

## Original Research Article

# A prospective study of 100 cases of day care surgery in inguinal hernia

**Bhavesh Vaishnani, Rahul Khokhar\*, Mohit Chauhan**

Department of Surgery, PDU Medical College, Rajkot, Gujarat, India

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**\*Correspondence:**

Dr. Rahul Khokhar,

E-mail: rahulkhokhar51@gmail.com

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### ABSTRACT

**Background:** Day care or ambulatory surgery is a concept familiar to surgeons since time immemorial more so now as world over it has been re-evolved into a specialty in the modern medical care scenario. The patients and the procedures are selected in such a way so as to cause minimal harm or disturbance to the patient and his life.

**Methods:** Present prospective study was conducted on 100 patients at the department of surgery, PDU medical college, Rajkot, Gujarat for the duration of one and half years. Patient's history had been taken regarding duration of illness, complain, and physical examination was done. With local examination of each specific cases done and then post-operative follow up was taken.

**Results:** None of the patients had major immediate complications out of 100 patients, 18% of patients had minor immediate post op. 2 out of 100 patients had stay for more than 23 hours, due to immediate post-operative complications and 4 patients had to be re admitted post discharge. 96% of inguinal hernia patients are satisfied with the concept of day care surgery that proves acceptance for day care surgery.

**Conclusions:** Day care surgery is suitable for patients of all age groups as seen in our study for inguinal hernia management. Looking at the advantages of reduction of hospital stay, less post-operative pain and greater satisfaction, day care hernia should be promoted.

**Keywords:** Hernia, Hospital stay, Pain, Satisfaction

### INTRODUCTION

Day care surgery is defined as planned investigations or procedures on patients who are admitted and discharged home on the day of their surgery but who require some facilities and time for recovery. In most countries this means that the patient spends a few hours in hospital and does not stay overnight. However, in USA and a few other countries, it includes patients who may spend up to 23 hours in hospital. In this study, the 23 hours criteria are followed, allowing greater range of procedures to be performed.<sup>1-4</sup>

In recent centuries, as hospitals have developed almost all surgeries have shifted to the hospital setting. During the 20<sup>th</sup> century there have been repeated attempts to re-

popularize and extending the advantages of discharging the patient on the day of operation which are of moderate complexity.<sup>5-8</sup> Day care or ambulatory surgery is a concept familiar to surgeons since time immemorial more so now as world over it has been re-evolved into a specialty in the modern medical care scenario. The patients and the procedures are selected in such a way so as to cause minimal harm or disturbance to the patient and his life. One has to be very careful and judicious in selecting the appropriate procedure and patients as otherwise it can lead to major complications. Just because the procedures are not "major" we can't afford to take them lightly. All the preparations and facilities required in a major surgery should be met with in a day care procedure. As the concept of day care surgery is yet to flourish in India care needs to be exercised in explaining the patients this new concept. General Practitioners act as

a bridge between the patients and the with their strong support, day care surgery can flourish in India.<sup>9-12</sup>

### ***Aim and objectives***

Present study was done with an aim to study the advantages and disadvantages of day care surgery, to assess the feasibility of day care surgeries especially in government institutes as well as how much burden of this day care surgeries and to identify factors for strengthening the potentials of day care surgery.

### **METHODS**

Present prospective study was conducted on 100 patients at the department of surgery, PDU medical college, Rajkot, Gujarat for the duration of one and half years from January 2020 to October 2020. Ethical approval was taken from the institutional ethical committee and written informed consent was taken from all the participants. All the patients who include in our study were selected by random sampling method. Patient's history had been taken regarding duration of illness, complain, and physical examination was done. With local examination of each specific cases done and then post-operative follow up was taken. A transverse incision in lowest inguinal crease with medial end lateral and above to the pubic tubercle was used for herniotomy. Operations were carried out by experienced general consultant general surgeon or by registrar under supervision. Operation was carried out under intravenous anesthesia with face mask without intubations.

