Groin Fold Skin Incision Approach for Repair of the Inguinal Hernias

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ABSTRACT

Objective — *To assess the feasibility, safety, operative time, postoperative patients' comfort, and complication following groin fold skin incisional approach for the management of the inguinal hernias.*

Study design — *Descriptive case series.*

Place & Duration of study — *Al Noor Surgery hospital in Chakwal Pakistan, from January 2014 to December 2015.*

Methodology — *Patients with inguinal hernias of both genders were included. All patients were operated through groin fold incision. Data were analyzed using SPSS 21 version. Descriptive statistics were used to present data.*

Results — *A total of 204 patients were included. Grion fold incisional approach was made. It was successful in all cases. Mean operative time was 37.56 ± 7.47 minutes and mean hospital stay of 5 hours. There was no injury to the femoral vessel, vas deferens or testes in any patient. No cases required orchiectomy. Majority (n=185 - 90.70%) of patients had no postoperative pain. Three (1.4%) patients developed wound infection. No recurrence occurred at one year of follow up. One hundred and ninety seven (96.6%) patients appreciated minimally apparent scar as it was hidden in natural groin fold.*

Conclusion — *Groin skin fold incision was safe, cosmetically appealing with minimal pain and wound infection without recurrence.*

Key words — *Inguinal Hernia, Groin fold incision, Inguinal hernia – incision.*

INTRODUCTION:

Inguinal hernia is the most common hernia which constitutes 75-97% of all abdominal wall hernias.[1,2] Inguinal hernias show a bi-modal distribution pattern with peaks in young children and adults.[2] Moreover, its incidence increases with age in the adult population and is more prevalent in males as compared to females.[3,4] Inguinal hernia deserves special attention as it is a leading cause of morbidity, work loss and sometimes mortality if not timely treated. [4] Inguinal hernias significantly increase the health care cost.[5]

Definitive treatment of an inguinal hernia is surgical repair. In medically fit individuals elective surgical repair is recommended for all inguinal hernias. Elective surgeries have less complication rate and better prognosis as compared to emergency surgeries. Laparoscopy is progressively becoming popular in the surgical world but it is an expensive treatment modality with reported complications.[5-7] In some studies laparoscopic hernia repair is reported to result in higher recurrence rate as compared to open technique.[5,8] Laparoscopy is still not widely used for inguinal hernias and open technique is still practiced by many surgeons around the globe. [9]

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For the treatment of the inguinal hernias, an inguinal incision is the standard approach.[10] In this study groin fold skin incision was used for inguinal hernia. The purpose of this study was to assess the feasibility, safety, operative time, postoperative patients' comfort and complications following groin fold skin incision for the management of the inguinal hernias in both genders.

METHODOLOGY:

This was a descriptive case series conducted in a private hospital in Chakwal Pakistan from January 2014 to December 2015. This hospital caters to patients from lower middle socioeconomic status. Keeping the margin of error of 5%, the confidence level of 95% and total complication rate 12.3% in Lichenstein repair, the sample size came out to be 165.[11] In our study, we included 204 patients suffering from inguinal hernias by convenient sampling. All participants gave their consent to participate in this study. For children consent was taken from their parents. Counseling regarding procedure and its complications was done before the procedure.

All patients having a clinically diagnosed inguinal hernia with ultrasound confirmation, irrespective of age and gender, with body mass index <35kg/m^2 awere included. All participants were of ASA I and II category with hemoglobin >12g/dl. In bilateral inguinal hernias, the most symptomatic side was operated. Patients who had cardiac or pulmonary disease, blood coagulopathy, patients on anticoagulant therapy, recurrent inguinal hernia, symptoms of bladder outlet obstruction, previous prostate or urinary bladder surgery, were excluded from the study.

After relevant history, routine and specific investigations were carried out. Spinal anesthesia was used. IV antibiotics were given at the time of induction. Under aseptic measures, a 1-2cm groin fold incision in children or 4cm groin fold incision in adults was made in skin crease. Dissection was carried out and the upper flap was raised 1 to 2 cm, to approach the pubic tubercle and external oblique aponeurosis, giving access to the inguinal canal. Routine hernia operation was then performed.

