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ORIGINAL ARTICLE

Evaluation of Lord's Anal Dilatation for Incontinence & Recurrence in the Management of Anal Fissure

HAIDER KAMRAN[1], ENAS NAWAZ KHAN[2], MUHAMMAD IBRAHIM SHUJA[3], MUHAMMAD TASLEEM[4], UZMA SHABBIR[5], VALEEJA ZAFAR[6]
[1]*Associate Professor Surgery, Department of Surgery, Ayub Medical College Abbottabad*
[2]*Resident Surgery, Department of Surgery, Ayub Teaching Hospital Abbottabad*
[3]*Assistant Professor Surgery, Department of Surgery, Gajju Khan Medical College Swabi*
[4,5,6]*Resident Surgery, Department of Surgery, Ayub Teaching Hospital Abbottabad*
Correspondence Author: Haider Kamran, Email: dhkamran@gmail.com, Cell: 0333-9858544

ABSTRACT
Background: Fissure-in-Ano is a commonly seen entity in surgical practice. Various approaches had been adapted since ages for its management including both conservative & surgical. Amongst the surgical approaches Lord's Anal Dilatation (LAD) is a modality long been practiced to manage patients not responding to conservative treatment & those with chronic anal fissure. Recent trend is towards preferential practice of Lateral Internal Sphincterotomy (LIS) in the management of anal fissure. Pleaders of LIS are critical as well to the approach of LAD, although LAD in many clinical setups is still a widely practiced & viable option, especially in third world countries. Objective of conducting this study is to evaluate the LAD in our hospital setup for its much debated complications of incontinence and recurrence.
Methods: This descriptive study was designed & carried out at the surgical units of Ayub Teaching Hospital Abbottabad from November 01, 2012 to May 31, 2017. A total of 129 patients with acute anal fissure (not responding to conservative measures, being in agony) & chronic anal fissure (duration longer than 06 weeks) were included in study after taking informed consent. Patients were managed with LAD & later followed for 01 year for the evidence of permanent flatus / faecal incontinence & fissure recurrence.
Results: Out of the 129 patients included in study we had successfully been able to follow 102 patients for one year, while 27 patients were lost at various stages of follow-up and thus dropped off the final stage of study (i.e. calculation of incontinence & recurrence rate). Post-operative pain intensity & early mobility factor was found much better in this study. 23 patients initially complaining of flatus incontinence for 02–09 days were settled with pelvic floor exercises while none was found with an early or late complication of faecal incontinence. Similarly follow-up for 01 year period revealed none with recurrence issue.
Conclusion: LAD in our study proved a safe & effective approach in the management of patients with anal fissure un-responsive to conservative measures, having no permanent incontinence or recurrence issues & may therefore be safely practiced in our setup like LIS procedure.
Keywords: Anal fissure, Lord's anal dilatation, lateral internal sphincterotomy, incontinence, recurrence

INTRODUCTION
Anal fissure is a linear tear in the anoderm just distal to dentate line. It is very painful condition, seen in surgical & obstetrics (post-natal) patients. It can be primary (idiopathic) which is more common or secondary with predisposing factors being constipation, sphincter hypertonia, child birth or diarrhea at times. Secondary anal fissures are associated with Tuberculosis, Crohn's disease, Ulcerative Colitis, AIDS & malignancy etc. Site of occurrence is midline posteriorly in 80% cases & midline anteriorly (atypical) in remaining 20% cases. Atypical fissures may be multiple & away from the midline. Anal fissure can be classified as acute or chronic depending upon the duration of disease. Acute if duration is less than 06 weeks & chronic when more than 06 weeks old.[01,02] A chronic fissure is usually deeper & generally has exposed internal sphincter fibers at its base. It is frequently associated with a hypertrophic anal papilla at its proximal aspect & a sentinel pile at its distal aspect.[03]

Injury to the anoderm (with tear formation) causes pain with initiation of vicious pain cycle leading to contraction of the underlying sphincter smooth muscle fibers with each episode of pain. It compromises the blood supply to overlying anoderm causing a halt in its healing process. Principle of healing is to relax the sphincter fibers, leading to restoration of blood supply to overlying anoderm that ultimately heals by body's own wound healing mechanism.