### ***Inclusion criteria***

Inclusion criteria for current study were; patients weight <75 Kg, patients weight >35 Kg, age of patient should be >1 year and <60 years and patients who haven't any critical illness and should not associated with any severe morbidity.

### ***Exclusion criteria***

Exclusion criteria for current study were; patient having associated of morbid pathologies like uncontrolled DM II and DM I, P/H of CV stroke within 1 year, PH of MI within last 6 month, moderate to severe asthma, psychologically unstable, hypertensive patient having systolic blood pressure >140, any type of neurosurgical or cardiothoracic procedure in last 1 year, other diseases which requires urgent medical intervention, procedure requiring more than 60 minutes, surgeries having major fluid loss or blood loss and patient lives far away greater than 60Km of hospital premises.

### ***Statistical analysis***

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2007) and then exported to data editor page of SPSS version 15

(SPSS Inc., Chicago, Illinois, USA). For all tests, confidence level and level of significance were set at 95% and 5% respectively.

### **RESULTS**

A total number of 100 patients were operated for inguinal hernia on day care basis in the present study at P.D.U. medical college, Rajkot during the period from December 2018 to July 2020. Pre-operative work up was done of all patients who had undergone inguinal hernia surgery on out-door patient basis and then prospective observational study was conducted. The mean age in the study was 16.66 years. In the present study, the upper age was limited to 60 years so as to avoid major complications in the elderly like MI, pulmonary embolism, CV stroke, etc (Table 1-2). Most of the patients were residing within 20 km of distance and patients whom residences were more than 20 km distance stayed at their relative's home nearby the hospital (Table 3).

**Table 1: Sex groups.**

Sex group	N
Male	99
Female	1
Total	100

**Table 2: Age distribution (n=100).**

Age group (years)	N (%)
1-10	9 (9)
11-20	3 (3)
21-30	12 (12)
31-40	12 (12)
41-50	18 (18)
51-60	46 (46)

**Table 3: Distance from the hospital (km).**

Distance from hospital (km)	N
1-10	37
11-20	17
21-30	13
31-40	13
41-60	20

Out of 100 patients, 13 patients had associated medical conditions with all above are of 50 year of age. All of them operated for inguinal hernia with regional anaesthesia. Out of 100 patient most of the patients were operated in ASA grade III. Out of 100 surgeries, 82% of surgeries were carried out under spinal anaesthesia, while 9% were carried out under local anaesthesia and 9% were done under general anaesthesia. Surgeries done under local anaesthesia were associated with the least duration of hospital stay, whereas those done under general anaesthesia were associated with higher duration of stay.

All the procedures were completed within maximum of 60 minutes or less duration, as shown in (Table 4). The mean duration of surgery in this study was 48.16 minutes and 7% of patients required 30 minutes and 93% of patient had required 45 minutes to 60 minutes for duration of surgery. Total 18 patients had minor immediate post-operative complications out of which of them suffered from anaesthesia related complication (like PONV, urinary retention, drowsiness) and suffered from surgery related complication (like, pain) as shown in (Table 5).

**Table 4: Immediate post-operative complications.**

Immediate post-operative complications	N
<b>Pain</b>	12
<b>Post operative nausea and vomiting</b>	0
<b>Urinary retention</b>	6
<b>Bleeding</b>	0
<b>Headache</b>	0

**Table 5: Symptoms at home in first 24 hours post discharge.**

Symptoms	%
<b>Pain</b>	7
<b>Swelling</b>	0
<b>Difficulty in micturition</b>	0

Post-operative pain is most common complaint in ward; to all patients we give injectable diclofenac immediate post operatively on operation table or in recovery. There after patient were assessed at 5 hrs for pain by VAS. If the VAS was >4, it was considered significant and injectable diclofenac or tramadol given. 12 patients having post-operative complain of pain in ward. Patients had mild pain on discharge and were given oral analgesic. 6 patients had urinary retention operated for inguinal meshplasty, all of the patients had passed urine after mobilization before discharge.

