

## ORIGINAL ARTICLE

## FREQUENCY OF POST-OPERATIVE FAECAL INCONTINENCE IN PATIENTS WITH CLOSED AND OPEN INTERNAL ANAL SPHINCTEROTOMY

**Nighat Ghayas, Syed Muneeb Younus, Abdul Jabbar Mirani, Mohammed Ghayasuddin, Aamna Qazi, Sunil Dutt Suchdev, Saqib Kamran Bakshi\***

Department of General Surgery, K.V.S.S Site Hospital Karachi, \*Civil Hospital, Karachi-Pakistan

**Background:** Fissure in *ano* is one of the commonest benign and painful proctologic diseases causing considerable morbidity and reduction in quality of life. There are medical as well as surgical treatment options for anal fissure. The study was conducted to compare the frequency of postoperative faecal incontinence in patients with closed lateral internal anal sphincterotomy with *von-greaves* knife versus standard Park's operation (open method) for chronic anal fissure.

**Methods:** This was a randomized controlled trial (RCT) was conducted at the Department of Surgery, KVSS, S.I.T.E. Hospital, Karachi, for a period of six months from 13<sup>th</sup> February to 12<sup>th</sup> August 2011. Ninety four consecutive patients having chronic anal fissure were assigned through blocked randomization to groups A & B, with 47 patients in each group. Closed lateral internal anal sphincterotomy (CLIAS) via *von-greaves* knife was carried out in patients of group-A whereas patients of group-B were subjected to open internal anal sphincterotomy (OIAS) also known as Parks' procedure. Faecal incontinence was noted on the 5<sup>th</sup> post-operative day. Data was analysed using SPSS 16. **Results:** There were 81 (86.2%) males and 13 (13.8%) females with male to female ratio being 6:1. Mean age was 38.38 mp±14.56 years. Post-operative faecal incontinence in patients undergoing CLIAS was 4.3% while it was 21.3% in those undergoing OIAS with a *p*-value of 0.027. CLIAS with *von-greaves* knife is effective in reducing faecal incontinence on 5<sup>th</sup> postoperative day as compared to standard OIAS. **Conclusion:** CLIAS with *von-greaves* knife is effective in reducing faecal incontinence on 5<sup>th</sup> postoperative day as compared to OIAS (Park's procedure). Therefore, this technique may be used in future regularly to treat chronic anal fissure for prevention of this morbidity.

**Keywords:** Chronic Anal Fissure, Faecal incontinence, Sphincterotomy

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### INTRODUCTION

Fissure in *ano* is one of the commonest benign and painful proctologic diseases causing considerable morbidity and reduction in quality of life.<sup>1</sup> There are medical as well as surgical treatment options for anal fissure. Medical treatment relies on application of local anaesthetic, stool softeners, high fibre diet and application of nitro-glycerine paste and botulinum toxin.<sup>2,3</sup> In cases where medical treatment fails then surgical treatment is recommended. In past, anal dilatation was performed to decrease resting anal tone.<sup>3</sup> Eisenhammer introduced open internal anal sphincterotomy (OIAS).<sup>5</sup> It is the treatment of choice for chronic anal fissure. It results in healing of 94–96% of cases.<sup>6</sup> Faecal incontinence is a major problem associated with this procedure ranging from 20–64%.<sup>7,8</sup>

To avoid this complication OIAS was modified from midline to lateral approach and from open to close technique. Furthermore, use of different devices in closed lateral internal anal sphincterotomy (CLIAS) reduce trauma to anal

sphincter like radio-frequency bistoury<sup>5</sup> and *von-greaves* (cataract) knife<sup>9,10</sup>. Radio-frequency bistoury is a costly procedure and not easily available but *von-greaves* knife is easily available. It is a flat blade of just 2 mm in size and it causes minimal trauma to anal sphincter. Recently, in a local study, Saif *et al*<sup>9</sup> successfully did CLIAS with *von-greaves* knife and shows only 2% faecal incontinence which resolved spontaneously in a few weeks.