Typical symptoms are severe pain with defecation, post-defecation pain, streaks of blood over stools surface or passage of drops of blood at the end of defecation. Hard stools & internal sphincter hypertonia are few of the main etiological factors.[04,05] The pain may be so severe that patient avoids defecation for days altogether, until they are severely constipated. This delay leads to hardening of the stools, which further tears the anoderm during defecation, setting a vicious cycle.[06]

Diagnosis is made by history & examination. Digital rectal examination (DRE) is not possible due to pain and sphincter spasm. There is usually a visible longitudinal breach in anoderm having a sentinel tag usually at its distal end with tightly puckered anal sphincter that can be seen by gently parting the buttocks. Management ranges from medical to surgical. Whereas medical approach does not usually achieve satisfactory results, surgical techniques have their own advantages & disadvantages. Amongst the surgical approaches LAD & LIS are the much debated ones. Over the past few decades, LIS is being preferentially practiced in its management. Complications of incontinence & recurrence are the actual bone of contention between the advocates of both approaches.

Treatment of anal fissure is mainly based on disrupting the cycle of pain, spasm and ischemia. First line therapy to minimize anal trauma includes bulk agents, stool softeners & warm Sitz baths. Those who do not achieve a relief with first line conservative management or those who have a recurrence, second line therapy is advocated with Botulinum toxin injection or the topical application of ointments such as calcium channel blockers (nifedipine, diltiazem) or nitric oxide application (glyceryl trinitrates). Surgical techniques such as manual dilatation & lateral internal sphincterotomy effectively heal most fissures within few weeks but may result in permanently impaired anal continence.[03] LAD is one of the ancient & simple surgical techniques, but with high incidence of recurrence & incontinence. LIS is the preferred surgical technique these days, but again with higher incidence of incontinence.[07]

One of the common objections raised by critics of LAD is that the complications of incontinence & recurrence do occur but remains un-noticed as patient usually opts to consult some other surgeon. The logic is not convincing indeed as it affirms indirectly that surgeons are not usually getting such complications amongst their own post-op cases, but likewise they cannot even produce enough evidence in favour of such complications occurred in cases

operated by other surgeons. Lord's dilatation is also a step in haemorrhoidectomy which is much frequently performed procedure than anal fissure surgery, but still number of post-haemorrhoidectomy cases with incontinence are hard to witness in our practice, which is another indirect evidence in favour of LAD.

Objective of conducting this study is to evaluate the management of anal fissure with LAD particularly in terms of incontinence and recurrence and to compare the results with published literature.

MATERIAL & METHODS

The study was carried out at the surgical units of Ayub Teaching Hospital Abbottabad from November 01, 2012 to May 31, 2017. Both male & female patients aged 20 years & above, diagnosed by surgeon (senior registrar & above) with anal fissure unresponsive to conservative measures were included in the study, after taking informed consent. Patients unwilling to join study, age less than 20 years; those with haemorrhoids, fistula-in-ano, peri-anal abscess, pregnancy, recurrent / secondary anal fissure, Crohn's disease, ulcerative colitis or malignancy, patients on steroids, anticoagulants or immunosuppressive therapy & patients who were ASA grade 3 & above were excluded from the study.

Patients were kept NPO for 08 hours pre-operatively. Enema was given at pre-operative night (10 pm) and repeated in the morning (06 am). Prophylactic antibiotics (Inj. Cefuroxime 1.5 gm I.V & Inf. Metronidazole 500 I.V) were given one hour before procedure. Most of the patients (n=117) were operated under spinal anesthesia while others (n=12) were operated under general anaesthesia. Method described by Watts et al[08] was adopted for anal dilatation. DRE & proctoscopy was carried out to re-confirm the diagnosis of anal fissure and to rule out any associated local pathology. Anal dilatation was performed with two lubricated index fingers followed by 4 fingers till a time the tightened sphincter felt relaxed around the fingers. Post-dilatation patient was inspected for bleeding & sphincter injury and shifted to recovery / ward.