Two patients had to be kept indoor for more than 23 hours due to prolonged post-operative urinary retention. 98 patients had spontaneously passed urine before discharge and two of them required urinary catheterisation, tolerated sips to liquid, fully mobilized. Out of 100 patients only 4 had mild pain at operative site and they were safely discharged with oral analgesics. None of the patient had PONV at time of discharge. All patients were followed in OPD for examination, Out of 100 patients 22 patients were called on POD third for follow up examination and all others were called on seventh POD. On POD third there were 2 patients was present with mild localised pain over operative site, and on seventh POD there were 5 patients present with scrotal edema with no tenderness. Four, of the patients in present study had re admission on seventh POD for scrotal edema with discharge from stitch line which was operated for inguinal meshplasty. One of them was expired on POD

tenth that patient having controlled DM II and controlled HTN and expired due to septicaemia.

Immediate post-operative complain at home was pain in 7% of patients and they were treated with oral analgesic and pain relieved satisfactorily in all patients at home. Overall, 96% of patients had a satisfactory experience with day care surgery in the present study. Out of 4, one patient of inguinal meshplasty, with controlled DM II & controlled HTN developed wound infection and get readmitted on POD seventh and wound grading system according to Southampton Grading it was of grade IV and treated wound with daily wound care and injectable antibiotics according to culture and sensitivity with injectable insulin and oral anti-hypertensive medication and daily monitoring of RBS and blood pressure and with all resuscitative method but patient expired on POD tenth, and one of them having wound infection and treated with antibiotic according to culture and sensitivity and wound care but due to mesh infection, mesh removal done on POD twenty-fourth, two of them having post-operative pain on second follow up on POD fourteenth with clean and healthy suture line and treated with oral analgesic and counselling of patient and relatives were done but patient was not satisfied.<sup>13</sup>

## DISCUSSION

Day care surgery is now a popular and preferred mode of treatment for most surgical patients. In the United Kingdom, 55% of elective surgery is carried out in day care setting Surgery in an outpatient setting has become a global trend and is expanding. At present, 75% of all surgical operations carried out in day care surgery centres /units in India, the concept of stand-alone day care surgery center is currently in its infancy Studies reveal that treatment in these centres would cost about 47% less than that in hospitals This would be an economically better option for the Indian health sector.

Increasing pressure on health care resources as well as advances in anaesthetic and surgical technique has led to rapid expansion of day care surgeries Patients welcome these changes because surgery causes minimal disruption to their working and domestic life. In our study, total 100 patients were operated on day care basis during the period of November 2018 to October 2020 with 9 (9%) patients paediatric age group age below 10 years and 46 (46%) patient above 50 years of age. Paediatric patients were operated for congenital inguinal hernia with no any complication. In the study by Ojo et al ages ranged between 1 week and 100 years with a mean of 39±23 years and 15.8% of patients belong with paediatric age group.<sup>14</sup> In both of these studies, there were no major post-operative complications in the patients above 70 years of age. In our study spinal anaesthesia was the preferred mode of anaesthesia as it avoided the long-term recovery room stay compared to also avoid post-operative drowsiness general anaesthesia. In our study total 9 patients were given GA out of 100. Inguinal hernia

repair is a significant cost burden for healthcare systems already under financial pressure. In our study, 100 inguinal hernias operated out of them 9 patients were under hernia block and 82 patients under spinal anaesthesia,

Most common complain immediately after operation was pain which was controlled by good analgesics given in injectable form in hospital and orally after discharge in our study all patients were given injectable diclofenac after patient shifted toward from recovery This results are in accordance with study done by Agbakwuru et al.<sup>15</sup> In our study, 12 patients complained of pain at operative site in ward 4 had mild pain on discharge and 2 had pain in sequent follow up which was well controlled with oral analgesics. Another result in this study was the extent of pain's interference with daily function, especially interference with work at seven days after which it decreased. All patients were discharged after tolerating sips to liquid orally well.