Availability of *von-greaves* knife is easy, is cost effective and can be used successfully in CLIAS but very limited data is available regarding its use, especially locally. No randomized controlled trial is available to compare it with OIAS. Hence, the aim of this study was to compare the frequency of faecal incontinence in patients treated with OIAS (standard) versus CLIAS with *von-greaves* knife and to add to the data available that support the routine use of this technique which will potentially minimize this distressing complication of the procedure.

### MATERIAL AND METHODS

It was a randomized controlled trial (RCT) conducted

at the department of surgery, Kulsumbai Valika Social Security (KVSS) Hospital, Karachi over a period of six months from 13<sup>th</sup> February to 12<sup>th</sup> August 2011. Ethical approval was obtained from the Ethical Review committee of the hospital. Ninety four consecutive patients of either gender above age 12 years with chronic anal fissure were included in the study after written and fully informed consent. Patients with concomitant anal disease like Perianal abscess, fistula in *ano*, Crohn's disease, ulcerative colitis, patients with previous history of anorectal surgery, and those with neurological disease that could lead to faecal incontinence were excluded. Chronic anal fissure was defined as a history of painful defaecation with bleeding per rectum for more than 6 weeks and clinical finding of tear in the anal mucosa with skin tag (sentinel pile).

After admission, baseline investigations of all patients including complete blood count, blood sugar, serum urea, serum creatinine, serum electrolytes and urinalysis were performed. Chest X-ray and ECG were carried in patients where appropriate. Anaesthesia fitness was taken before surgical intervention. A night before surgery patients were kept nil by mouth and given 5% dextrose water intravenously after maintaining wide bore IV cannula. All patients underwent colon cleansing by being administered enema a night before surgery and early morning on the day of surgery. Patients were shifted to operation room early morning, after routine check of anaesthesia equipment and resuscitation trolley; non-invasive blood pressure monitor (Dynamap), pulse oximeter and ECG monitor were applied for measuring blood pressure, pulse rate, oxygen saturation and electrical activity of the heart respectively. Base line vitals were obtained.

Patients were randomized into two groups-A and B with 47 patients in each group by blocked randomization using permuted blocks of 6 as the patients came. Blocked randomization was used to ensure equal numbers on both the arms of the trial. CLIAS via *von-greaves* knife was carried out in patients of group-A whereas patients of group-B were subjected to OIAS (Parks' procedure). All patients were given spinal anaesthesia followed by prophylactic intravenous antibiotic Co-amoxiclav 1.2 gm stat dose after checking hypersensitivity response. Procedures were carried out by 3<sup>rd</sup> and 4<sup>th</sup> year residents under supervision of consultant surgeon. Patients were placed in lithotomy position and operative site was prepared with povidone-iodine solution followed by application of sterile drapes.

Postoperative care included hot-sitz bath, fibre supplement, laxatives in the form of *Isphagol* husk (2 table-spoons in a glass of water thrice daily) and syrup Cremaffin two-table spoons full thrice daily. *Isphagol* is a fibre husk and Cremaffin is a laxative. Metronidazole

was given for three days and analgesic in the form of injection Diclofenac sodium intramuscularly for one day postoperatively and then switched to oral diclofenac sodium 50mg thrice daily for next three days. Patients were discharged after 24 hours of surgery and were called for follow up on 5<sup>th</sup> post-operative day. The main outcome measure was faecal incontinence which was measured on 5<sup>th</sup> post-operative day by using Browning and Park's classification for faecal incontinence as shown in table-1.<sup>11</sup>

Faecal incontinence was considered to be present or absent on the basis of the following criteria: Present - Those patients who were in category B, C and D according to Browning and Park's classification, and Absent - Those patients who were in category A.

To minimize bias, all surgeries were performed by senior residents (3<sup>rd</sup> and 4<sup>th</sup> year) under supervision of consultant and post-operative faecal incontinence was assessed by the consultant general surgeon. Confounding variables were controlled by following selection criteria.