Post-operatively patients were kept on intravenous analgesia (slow Indomethacin infusion BD and intra-muscular diclofenac SOS) for initial 24 hours, followed by regular oral analgesics like diclofenac & combination of paracetamol with orphenadrine. Patients were allowed orally after four hours & were discharged on 1st post-operative day. Pain intensity was assessed by the number of SOS injections besides analgesia infusions. Patients with persistent pain (responding poorly to I.V. / I.M. analgesia) were kept admitted a little longer & provided with alternative analgesics like intravenous diluted ketorolac twice a day for next 24–48 hours.

Patients were discharged on 1st post-op day with the advice of pyodine Sitz baths thrice daily for next one week. Syp. Lactulose 2TSF TDS (on PRN basis) was also added to the home treatment of patients with pre-operative history of constipation.

Patients post-operatively were called on OPD days to check for the evidence of incontinence initially after 02 weeks and then at 1, 3, 6, 9 & 12 monthly interval. Besides scheduled follow-up visits they were advised & encouraged to seek for consultation immediately if they noticed any incontinence or recurrent pain issue. Findings were recorded over a structured proforma, filled in by surgeon (SR & above) at the time of patient admission, discharge & then follow-up visit.

Data Analysis: Data obtained will be entered & analyzed with the help of SPSS version 26 to calculate the statistical correlation between different variables.

RESULTS

Total number of patients initially consented & included in study were 129, out of which 92 (71.3%) were male while 37 (28.7%) were female patients (Table 01). Male to female ratio was 2.5 **:** 1.

Age range was 20 to 51 years with an age range of 23-51 years in male & 20-42 years in female patients (Table 02). Mean age was 35.2 year; it was 36.7 year in male and 34.1 year in female patients. Median age was 33 year with a median age of 34 year in male & 31 year in female patients.

Table 1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	92	71.3	71.3	71.3
	Female	37	28.7	28.7	100.0
	Total	129	100.0	100.0	

Table 2: Age Range

	N	Minimum	Maximum	Mean	Std. Deviation
Age	129	20	51	34.82	8.471
Valid N (list-wise)	129				

Patients belonged to random professions like students, labourers, teachers, lawyers, jobless persons, house wives etc.

Presenting complaint (Table 03) in most of the patients 76 (58.91%) was severe pain with fresh bleeding per rectum including 64 (84.21%) male & 12 (15.79%) female patients. Mild to moderate pain with defecation was the next common presenting complaint in 53 (41.09%) patients including 28 (52.83%) male & 25 (47.17%) female patients. Constipation was present in 82 (63.57%) patients including 56 (68.29%) male & 26 (31.71%) female patients; diarrhoea was recorded in 09 (06.98%) patients while fissure developed post-partum in 17 (13.18%) patients.

Table 3: Presenting Complaints

Presenting complaints	Frequency	Percent
Severe pain with fresh Bleeding PR at defecation	76	58.91
Mild to moderate pain at defecation	53	41.09
Constipation	82	63.57
Diarrhoea	09	06.98
Pain developed post-partum	17	13.18

Fissure was found posteriorly in midline in 107 (82.95%) patients & anteriorly in 22 (17.05%) patients (Table 04). Duration of symptoms at presentation varied from 10 days to 3 months.

Table 4: Position of Fissure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Posterior Midline	107	82.9	82.9	82.9
	Anterior Midline	22	17.1	17.1	100.0
	Total	129	100.0	100.0	

Acute anal fissure un-responsive to conservative management for more than 10 days (with patient in severe agony) was present in 76 (58.91%) patients including 64 (84.21%) male & 12 (15.79%) female patients, while 53 (41.09%) patients presented with chronic anal fissure including 28 (52.83%) male & 25 (47.17%) female patients.

