



Laparoscopic and open inguinal hernia repair: Patient reported outcomes in the elderly from a single centre - A prospective cohort study



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HIGHLIGHTS

- Time off work is not an appropriate measure of laparoscopic hernia repair in the over 65 year old population as the majority of this cohort is retired.
- Dizziness and drowsiness appeared to be no more prevalent in the over 65 year age group.
- Patient satisfaction with the surgery was satisfied or very satisfied in all patients in all groups.
- Overall a patient of any age can expect the same high levels of satisfaction and low levels of pain with either technique.

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ABSTRACT

Background: With those over 65 making up over 16% of the UK's population, surgeons are counselling increasing numbers of elderly patients for hernia repair. Data is currently lacking comparing different repair methods of inguinal hernias in the elderly population with regards to patient reported outcomes. **Aim:** To compare open and laparoscopic hernia repair in patients >65 years old and those <65 years old with respect to patient reported outcomes.

Method: As part of a quality assurance process patients receive a telephone consultation day 2 post procedure. This includes an optional survey with questions to quantify pain, general feeling, nausea, dizziness, drowsiness, satisfaction and vomiting since the operation. Patients were then classified into age ≥ 65 years or <65 years and subclassified into totally extraperitoneal (TEP) or open inguinal hernia repair (IHR).

Results: Data is presented from patients treated between January 2009 and August 2016, totalling those included 1167 of 2522 (55.5%). Only five patients (4.42%) reported moderate pain; in the >65 TEP group this was significantly lower (10.2% open IHR <65; 6.7% TEP <65; 12.8% open IHR >65). Patient satisfaction with the surgery was satisfied or very satisfied in all patients in all groups.

Conclusion: Time off work is not an absolute appropriate measure of return to pre-morbid status with respect to the elderly as a substantial number of >65 year olds have retired. We therefore present this interesting insight into patient perceptions following hernia repair by age group. Overall patients over 65 can expect the same high levels of satisfaction and low levels of pain following either technique for inguinal hernia repair as younger patients.

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1. Introduction

Inguinal Hernia repair is now among the most common elective

surgical procedures [1–3].

With the population of over 65 making up over 16% of the UK's population, surgeons are counselling increasing numbers of elderly patients for hernia repair [4]. Current guidelines comparing open inguinal hernia repair (OIHR) with laparoscopic inguinal hernia repair (LIHR) state that the evidence base recommending laparoscopic versus open is poor; and open inguinal hernia repair under

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local anaesthetic (LA) in the elderly state only that the open approach under LA may be beneficial in older patients who are not fit for a general anaesthetic [5]. Studies in the elderly reporting patient outcomes to date are lacking [5]. Currently, there are two studies of the elderly age groups with regard to hernia repair; one was a low cost retrospective study comparing OIHR with LIHR sampling only those above 80 [6]. The study concluded LIHR was a viable alternative to OIHR in this demographic; however patient satisfaction was the only outcome to have a significant difference [6]. Unfortunately the study lacked detail regarding anaesthetic grades and patient co-morbidities.

More recently a well-designed observational cohort study with 471 patients concluded that LIHR is safe in elderly and octogenarian patients with no major morbidities. Although they did identify that elderly and octogenarians were at greater risk for postoperative seroma and urinary retention, however patient-centered outcomes were better after laparoscopic repairs [7].

In the general population (i.e. not specific to the elderly) meta-analysis and systematic reviews; report patients undergoing LIHR suffered less acute pain, less chronic pain, less infection and a quicker return to work [8–12]. LIHR increased risk of inferior epigastric injury and visceral injury in some studies, however data from all meta-analysis and reviews originated from the same clinical pool [5].

Patient reported outcomes (PROMS) began as an initiative in 2009 within the National Health Service and is now a well recognised reporting tool; this enables the creation of health gains i.e. the benefit reported by a patient from a questionnaire before surgery and then 3 or 6 months after the procedure. PROMS data although undeniably useful does not look at short term recovery with which laparoscopic hernia repair has an advantage according to the pedagogy [8–12].

2. Aims

Firstly to compare OIHR and laparoscopic TEP hernia repair in the over 65 year old age group at our institution in terms of how well tolerated the procedure was. Secondly to compare patient experience in those aged over 65 compared to younger patients.

3. Method

All patients within our daycase unit, as part of a standard quality assurance process, receive a telephone call on day 2 post operatively to ensure they are well post procedure and given general advice. Part of this involves an optional survey, authorised by the quality and audit department of our institution, with questions designed to quantify pain, general feeling, nausea, dizziness, drowsiness, satisfaction and vomiting since the operation. All questions are phrased in a standardised way at the end of the telephone check up and are entirely optional. For example “with regards to the surgery what is your overall satisfaction” and “with regards to your surgery how much pain have you experienced”. A scale is sought in response to these questions for example “in response to question 1 would you say your nausea has been mild, moderate, severe or very severe”. General feedback is also sought with respect to a wider perspective of quality improvement.