In children, the hernial sac was identified at the superficial inguinal ring and herniotomy performed without opening the inguinal canal. If a hernia was indirect and patients' age less than 20 year then only herniotomy done. If age was more than 20 year then herniotomy with herniorrhaphy was performed by standard technique. In patient with direct hernia, polypropylene mesh was used for hernioplasty. Variables assessed included postoperative pain, cosmetic appearance of scar and length of hospital stay. The scar was graded by patients according to its visibility about 1 week after surgery. Postoperative pain was assessed by Visual Analogue Scale (VAS) about 4 hours after surgery. Local anesthesia containing lignocaine, low-dose corticosteroids, and local antibiotics was given to all patients. Length of postoperative hospital stay was calculated in terms of hours after surgery until the time patient was fit to be discharged from the hospital.

Follow up was done in outpatient department at week 1 and week 2 after surgery. For documenting recurrence contact was made after one year of surgery by telephonic conversation. Data analysis was carried out using SPSS version 21. All categorical variables were presented as frequencies and percentages, whereas mean along with standard deviations were calculated for numerical data.

RESULTS:

A total of 204 patients were managed during two year study period. There were 184 (90.20%) males and 20 (9.80%) females. Mean age of the patients was 35 year (range:1-85 year). There were 64 (31.40%) patients less than twenty year of age. There were 96 (47.10%) adults with age between 20 -60 year and 44 (21.60%) old persons, age greater than 60 year. Right side was involved in 138 (68%) patients, left side in 64 (31%) and 2 (1%) were bilateral. One hundred and fourteen patients (55.90%) had a direct hernia while 90 (44.10%) had an indirect hernia. Two patients (1%) had bilateral hernia, of indirect type.

Grion fold incision was successful in all patients of all age groups and gender. Mean operative time was 37.56 ± 7.47 minutes. The mean hospital stay was 5 hours (range:4-6 hours). No injury occurred to femoral vessels, vas deferens or testes. There was no incision site or scrotal swelling after surgery. Three (1.4%) patients developed a wound infection and there was no recurrence during follow-up at one year. The pain was assessed 4 hours after surgery by VAS score and the scar was graded one week after surgery (table I).

DISCUSSION:

Definitive treatment of an inguinal hernia is surgery. There are many surgical techniques which are used worldwide, with each having its own advantages and disadvantages . Approaches in the surgical world are being promoted which are simple, accessible, and cost-effective, with an improved long-term quality

Table I: Pain and Scar Assessment		
VAS Pain after 4 hours of Surgery	**Number**	**Percentage**
No Pain (0-4mm)	185	91%
Mild Pain (5-44mm)	15	7%
Moderate Pain (45-74mm)	4	2%
Severe Pain (75-100mm)	0	0%
Total	204	100%
Scar Assessment After 1 Week of Surgery		
Invisible Incision (Grade 0)	89	43.6%
Minimally Visible Incision (Grade 1)	108	53.0%
Moderately Visible Incision (Grade 2)	7	3.4%
Total	204	100%

of life. One of the non-conventional techniques which have a limited description in literature is groin fold skin incisional approach for inguinal hernia repair, especially in reference to adult population. Groin fold skin incisional approach has been described by Morabito et al and Gökçora et al. They found it as an excellent alternative approach for inguinal hernia repair in young children especially girls.[11-13] Same approach was used in this study. It was found feasible in both genders and all age groups even in an adult population. It can be learned easily. Most of the operational steps are the same as of conventional hernia repair.

In the era of minimally invasive surgery, open inguinal hernia repair is still preferred by many surgeons around the world. This is usually done through an inguinal incision which can leave behind a visible scar. Cosmetically our results were excellent because the scar is camouflaged in natural groin fold. Moreover, shaving area is spared. Regarding hospital discharge, Salma et al found that the hospital discharge was nearly equal in open and laparoscopic groups of surgeries with no statistically significant difference.[14] Similar results were seen in many other studies.[15,16] In our study hospital stay was short as early mobility was advised and pain was properly addressed. Postoperative period was therefore comfortable.

One of the perceived limiting factors for groin approach was operative time. In our study mean operative was 37.56 ± 7.47 minutes. Dinç et al reported mean operative time of 45-60 minutes in open hernia surgery.[17] Laparoscopic hernia repair has a higher documented operative time as compared to open hernia surgery. Our operative time was quite comparable to open hernia surgery, showing that this technique can easily be done with little dissection in tissue planes.

The major challenge in any inguinal hernia surgery is to avoid recurrence. The success of inguinal hernia surgery depends on no recurrences of a hernia in future. In literature, recurrence in inguinal hernia repair is reported to be 3.8-18%.[2] Laparoscopic hernia repair, as compared to open hernia repair, has a higher recurrence rate.[1,2] Cochrane review suggests no significant difference in recurrence in open and laparoscopic surgeries.[8] In our study, there was no recurrence during follow-up of one year.