The software program SPSS-16 was utilized for all statistical analyses. Mean±standard deviation (SD) was computed for continuous variables and frequencies and percentages for categorical variables. Chi-square test was used to compare relative proportions of faecal incontinence in both groups with  $p \leq 0.05$  as statistically significant. Stratification was done by age, gender and duration of chronic anal fissure to see the effect of treatment on final outcome.

## RESULTS

Of the 94 patients in this study, 81 (86.2%) were males and 13 (13.8%) were females. Overall male to female ratio was 6:1. In group-A, 40 (85.1%) were males and 7 (14.9%) were female, (Male: Female ratio was 5.7: 1) while in group-B, 41 (87.2%) were males and 6 (12.8%) were females (Male: Female ratio=6.8: 1). The age range of patients was between 17–78 years with mean of 38.83±14.56 years. Majority (75.5%) of cases had age  $\leq 45$  years {35 (49.3%) in group-A and 36 (50.7%) in group-B}. Mean ages in two groups, i.e., A and B were 39.23±15.53 and 38.43±13.69 years respectively.

Twenty eight (29.8%) patients had less than 6 months of duration of disease and 66 (70.2%) were suffering for more than 6 months; details are shown in table-2.

Out of 94 participants, 82 (87.2%) patients were in category A, 9 (9.6%) were in category B, 3 (3.2%) were in category C and none (0%) in category D of Browning and Park's classification of incontinence. Group wise details are demonstrated in Figure-1.

In group-A, 01 (2.9%) patient of  $\leq 45$  years and 1 (8.3%) patient of  $>45$  years developed faecal incontinence. In group-B, 03 (27.3%) patients developed incontinence  $>45$  years of age group,

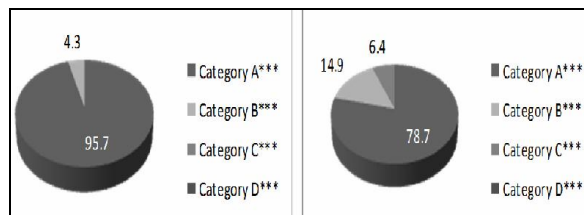
whereas 7 (19.4%) exhibited incontinence in age of  $\leq 45$  years. Two (5.7%) cases of group A, who developed faecal incontinence were having  $>6$  months of disease duration; whereas in group-B, 6 (60%) patients who developed incontinence had disease duration of  $>6$  months. As shown in figure-2 faecal incontinence occurred in 2 (4.3%) patients of group-A, whereas 10 (21.3%) patients of group-B demonstrated faecal incontinence on 5<sup>th</sup> post-operative day after lateral internal anal sphincterotomy ( $p=0.027$ ).

**Table-2: Duration of disease with respect to groups**

	Group-A (CLIAS)		Group-B (OIAS)	
	(n = 47)	%	(n = 47)	%
$\leq 6$ months	12	25.5	16	34
$>6$ months	35	74.5	31	66

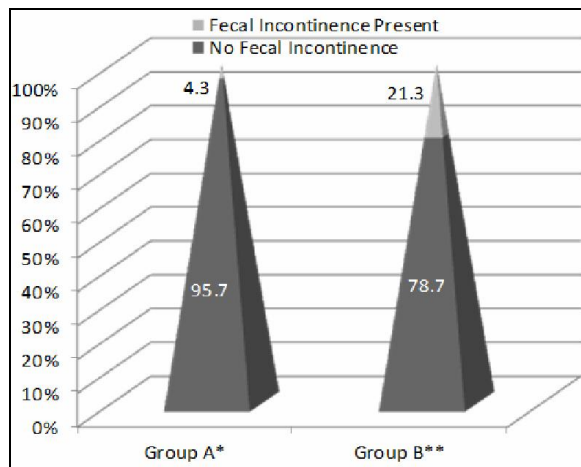
**Table-1: Browning and Park's classification for incontinence**

