

# Repair of Inguinal Hernia as Day Care (Ambulatory) Vs Inpatient (Routine) Surgery, Study at Mayo Hospital, Lahore

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This cross sectional, comparative study carried out in the Department of Surgery, Mayo Hospital, Lahore over a period of one year. Study include 80 patients divided in two equal groups i.e., day care (ambulatory) and inpatient (routine). To compare postoperative complication, economic benefits, routine daily activity and also to evaluate acceptance of day surgery in our set up. Those belonging to day surgery were worked up on OPD basis and in inpatient group admitted 1 day before surgery. General, regional or local anaesthesia used either alone or in combination and procedures performed were herniotomy or herniorrhaphy. The final results were conclusive enough to show that day care hernia can be successfully performed in one set up and comparable results in terms of operative & postoperative complications can be obtained and are matchable to any hernia centre. Hospital stay and expenses of treatment on hospital resources are significantly reduced.

**Key words:** Inguinal hernia, day care (ambulatory surgery), inpatient (routine surgery)

Hernia is a protrusion of a viscus or a part of viscus through an abnormal opening in the walls of its containing cavity. The commonest forms of hernia are external abdominal hernias of which most frequent variety is inguinal hernia. They are one of the commonest problems in a surgical out-patient department and the incidence of hernia within a general population is estimated at 3%, with 10% to 15% cases occurring in adults, predominantly in males. Similarly hernia repair is one of the most frequently done procedure by general surgeon in an elective operation setting. The treatment however present several challenges regarding planning of operative technique, anesthesia, postoperative care, and convalescence.<sup>4</sup> Patients are used to be admitted for 2-3 days for hernial repair, which caused economic burden on patients, suffering for attendants, and in busy units they have to wait for longer time.

Success of groin hernia repair is measured primarily by the permanence of the operation, fewest complications, minimal cost and earlier return to normal activities.<sup>2</sup> The repair of inguinal hernia has changed drastically over a short period (in recent decades) as a result of improvement in surgical as well as anesthetic techniques and also by introduction of day surgery.<sup>3</sup>

The concept of day surgery (ambulatory) was given in the beginning of 20<sup>th</sup> century. James Nicoll a Scottish surgeon reported 9000 day cases in 1909. Other contributors are Eric Farquharson (performed first herniorrhaphy under local anesthesia as day case in 1951). Since then inguinal hernia repair is one of the most frequently done procedure as day case surgery.<sup>8</sup> Hospital stay in day surgery varies from few hours upto 23 hours depending upon the setup of given hospital. The reason for its acceptance in both doctors and patients are reduction in financial constraints on public health resources, less postoperative complications and also early return of the patient to normal activities. Local, regional or general

anesthesia are all used for hernia repair but to different degree and primarily depending upon the institutional interest in hernia surgery. Patients operated in day case surgical setup varies from 6% in France to 83% in USA and 60% in Denmark<sup>3</sup>.

## Objectives of study

1. Is day case (ambulatory) inguinal hernia surgery is as safe and effective as in-patient (routine) inguinal hernia surgery with respect to postoperative complication (Pain, Infection, Hematoma, Seroma, Post operative neuralgia, Recurrence, Chronic pain), routine daily physical activity (do his work himself, Activities like sex, driving and climbing stairs) and return to work
2. To evaluate patient's satisfaction for day case inguinal hernia surgery

## Patients and method

**Setting:** This study was carried out in East Surgical Unit of Mayo Hospital Lahore, from July 2001 to July 2002.

**Study design:** This is cross sectional, comparative study carried out in a total of 80 patients admitted through OPD.

**Patient Sampling:** Eighty male patients ranging from 20-70 years of age, who presented in OPD were selected due to convenience and patient included are responsible adults of either sex who can be supervised at home over night and adults living with in one hour drive from hospital. Patient excluded are those having any major disease like cardiovascular, respiratory, diabetes or renal disease, patients taking drugs like anticoagulants, digoxin, systemic steroids etc., elderly patients, very obese patients, patients with very large inguinoscrotal hernias and patients living alone.

**Method:** This study was carried out in a total of 80 patients which were divided in two equal groups i.e. day case (ambulatory) group and in-patient (routine) group.