Out of 100 there were 12 patients had associated medical condition and 11 in ASA grade III were operated none of them had post-operative local pain and none of them had difficulty in micturition. And 1 of them, developed scrotal edema and 1 patient with DM had wound infection with scrotal edema. In study of Dhumale et al study of 1164 patients who underwent inguinal hernia repair as day care local anaesthesia without sedation, none required conversion to general anaesthesia.<sup>16</sup> This has been shown to cost effective and safe in large series of patient. There were three (0.3%) recurrences. Complication rates were low and similar to those obtained in other specialist hernia units. More than 90% of patients were satisfied with the service and would recommend it to a friend. Our study showed that, those procedures which do not involve lot of bowel handling, where dissection remained clean, and haemostasis was to satisfaction of surgeon, they would have uneventful post-operative course & could be safely operated in day care surgery.<sup>17</sup> In study of Athanasios et al in 110 patient study of safety and effectiveness of outpatient laparoscopic cholecystectomy in teaching hospital had unplanned admission for 15 patients (14%), no patient presented post-operative PONV on the day of surgery 95 cases (86%) were discharged while overnight admission required for 15 patients (14%).<sup>18</sup> At end of 1 week 94 patients (85%) were satisfied with day care surgery. In our study there is 2% patient had difficulty in micturition and 7% had pain at home in first 24 hours. In the study by Row et al 1 patient out of 75 inguinal hernioplasty patients required unplanned admission due to excessive drowsiness.<sup>19</sup> Four patients had urinary retention for which urinary catheterization was necessary. They were discharged home with catheter.

Unplanned admission was none in the paediatric age group in the present study. In the study by Rees et al the unplanned admission rate was 0.5% in the paediatric age group. However the case mixed of procedures differed in

both the studies. It was also acknowledged that the sample size was very large compared to the present study. The study by Fortier et al had included procedure like vein stripping & anal procedures.<sup>20</sup> Complication may be considered as a major morbidity if it retards a patient's recovery. Interfere with the planned postoperative discharge, necessitates readmission, involves the general practitioner or district nurse in an excessive work load, or causes undue distress or anxiety for patient or his relatives. It is related to the type of anaesthesia used and surgery itself but the procedure is generally most predictor of complication. Overall reported complication rates once patient has returned to home ranged between 0.9% and 13%, however major morbidity with potential for serious harm or death was rare when patients were well selected in many instance the complication rates for day cases were found lower than inpatient for similar procedures As day surgery removes the patient from hospital environment and decrease sedentary complication such as DVT and pneumonia.<sup>21-24</sup> In our study surgical complication related readmission was 1 (0.91%). In one large study of Mezei et al preoperative, intraoperative and post-operative data were collected on 17,638 consecutive patient undergoing day care surgery at surgical centre in Toronto and data showed total 193 readmission within 30 days after day care surgery (readmission rate 1.1%).<sup>25</sup> Out of them only 26 complication related readmission (0.15%) which extremely low These results give further support to the view that day care surgery is safe practice.<sup>22-24</sup> Day surgery patient satisfaction rates are high with the vast majority of patients treated preferring to repeat their procedures as day cases. In our study patient's satisfaction was 96%, which was compared to other studies.<sup>24,25</sup> In our study high patient satisfaction was due to careful patient selection, high anaesthetic standards careful surgery and adequate post-operative analgesia and on discharge proper post-operative verbal and written instruction. As this study was done in the small sample size we cannot generalize the results for the population of same geographical area.

## CONCLUSION

Day care surgery is suitable for patients of all age groups as seen in our study for inguinal hernia management. Recovery after operative procedure is faster in familiar surroundings. This is very important for recovery of patients of older age group and early resumption of day to day work for working population. Also, it is cost effective to the government and to authority. Looking at the advantages of reduction of hospital stay, less post-operative pain and greater satisfaction, day care hernia should be promoted. The added advantage of home support from the traditional official extended family system which still exists in our country. Being a day care procedure it also reduces hospital stay thus reduces the chances of hospital acquired infections. The concept of day care surgery in inguinal hernia management, whether



this patient should sent home, need to be changed to “does this patient even need to be admitted?”

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