In any surgical method, control and limiting complications is very important and this defines the long-term success of the surgery. Surgical site infection was thought to be more common in groin fold incisional approach as this area is near genitalia but in our study, only 3 (1.4%) patients had wound infection. This rate is quite low as compared to other studies.[18] Control of infection is very important in hernia surgery as infections are associated with four fold increase in recurrence rate, hence low infection might be another factor responsible for limited recurrence rate in our study.

CONCLUSIONS:

Groin fold skin incisional approach was successful in the treatment of all inguinal hernias in males and females of all age groups. It was safe, cosmetically superior, and comfortable for the patients with less postoperative pain, short hospital stay, minimal complications and no recurrence at follow up.

REFERENCES:

1. Jenkins JT, O'Dwyer PJ. Inguinal hernias. BMJ. 2008, 2;336(7638):269–72.
2. Burcharth J. The epidemiology and risk factors for recurrence after inguinal hernia surgery. Dan Med J. 2014;61:B4846.
3. Rafiq MK, Sultan B, Malik MA, Khan K, Abbasi MA. Efficacy of local anaesthesia in repair of inguinal hernia. J Ayub Med Coll Abbottabad. 2016;28:755–7.
4. Fatima A, Mohiuddin MR. Study of incidence of inguinal hernia and the risk factors associated with the inguinal hernia in the regional population of a South Indian city. Int J Cur Res Rev. 2014;6:09-13.
5. Kulacoglu H. Current options in inguinal hernia repair in adult patients. Hippokratia. 2011;15:223-31.
6. Nsadi B, Detry O, Arung W. Inguinal hernia surgery in developing countries: should laparoscopic repairs be performed?? Pan Afr Med J. 2017;2:27.
7. Eklund A, Carlsson P, Rosenblad A, Montgomery A, Bergkvist L, Rudberg C, et al. Long-term cost-minimization analysis comparing laparoscopic with open (Lichtenstein) inguinal hernia repair. Br J Surg. 2010;97:765-71.
8. McCormack K, Scott NW, Go PM, Ross S, Grant AM, EU Hernia Trialists Collaboration. Laparoscopic techniques versus open techniques for inguinal hernia repair. Cochrane Database Syst Rev. 2003;(1):CD001785.
9. Trevisonno M, Kaneva P, Watanabe Y, Fried GM, Feldman LS, Lebedeva E, et al. A survey of general surgeons regarding laparoscopic inguinal hernia repair: practice patterns, barriers, and educational needs. Hernia J Hernias Abdominal Wall Surg. 2015;19:719-24.
10. Frankel TL, Burney RE. Chapter 40. Inguinal Hernia Repair. In: Minter RM, Doherty GM, editors. Current Procedures: Surgery. New York, NY: The McGraw-Hill Companies; 2010.
11. Morabito A, Bianchi A. Aesthetics: The Groin Crease Incision for Inguinal Hernia Repair in Girls. Ann R Coll Surg Engl. 2008;90:435.
12. Gökçora IH, Yagmurlu A. A novel incision for groin pathologies in children: the low inguinal groove approach. Hernia J Hernias Abdominal Wall Surg. 2003;7:146-9.
13. Gökçora IH. Low inguinal groove incision for indirect inguinal hernias in girls: a preliminary report on an incisional proposal. J Am Coll Surg. 1996;183:384-6.
14. Salma U, Ahmed I, Ishtiaq S. A comparison of post operative pain and hospital stay between Lichtenstein's repair and laparoscopic transabdominal preperitoneal (TAPP) repair of inguinal hernia: A randomized controlled trial. Pak J Med Sci. 2015;31:1062-6.
15. Wright D, Paterson C, Scott N, Hair A, O'Dwyer PJ. Five-year follow-up of patients undergoing laparoscopic or open groin hernia repair. Ann Surg. 2002;235:333-7.
16. Pokorny H, Klingler A, Schmid T, Fortelny R, Hollinsky C, Kawji R, et al. Recurrence and complications after laparoscopic versus open inguinal hernia repair: results of a prospective randomized multicenter trial. Hernia J Hernias Abdominal Wall Surg. 2008;12:385-9.
17. Dinç T, Cete HM, Saylam B, Özer MV, Düzgün AP, Coºkun F. Comparison of Coskun and Lichtenstein hernia repair methods for groin hernia. Ann Surg Treat Res. 2015;89:138-44.
18. Pardhan A, Mazahir S, Alvi AR, Murtaza G. Surgical site infection following hernia repair in the day care setting of a developing country: a retrospective review. J Pak Med Assoc. 2013;63:760-2.

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