All patients were admitted through OPD fulfilling the selection criteria's and only class I and class II patients of American Society of Anesthesiologist classification were included. Patients included in day case group were worked up through detailed history and clinical examination in OPD. Routine investigations i.e. complete blood picture, urine complete, blood sugar, ECG, and chest x- ray were carried out on OPD basis. Patients were advised to report in the morning of operation day after overnight fasting. These patients were operated as first case in the operation day. Patients included in in-patient group were admitted morning before the operation day and worked up in the ward. General, local or regional anesthesia, sometime alone and sometime combination were used. Open surgical repair was done in all patients, Inguinal Herniotomy or Herniorrhaphy (herniotomy and repair) depending upon the type of hernia and age of patient

*Postoperatively*, patients with regional anesthesia were kept NPO not more than 4-6 hours and for general anesthesia 6-8 hours, but the patients given local anesthesia were allowed to take sips as they felt like. All patients were given two doses of one gram intravenous first generation CEPHRADINE, eight hourly and intramuscular or oral analgesia was given depending upon the severity of pain. Patients were discharged when they were fully oriented in time, space and person, able to tolerate fluids, able to walk without assistance and were having not more than minimal pain or nausea.

All those patients who belong to day case group leave the hospital on the day of their operation and those belonging to in-patient (routine) group are send home on 2<sup>nd</sup> or 3<sup>rd</sup> postoperative day. All patients were followed up on 8<sup>th</sup> post up day, one month and after one year.

## Results

From July 2002 to July 2003, 80 patients fulfilling the inclusion criteria were included in this study and were randomly divided into two equal groups i.e. forty patients were included in day case surgery and 40 in in-patient surgery, to compare the postoperative complications, routine daily physical activity and also to evaluate the acceptance of day surgery in our set up.

Those belonging to day surgery group were prepared on outpatient basis. Included in this group 28(70%) patients had indirect inguinal hernia, 10(25%) patients had direct hernia while 2(5%) patients had pantaloons hernia. Among these patients, 22(56%) of the patients were smokers 2(5%) patients had constipation and 4(10%) had cough which was treated before operation.

Eighteen (45%) patients were given general anesthesia, 12(30%) patients were operated under regional anesthesia and in 10(25%) patients local anesthesia was used. In the day surgical group the surgical procedure performed was herniotomy in 8(20%) young fit adults with good inguinal musculature. Herniorrhaphy (herniotomy combined with malony's nylon darn repair using prolene

no 1 suture) was performed in 32(80%) of the patients either having direct inguinal hernia or indirect inguinal hernia but week posterior wall of inguinal canal.(graph), Hospital stay was between 8 hours to 19 hours (Graph 5). Sufficient postoperative analgesia was given depending upon the amount of pain experienced by patient which varies from patient to patient. Usually it was controlled with NSAIDs. The patients were followed for a period of one year, postoperative complications and routine daily physical activity were compared and also the acceptance of procedure was evaluated.

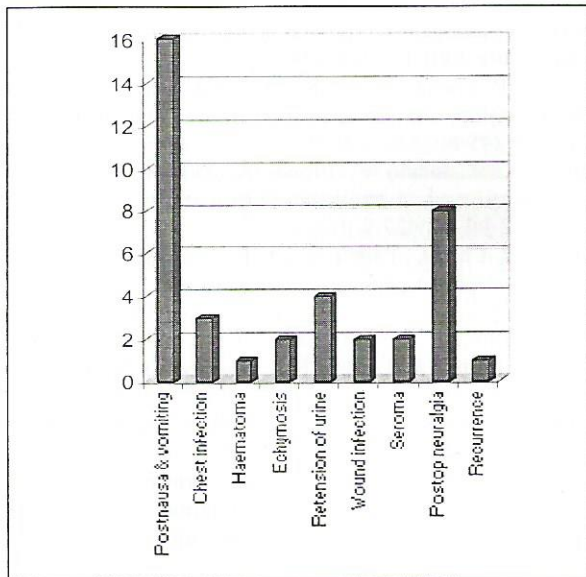
Only minor postoperative complications were observed in this group and most of time these problems were easily handled with out need for hospital admission. These are divided in early (moderate to severe pain was noted in 29(72.5 %), nausea and vomiting occurs in about 14(35%), superficial wound infection occur in 2(5%), chest infection in 2(5%), hematoma in 1(2.5%), seroma in 2(5%), retention of urine in 2(5%) and late complications. (postoperative neuralgia) develops in 6(15%). Only single recurrence (2.5%) was reported in one-year follow up and is not due to repair procedure but because of patient's occupation, he started lifting heavy objects very early after the operation. In that case we had to re-operate. Cardiovascular, respiratory and neurological problems were more frequent with spinal than with local anesthesia.

