinions of individuals who, through their association with SLS, considered themselves to be "laparoscopic surgeons."

The majority of respondents were older (60% were older than 45 years of age), and thus received any formal laparoscopic training after the completion of their residencies. In addition, the majority of these surgeons listed community hospitals of average size (200-500 beds) as their primary hospital. Surprisingly, for all respondents, only 27% of hernia repairs were performed laparoscopically, in sharp contrast to 95% of all cholecystectomies performed (or at least started) laparoscopically.

Univariate and multivariate analyses showed that only surgeon age (with the cutoff of 45 years) was able to predict the likelihood of a surgeon performing LHR as well as the percentage of herniorrhaphies performed laparoscopically. None of the other demographic variables that were tested were able to show differences in these outcomes.

Of those respondents not performing LHR (40% of all respondents), 39% felt that the presence of bilateral hernias was an indication for the laparoscopic approach, and 43% felt that a recurrent hernia was an indication for this

technique. In addition, 89% of all respondents felt that LHR would still be performed in 20 years. When one considers that only 60% of "laparoscopic surgeons" perform LHR, and only 27% of their hernia repairs are performed laparoscopically, it becomes apparent that there is tremendous growth potential for this procedure.

Surgeon concerns about increased cost, lack of long-term follow-up, and increased need for anesthesia need to be addressed in the future. Arguments that patients undergoing LHR have been shown to recover quicker, and therefore lessen the economic burden to the community, must be further documented. Further work with regional anesthesia and other modalities must continue to develop alternatives to general anesthesia. Finally, long-term follow-up must continue to reinforce the preliminary studies showing that recurrence rates following LHR are comparable to accepted open procedures.

## CONCLUSIONS

Of all the demographic variables tested, only age predicted whether a surgeon was more likely to perform laparoscopic hernia repair or predict the percentage of hernias a surgeon will perform laparoscopically. Overall, 60% of surgeons surveyed perform laparoscopic hernia repair, and 27% of hernia repairs are performed laparoscopically.

The data presented suggest the potential for an increase in the performance of laparoscopic hernia repair in the future based on perceived indications and surgeons' predictions of the future role of this approach. Issues of increased cost, long-term follow-up and increased anesthesia requirements must be addressed.

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