All hernia repairs were separated into two groups; laparoscopic and open. Inclusion criteria included inguinal hernia repair under general anaesthetic (laparoscopic TEP or open IHR), listed as an elective daycase procedure via the daycase pathway. Patients were excluded if the procedure was indicated by recurrence, emergency repair, additional procedures (e.g. umbilical hernia repair), bilateral hernia and if they were managed on any other pathway than daycase. Only TEP laparoscopic hernia repairs were included,

TAP were excluded to avoid introducing heterogeneity into the laparoscopic population.

Statistical analysis was performed using IBM SPSS 20[®]. Chi squared statistical test was used for categorical data with 95% confidence interval.

4. Results

A total of 2102 patients were eligible for inclusion; 1167 of these agreed to the telephone questionnaire. Two groups were created from the prospectively maintained daycase database in the form of patients over or equal to 65 years old and those under 65 years old. These two groups were then separated further into open inguinal hernia repair and laparoscopic TEP hernia repair.

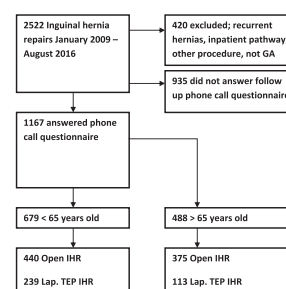
Table 1 shows the study patients inclusion breakdown, demonstrating a 55.5% (1167/2102 patients) response rate to the survey.

Table 2 demonstrates the demographics of our study population with a mean age 49.6 versus 72.5 in the two groups respectively. Median ASA of all study groups was 2, reflecting patients suitable for daycase pathway and general anaesthetic.

Table 3 presents the raw data generated by the daycase quality assurance survey. With respect to pain no patients in the over 65 year old TEP group had severe post operative pain. The overall number of severe post operative pain was low in all groups reported by only 5 patients in the whole study. Only five patients (4.42%) reported moderate pain in the >65 TEP group, this is significantly ($p = 0.029$, 95% CI) lower than in other groups (10.2% open IHR <65; 6.7% TEP <65; 12.8% open IHR >65).

Nausea was reported in all groups as not being present or mild in the vast majority of patients. Dizziness and drowsiness appeared to be no more prevalent in the over 65 year age group. Patient satisfaction with the surgery was satisfied or very satisfied in all patients, in all groups; there were two patients in the open >65 year age group that reported not being satisfied with their surgery,

Table 1
Study patients inclusion breakdown.



Lap. Laparoscopic.
GA general anaesthetic.
TEP IHR Totally Extra peritoneal Inguinal hernia repair.
IHR Inguinal hernia repair.

Table 2
Patient demographics.

	<65 Years of age		≥65 Years of age	
	Open IHR	LTEP IHR	Open IHR	LTEP IHR
Total patients	440	239	375	113
Age (year) mean	48.4 ± 13,	50.7 ± 10.9,	72.7 ± 5.6,	72.3 ± 5.7,
± SD, range	18-64	18-64	65-89	65-90
ASA (median)	2	2	2	2

SD standard deviation BMI Body Mass Index.

Table 3
Raw data from questionnaire; Lap. Laparoscopic <65 = Less than 65 years of age group, ≥65 = More than or equal to 65 years of age group.

	General Feeling	Pain	Nausea	Vomiting	Dizziness	Drowsiness	Patient Satisfaction
<65 Open	Very Good	171	Severe 2	Severe 0	>4 times 1	Severe 0	Very satisfied 324
	Good	222	Mod. 45	Mod. 4	2 - 3 times 3	Mod. 4	Satisfied 116
	Reasonable	44	Mild 231	Mild 20	Once 5	Mild 14	Not satisfied 0
	Bad	3	None 162	None 416	No 431	None 422	
<65 Lap.	Very Good	103	Severe 1	Severe 0	2 - 3 times 0	Severe 0	Very satisfied 184
	Good	116	Mod. 16	Mod. 0	Once 1	Mod. 0	Satisfied 55
	Reasonable	19	Mild 128	Mild 9	No 238	Mild 10	Not satisfied 0
	Bad	1	None 94	None 230	Null 0	None 229	
≥65 Open	Very Good	150	Severe 2	Severe 1	>4 times	Severe 1	Very satisfied 282
	Good	162	Mod. 48	Mod. 3	2 - 3 times 5	Mod. 2	Satisfied 91
	Reasonable	59	Mild 198	Mild 21	Once 9	Mild 12	Not satisfied 2
	Bad	4	None 127	None 350	No 361	None 360	
≥65 Lap.	Very Good	52	Severe 0	Severe 0	2 - 3 times 3	Severe 0	Very satisfied 93
	Good	47	Mod. 5	Mod. 1	Once 1	Mod. 0	Satisfied 20
	Reasonable	13	Mild 50	Mild 6	No 109	Mild 8	Not satisfied 0
	Bad	1	None 58	None 106		None 104	

these patients reported that they were unhappy with the scar and reported severe pain.