<b>Category A</b>	Fully continent for flatus and stool
<b>Category B</b>	Continent for stool but not for flatus
<b>Category C</b>	Continent for solid stool but incontinent for liquid stool
<b>Category D</b>	Incontinent for formed stool (complete incontinence)



**Figure-1: Faecal incontinence in patients on 5<sup>th</sup> post-operative day.**

\*Group A: Closed Lateral Internal Anal Sphincterotomy (CLIAS),  
 \*\*Group B: Open Internal Anal Sphincterotomy (OIAS),  
 \*\*\*Category A = Fully continent for flatus and stool; Category B = Continent for stool but not for flatus; Category C = Incontinent for liquid stool; Category D = Incontinent for solid stool



**Figure-2: Comparison of Faecal Incontinence on 5<sup>th</sup> postoperative day after lateral anal sphincterotomy by two different methods**

\*Group A: Closed Lateral Internal Anal Sphincterotomy (CLIAS),  
 \*\*Group B: Open Internal Anal Sphincterotomy (OIAS)

## DISCUSSION

Results of the current study revealed that patients who underwent CLIAS via *von-greaves* knife showed statistically significant difference with regards to post-operative faecal incontinence, than those who were treated with OIAS.

Anal fissure is a common painful perianal conditions.<sup>12</sup> Chronicity of disease process occur with passage of time as it worsens.<sup>13</sup> In this study of 94 patients, maximum number of patients with chronic anal fissure were less than 45 years of age, the youngest subject being 17 years old and oldest 78 years. Mean age was 38.38 years. Hashmi and Siddiqui<sup>14</sup> encountered average age of 30 years in their series.

There is a wide variation in sex incidence in different studies. Young adults of both genders were equally affected, as previously mentioned by Bhardwaj and Parker.<sup>1</sup> Out of 246 patients of chronic anal fissure, Liratzopoulos *et al*<sup>6</sup> encountered 48.8% males and 51.2% females in their clinical study. Danish and associates<sup>15</sup> observed male to female ratio of 3: 1. In this study, overall male to female ratio was 6: 1 which is nearly similar to 7: 1 which Ali and colleagues<sup>16</sup> observed in their series. The lower number of female patients (13.8%) in this study and other local studies may be due to the conservative and shy attitude of females in our social set up especially for perianal diseases.

Traditional surgery that permanently weakens the internal anal sphincter is associated with a risk of incontinence. Medical therapies temporarily relax the internal sphincter and pose no such danger, but their limited efficacy has led to displacement rather than replacement of traditional surgery. Emerging surgical procedures promise continued improvement and new sphincter sparing surgery may render traditional surgery redundant. Chemical sphincterotomy can be done using a variety of agents of which glyceryl trinitrate (GTN) remains common chemical sphincterotomy agent. Controlled trials have shown varied results of healing with topical GTN, however, headache is common with nitrates, which may limit their application and reduce patient compliance.<sup>17</sup>

The OIAS is the most widely practiced surgical approach for the management of chronic anal fissure and is considered the "gold standard".<sup>18</sup> Although it is considered safe but usually associated with complications like pain, bleeding, haematoma, and faecal incontinence.<sup>19</sup> Postoperative faecal incontinence is a major complication following surgery. The reported incidence of this morbidity is variable in

literature.<sup>18</sup> Hashmat and colleague<sup>7</sup> observed faecal incontinence in 64.3% of cases where as Sánchez *et al*<sup>20</sup> observed this complication in 5% of patients. Jaleel *et al*<sup>8</sup> in their study of 67 patients, reported 2 patients who developed faecal incontinence. Contrary to this, certain studies showed higher prevalence of this morbidity.

This study highlighted 21.3% cases of faecal incontinence associated with OIAS and 4.3% of faecal incontinence with CLIAS. Considering this fact, OIAS which is still widely used for the treatment of chronic anal fissure may be abandoned and new emerging techniques which are associated with better results should be opted for management of chronic anal fissure.