The recovery period after day case inguinal hernia repair was analyzed with respect to significant clinical variables i.e. age, pain, type of hernia, type of repair, anesthesia and occupation. Occupation was the only independent variable. In this study it was found that light physical activity like walking without assistance, changing clothes and going to bathroom were resumed in 24(60%) of patient in first two days, 14(35%) of patients in next three days and 2(5%) need further two days. Activities like driving, sex, and climbing stairs were resumed in 16(40%) of patients in the first week, 16(40%) in the second week and 8(20%) in third week (Graph 6). Eight (20%) patients return to their work in second week postoperatively, 16(40%) in 3<sup>rd</sup> week, 8(20%) in 4<sup>th</sup> week, 6(15%) in 5<sup>th</sup> week and remaining 2(5%) return to their work in 6<sup>th</sup> week (Graph 7).

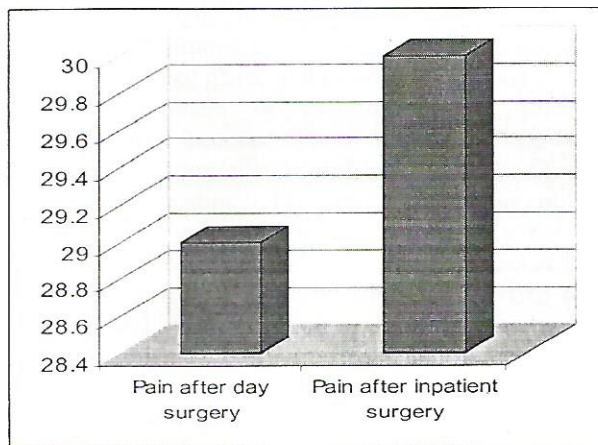
In this group it was noted that 36(90%) of the patients like and 4(10%) of the patients rejected day case surgery. In the other group (in-patient or routine group) patients were admitted morning before surgery and all the necessary investigations were done in the ward. Twenty five (62.5%) patients in this group had indirect inguinal hernia while 12(30%) patients had direct hernia and 3(7.5%) patients were having pantaloons hernia (Graph 10). In this group 22(55%) patients were given general anesthesia, 12(30%) regional anesthesia and 6(15%) were operated under local anesthesia.(Graph 11). The surgical procedure performed was herniotomy alone in 7(17.5%) patients and herniorrhaphy in 33(82.5%) of the patients. (Graph 9). Hospital stay for inpatient group was between

2-4 days (Graph 12.), only few minor complications noted are, Early complications Moderate to severe pain in 30(75%), post operative nausea and vomiting in 16(40%), chest infection in 3(7.5%), hematoma occurred in 1(2.5%), echymosis in 2(5%), retention of urine in 4(10%), seroma in 2(5%), wound infection 2( 5%). Late complications observed are (Graph 19). Postoperative neuralgia in 8(20%), recurrence noted in 1(2.5%) of patients.

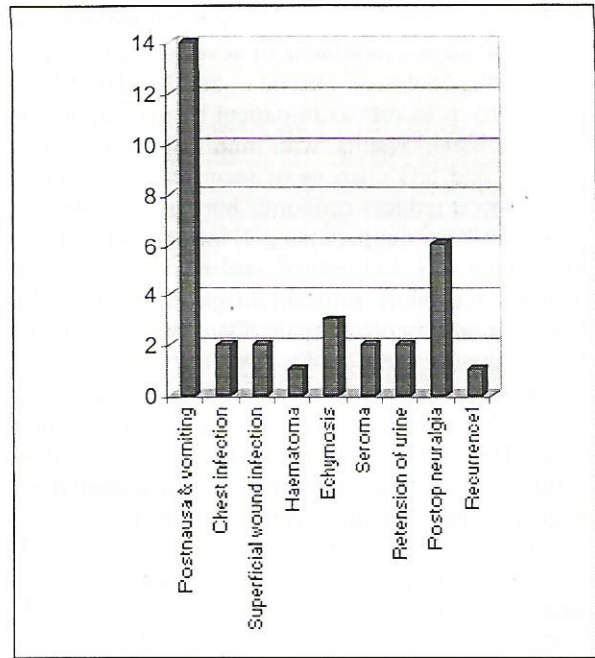
Recovery In this group 22(55%) of patients started light physical activity in first two days after operation and 16(40%) in next three days and 2(5%) in further two days. Activities like driving and climbing stairs were resumed by 14(35%) in 1<sup>st</sup> week, 16(40%) in 2<sup>nd</sup> week, 8(20%) in 3<sup>rd</sup> week and 2(5%) in 4<sup>th</sup> week. (Graph 13.), Seven (17.5%) patients return to their work in 2<sup>nd</sup> week postoperatively, 14(35%) in 3<sup>rd</sup> week,