Table 5: Operative Time in Minutes

N	Valid	129
	Missing	0
Mean		8.7
Minimum		6
Maximum		10

Mean operative time was 8.7 minutes (Table 05) while mean hospital stay was 1.06 days (Table 06). 08 (6.2%) patients with post-operative pain out of proportion to that of other patients were kept in hospital for additional 24 hour i.e. till settlement / significant reduction of pain including 03 (37.5%) male & 05 (62.5%) female patients.

Table 6: Hospital Stay in Days

N	Valid	129
	Missing	0
Mean		1.06
Minimum		1
Maximum		2

Slight bleeding per rectum for 24-48 hours post-operatively was the complaint by 19 (14.73%) patients including 11 (57.89%) males & 08 (42.11%) females. 23 patients (17.83%) including 08 (34.78%) male & 15 (65.22%) females reported flatus incontinence initially for 02-09 days (Table 07) while 17 (13.18%) patients including 05 (29.41%) males & 12 (70.59%) female reported mild soakage of clothes with mucous anal discharge for 01–05 days (Table 08), although such complaints were settled with pelvic floor exercises in both genders.

Table 07: Flatus Incontinence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	106	82.2	82.2	82.2
	2-9 days	23	17.8	17.8	100.0
	Total	129	100.0	100.0	

Table 8: Anal Mucous Discharge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	112	86.8	86.8	86.8
	1-5 days	17	13.2	13.2	100.0
	Total	129	100.0	100.0	

During the study we had successfully been able to follow 122 (94.57%) patients for 01 month without any evidence of flatus or faecal incontinence (besides those patients with transient flatus incontinence & soakage of clothes for 01–09 days). 114 (88.37%) patients were followed till 03 months without an evidence of flatus / faecal incontinence or fissure recurrence. 109 (84.5%) patients were followed till 06 months while 105 (81.4%) patients till 09 months without any incontinence or recurrence issue. Finally 102 (79.07%) patients could be followed for 12 months, again without an evidence of incontinence (Table 09) or recurrence (Table 10). Thus 27 (20.93%) patients were lost to follow-up at various stages of study & had not been finally considered towards final analysis / interpretation of the study results.

Table 9: Faecal Incontinence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	102	100.0	100.0	100.0

Table 10: Recurrence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	102	100.0	100.0	100.0

DISCUSSION

Study was conducted to analyze the complication risk of LAD in the management of anal fissure disease. Findings of our study are in favour of LAD to be an effective & reliable option in the management of anal fissure disease in our setup, finding a bit different from the result of other available studies in published literature. Total number of patients included in study were 129, 92 (71.32%) were male while 37 (28.68%) were female patients which is comparable with the study findings of Kumar et al[05] having 100, Velani et al[07] having 200, Uttam et al[09] having 80 & Razzaq et al[10] having 80 patients included in their studies. Male to female ratio in our study was 2.5:1, which is comparable with the Male to female ratio of 1.7:1 recorded by Kumar et al[05], 1.5:1 by Velani et al[07], 1:1.8 by Uttam et al[09] & 1:1.85 by Razzaq et al[10] in their studies. Age range was 20 to 51 years which is comparable to the study by Velani et al[07] having age range of 18-50 years, Uttam et al[09] having age range of 18-50 years & Razzaq et al[10] having age range of 20-65 years. Mean age in our study was 35.2 year, it was 36.7 years in male & 34.1 years in female patients, same recorded in the study by Kumar et al[05] was 42.13±12.32 (overall), 38.42±12.32 for males & 40.12±11.33 for females, 34.13±12.32 (overall), 38.32±12.32 for males & 30.32±12.32 for females by Uttam et al[09] & 41.87±10.31 by Razzaq et al[10] in their studies. Median age in our study was 33 year; it was recorded 40 years by Kader et al[03].