The general feeling following surgery was bad in 0.88% TEP >65; 1.06% Open IHR >65; 0.41% Lap <65; 0.68% < 65 Open IHR respectively. There was no statistical significance for patient satisfaction within all four groups (p = 0.227; 95% CI). In Fig. 1 all responses are represented in graphical format amongst the LIHR and OIHR in both age groups.

5. Discussion

We present patient reported outcomes following inguinal hernia surgery divided into two groups in relation to the over or under 65 years of age. Patient reported outcomes have become much more publicised due in part to a productivity driven National Health Service in the United Kingdom and patient expectation. With the Montgomery case ruling regarding consent it is now more important than ever to be aware of the patient reported outcomes for procedures specific to the patient in front of you [16].

At our institution we have a standardised daycase pathway for patients undergoing total intravenous anaesthesia or general anaesthetic with a laryngeal mask airway for open IHR. In the case of laparoscopic TEP repair the patient receives an endotracheal tube with either TIVA or general anaesthesia as standard. A standard

take home pack is issued in the form of non opioid medication, unless the patient has contraindications to non steroidal anti-inflammatory drugs in which case codeine is prescribed for breakthrough. It is for this reason; patients who were operated on as a daycase but were admitted through the ward or non daycase routes were excluded from the study to avoid confounding factors skewing the data from non standardised management. We excluded patients who had bilateral hernia repairs, or additional surgeries to their hernia repair as we believed this would introduce confounding factors.

Overall daycase surgery for inguinal hernia repair in all groups appears from our data to be well tolerated and results in an overall high satisfaction from the majority of patients regardless of the technique. Most patients report no or mild pain; in the >65 group TEP group this is the lowest. Surprisingly the highest percentage of moderate pain reported was in the <65 year TEP hernia group. There is no indication from the data that laparoscopic daycase hernia repair should not be performed in the over 65 years of age group with respect to patient reported outcomes. Indeed in the short term it is likely to offer less post operative pain which corroborates the pedagogy regarding laparoscopic hernia repair with our study showing statistical significantly lower pain levels reported by patients over 65 years old following laparoscopic TEP hernia repair.

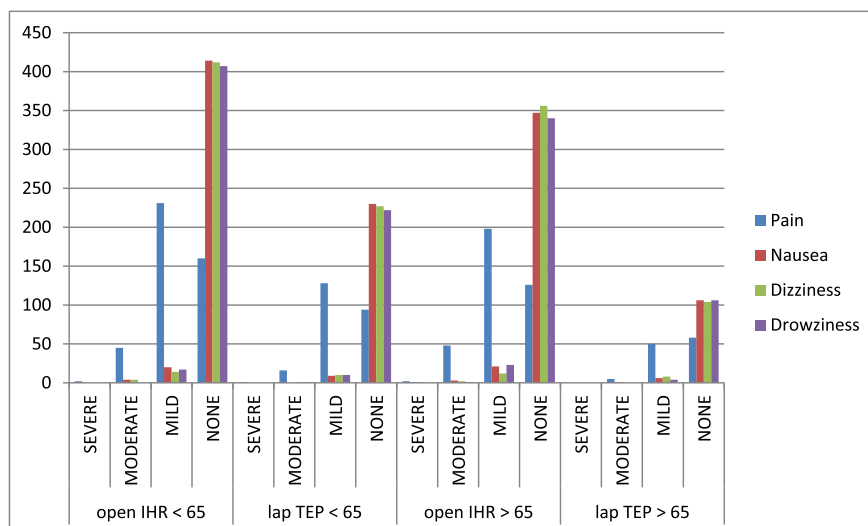


Fig. 1. Graphical representation of patient responses.

A problem with reported outcomes in the short term is that it takes into account none of the premorbid status of the patient as is the case with PROMS and health gain. The authors also appreciate the limitations of phone consultations, as the patient may feel less able to express dissatisfaction to a healthcare worker directly. The counter argument is that postal surveys have the limitation of reporting bias, where patients are more likely to respond with extremes of view than with a satisfactory experience.

Our data concurs with previous data that patient pain levels are better in the laparoscopic >65 group. There was no patient report to suggest severe complications such as bowel or bladder injury in this cohort as has been shown in previous studies but our study was not setup to detect these outcomes [6,10].

6. Conclusions

Time off work is not a sole appropriate outcome of hernia repair becoming less applicable in the over 65 age group cohort, of which most are retired and so better quality indicators are needed for future study in this age group; in terms of measuring return to premorbid status. We therefore present this interesting insight into patient perceptions following their hernia surgery comparing patient reported outcomes between the two age groups. With respect to the aims of this study we have shown that either laparoscopic or open is a well-tolerated procedure and overall a patient over 65 can expect the same high levels of satisfaction and low levels of pain following either technique for inguinal hernia repair as the under 65 age group as reported by the group themselves.

Our evidence suggests that the over 65 year old age group may benefit in the short term from significantly lower pain levels following laparoscopic TEP hernia repair; but as stated pain levels are generally low amongst all groups making either approach suitable.

Ethical approval

Audit and research department Torbay.

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Author contribution

All authors were involved equally in study design, data collection, analysis and writing.

Conflicts of interest

None.

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