Complications after in patient hernia repair.



Comparison of acute pain after day care hernia repair and inpatient hernia repair.



Complications after day care surgery

10(25%) in 4<sup>th</sup> week, 6(15%) in 5<sup>th</sup> week and 3(7.5%) resume their work 6th week postoperatively (Graph 14.)

**Discussion**

Hernia is one of the commonest surgical problem presented in surgical OPD. Early surgical treatment is advised to avoid complications. Unless hernia is strangulated hernia repair is an elective operation. Patients are diagnosed in OPD and scheduled for surgery as per availability in subsequent operation list that makes patients to wait for couple of weeks and even for months. The waiting period has to be reduced to avoid delay in treatment. The concept of day case hernia was introduced due to advantages with regards to patient compliance, high economic saving and more reasonable management of hospital stay.

Contributors like Cheek CM et al, Metzger J et al Kingsnorth AN et al. M. Aslam et al Pavlin DJ et al, Poblán AS et al, Callesen T, mention that primary measure of effectiveness of hernia repair was recurrence, complications like postoperative pain, wound infection and time to return to activities / or return to work<sup>67</sup>. In their studies evaluate that day case surgery for inguinal hernia can be performed safely in carefully selected patients with no anesthetic complications and minimal morbidity and mentioned that less complications occurred in day case group (P=0.018) also reported in their studies that ambulatory day case surgery has enhanced the quality of life at one year postoperatively and can provide patient outcome comparable to specialist hernia clinics<sup>55</sup>. The economic benefits are enhanced by short stay, low morbidity, and early return to normal activities<sup>48</sup>.

In our study by careful selection of patients and through preoperative assessment of severity of hernias in patients fulfilling inclusion criteria, results showed that day case surgery is as safe as in-patient hernia surgery and provide even better results with minimal postoperative complications and less chances of recurrence in carefully selected patients, it reduces economic burden on health care services as well as on patients by introducing shortest possible hospital stay and earliest return to work. In our study patients feel more satisfied in general terms, after day case inguinal hernia repair than inpatient hernia surgery

In our study those patients undergoing hernia surgery under local anesthesia experienced more pain intra-operatively. This was seen in both day case and inpatient groups. But on the contrary these patients encountered less postoperative urinary retention and had early mobilization and return to routine activities.

By conducting cross sectional / comparative study it was found evident that day case hernia can be successfully performed in our setup and comparable result in terms of postoperative complications can be obtained. These results are matchable to any hernia center where day case hernia repair was offered. Moreover this mode of surgical treatment is getting more acceptance among patients who give greater importance to early return to routine activities and / or return to work.

### Conclusion

On the basis of above mentioned results we concluded that "Hernia repair can be done as day case procedure even in our setting. Hernia repair, as day case procedure is safe and dependable option. In day case hernia repair same procedure can be employed as are done in routine elective surgery. Similarly choice of anesthesia in a day case hernia repair is also simplified and local or regional anesthesia can be safely used. Operative and postoperative complications are comparable to routine elective surgery for hernia repair"

Total hospital stay of patient can be greatly reduced in hernia repair as a day case. Total expenses of treatment on hospital resources is significantly reduced, when compare with routine elective repair of inguinal hernia. Because of shorter hospital stay and lesser expenses of treatment, inguinal hernia repair as day case surgery is more acceptable to patients than routine elective cases

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