Incontinence of faeces or flatus is a serious complication of OIAS. Though it is also associated with the closed and new techniques but reported incidence is significantly fewer than in open technique. Garcia and colleagues<sup>21</sup> collected data of a total of 549 patients; 324 (62.2 percent) with OIAS and 225 (65.6 percent) with CLIAS. Statistically significant differences were seen in patients with permanent postoperative difficulty controlling gas ( $p=0.062$ ), soiling underclothing ( $p<0.001$ ), and accidental bowel movements ( $p<0.001$ ) between those who underwent OIAS and those who had CLIAS. Although 90 percent of patients reported general overall satisfaction, more patients undergoing CLIAS (64.4 percent) than open procedure (49.7 percent) were very satisfied with the results of the procedure.

Ticmeanu *et al*<sup>22</sup> did not encounter post-operative incontinence in a series of 47 patients treated with CLIAS. Likewise, Liratzopoulos *et al*<sup>6</sup>, reported that during their study period, 246 patients underwent total subcutaneous CLIAS and out of them minor incontinence was seen in 7.02% of patients at follow up. Moreover patients' satisfaction was 91.7%, concluding total subcutaneous internal sphincterotomy as a safe and effective treatment for chronic anal fissures that only rarely impairs continence to flatus.

Incidence of post-operative incontinence varies in literature and this was mostly incontinence to flatus, and transient in duration. Nevertheless it is still controversial if minor degree of incontinence could be a symptom of chronic anal fissure or the sequel of lateral internal sphincterotomy.<sup>6</sup>

A number of scoring systems have been published for the assessment of severity of faecal incontinence that contain various categories of incontinence in an ordinal fashion ranging from incomplete to complete incontinence.<sup>23</sup> In this study Browning and Park's classification was used

to assess faecal incontinence post operatively.<sup>12</sup>

In this study, faecal incontinence was significantly reduced in the CLIAS group with *von-greaves* knife as compared to OIAS group. Faecal incontinence present on the 5<sup>th</sup> post-operative day of surgery was less in CLIAS with *von-greaves* knife (4.3%) as compared to the patients treated by open method (21.3%), which is nearly comparable to study conducted by Ahmed *et al*<sup>9</sup>, who observed temporary loss of control over flatus and faeces in 8 patients (2.7%) and soiling of cloth in 6(2%) patients. Hence, there was significant reduction in post-operative faecal incontinence in patients treated by CLIAS via *von-greaves* knife, which is comparable to this study.

## CONCLUSION

In summary, CLIAS with *von-greaves* knife is effective in reducing faecal incontinence on 5<sup>th</sup> postoperative day as compared to OIAS (Park's procedure). Therefore, this technique may be used in future regularly to treat chronic anal fissure for prevention of this morbidity.

## AUTHOR'S CONTRIBUTION

NG: Draft, write up, concept. SMY: Concept, write up, final layouts. AJM: Drafting statistical analysis. MG: Data collection statistical analysis. AQ, SDS, AF: Data collection. SKB: Write up.