Presenting complaint in most of the patients 76 (58.91%) was severe pain with fresh bleeding per rectum, while pain only with defecation was the next common complaint in 53 (41.09%) patients. Kumar et al[05] recorded painful defecation in 96%, fresh Bleeding PR in 83%, Velani et al[07] recorded painful defecation in 97%, fresh bleeding PR in 80%, Uttam et al[09] recorded painful defecation in 96% while Razzaq et al[10] recorded painful defecation in 100% patients. Constipation was present in 82 (63.57%) patients including 56 (68.29%) male & 26 (31.71%) female patients in our study, which is comparable with the recorded value of 15% by Kumar et al[05], 85% by Velani et al[07] & 15% by Uttam et al[09].

Fissure in our study was found posteriorly in midline in 107 (82.95%) patients, the same was recorded posteriorly by Kumar et al[05] in 93%, Velani et al[07] in 93%, Uttam et al[09] in 92% & Razzaq et al[10] in 80%. It was found anteriorly in 22 (17.05%) patients in our study which may be compared with the value of 5% recorded by Kumar et al[05], 5% by Velani et al[07], 6% by Uttam et al[09] & 15 % by Razzaq et al[10] in their studies. Duration of symptoms at presentation varied from 10 days to 3 months, which is comparable with the fissure duration findings of ≥ 8 weeks by Kumar et al[05], > 8 weeks by Velani et al[07], ≥ 8 weeks by Uttam et al[09] & 11 months by Kader et al[03]. Mean hospital stay was 1.06 days in our study, which is comparable with mean hospital stay of 3.4 days by Kumar et al[05], 3 days by Velani et al[07], 3.4 days by Uttam et al[09] & 2.5 days by Razzaq et al[10].

Postoperatively 19 (14.73%) patients including 11 (57.89%) male & 08 (42.11%) female patients were complaining of slight bleeding per rectum for initial 24–48 post-op hours, the same reported in the study by Kumar et al[05] & Velani et al[07] was 74% and 75% by Uttam et al[09]. In our study 23 (17.83%) patients including 08 (34.78%) male & 15 (65.22%) female patients reported flatus incontinence initially for 2-9 days which is comparable with the flatus only incontinence of 5.5% recorded by Habeeb et al[11]. 16 (12.4.%) patients including 05 (31.25%) male & 11 (68.75%) females in this study reported mild soakage of clothes with mucous discharge per anus for 01–05 days, which is comparable to the mucous incontinence reported in 14% by Kumar et al[05] & Velani et al[07], 20% by Uttam et al[09] & 24% by Pandit et al[12].

None of the patient complained of faecal incontinence even during initial post-op period, of our study. Kader et al[03] reported faecal incontinence in 42.86% & Razzaq et al[10] in 5% cases for 3-5 days, Habeeb et al[11] reported some degree of stool & flatus incontinence in 1.8% patients while Pandit et al[12] recorded true fecal incontinence in 6% patients of LAD which was minor & improved gradually. Similarly post-operative follow up for one year in our study revealed no case of the incontinence or recurrence amongst 102 patients, which is comparable to the recurrence rate of 4% recorded by Kumar et al[05], 5% by Uttam et al[09] but in contrast with 71.42% recurrence rate by Kader et al[03]. Pandit et al[11] regarding recurrence over a period of 9 months follow-up, reported 16% patients of LAD group as compared to 2.27% of LIS group with recurrence of symptoms with evident fissure on examination.

CONCLUSION

Our study findings revealed that Lord's Anal Dilatation (LAD) is not significantly associated with the complications of permanent flatus or faecal incontinence although transient flatus & mucus incontinence during immediate post-op period was observed in few

cases. Similarly recurrence of fissure was not noticed following LAD in our study. LAD as per our study results proved a safe & effective option in the management of patients with anal fissure, having no permanent flatus / faecal incontinence or recurrence issue. It is easier to learn / perform even by residents / junior surgeons, produces better relief of symptoms with a shorter hospital stay. It should therefore be safely adopted to our routine practice of anal fissure management like LIS procedure.

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