## REFERENCES

1. Bhardwaj R, Parker MC. Modern perspectives in the treatment of chronic anal fissures. *Ann R Coll Surg Engl* 2007;89(5):472-8.
2. Sajid MS, Hunte S, Hippolyte S, Kiri VA, Maringe C, Baig MK. Comparison of surgical vs chemical sphincterotomy using botulinum toxin for the treatment of chronic anal fissure: a meta-analysis. *Colorectal Dis* 2008;10(6):547-52.
3. Hashmi F, Memon MM, Khan AM. Efficacy and side effects of glyceryl trinitrate in management of chronic anal fissure. *J Ayub Med Coll Abbottabad* 2012;24(1):21-2.
4. Poh A, Tan KY, Seow-Choen F. Innovations in chronic anal fissure treatment: A systematic review. *World J Gastrointest Surg* 2010;2(7):231-41.
5. Ram E, Alper D, Stein GY, Bramnik Z, Dreznik Z. Internal anal sphincter function following lateral internal sphincterotomy for anal fissure: a long-term manometric study. *Ann Surg* 2005;242(2):208-11.
6. Liratzopoulos N, Efremidou EI, Papageorgiou MS, Kouklakis G, Moschos J, Manolas KJ, *et al*. Lateral subcutaneous internal sphincterotomy in the treatment of chronic anal fissure: our experience. *J Gastrointest Liver Dis* 2006;15(2):143-7.
7. Hashmat A, Ishfaq T. Chemical versus surgical sphincterotomy for chronic fissure in ano. *J Coll Physicians Surg Pak* 2007;17(1):44-7.
8. Jaleel F, Habib L, Mirza MR. Outcome of conservative lateral internal anal sphincterotomy for chronic anal fissure. *J Surg Pak Int* 2008;13:4.
9. Ahmed SA, Ahmed SA, Pervaiz NA, Naseem RI. Closed lateral internal anal sphincterotomy for anal fissure with *von-greaves* (cataract) knife. *Pak J Surg* 2008;24:220-3.

10. Hoffmann DC, Goligher JC. Lateral subcutaneous internal sphincterotomy in treatment of anal fissure. *Br Med J* 1970;3(5724):673-5.
  11. Bakshi G, Ranka S, Agarwal S, Shetty SV. Modified mesh rectopexy: a study. *J Postgrad Med* 2000;46(4):265-7.
  12. Pfenninger JL, Zainea GG. Common anorectal conditions: Part II. Lesions. *Am Fam Physician* 2001;64(1):77-88.
  13. Rakinic J. Anal fissure. *Clin Colon Rectal Surg* 2007;20(2):133-7.
  14. Farouk R, Monson JRT, Duthie GS. Technical failure of lateral sphincterotomy for the treatment of chronic anal fissure: a study using anal ultrasonography. *Br J Surg* 1997;84(1):84-5.
  15. Danish KF, Chaudhry AR, Khan SS. Intractable headache as a side effect of topical nitroglycerine ointment. *Rawal Med J* 2008;33(1):15-7.
  16. Ali M, Akhtar R, Mirza TI. Chronic anal fissure; comparison of lateral anal sphincterotomy (closed method) versus anal dilatation. *Professional Med J* 2011;18(2):215-21.
  17. Hyman NH, Cataldo PA. Nitroglycerin ointment for anal fissures: effective treatment or just a headache? *Dis Colon Rectum* 1999;42(3):383-5.
  18. Sharp FR. Patient selection and treatment modalities for chronic anal fissure. *Am J Surg* 1996;171(5):512-5.
  19. Denoya P, Sands DR. Anorectal physiologic evaluation of constipation. *Clin Colon Rectal Surg* 2008;21(2):114-21.
  20. Sánchez Romero A, Arroyo Sebastián A, Pérez Vicente F, Serrano Paz P, Candela Polo F, Tomás Gómez, *et al.* Open lateral internal anal sphincterotomy under local anesthesia as the gold standard in the treatment of chronic anal fissures. A prospective clinical and manometric study. *Rev Esp Enferm Dig* 2004;96(12):856-63.
  21. Garcia-Aguilar J, Belmonte C, Wong WD, Lowry AC, Madoff RD. Open vs. closed sphincterotomy for chronic anal fissure: long-term results. *Dis Colon Rectum* 1996;39(4):440-3.
  22. Ticmeanu F, Berevoescu NI. [Treatment of chronic anal fissure using closed internal and lateral sphincterotomy]. *Chirurgia (Bucur)* 2005;100(2):133-7.
  23. Vaizey CJ, Carapeti E, Cahill JA, Kamm MA. Prospective comparison of faecal incontinence grading systems. *Gut* 1999;44(1):77-80.
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### Address for Correspondence:

**Dr Syed Muneeb Younus.** Department of General Surgery, K.V.S.S Site Hospital Karachi-Pakistan.

**Cell:** +92 322 235 6679

**Email:** muneebkazi@gmail.com