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RESEARCH ARTICLE

A PROSPECTIVE RANDOMISEDSTUDY COMPARINGLATERAL INTERNAL SPHINCTEROTOMY AND ANAL DILATATIONFOR THE MANAGEMENT OF CHRONIC ANAL FISSURE

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Abstract

Background: Lateral internal sphincterotomy (LIS) is a surgical procedure which is performed routinely in the treatment of chronic anal fissures, especially in cases that have failed traditional medical modalities. Controlled application of a Park's retractor was found to be an alternative method[8,9] and with standardization, 88% healing [10] with a 12% recurrence were achieved in a large series. In this retrospective study, we compared intermittent dilation using Park's dilator with a standard LIS method to see the effect on chronic fissures management.

Aims and objectives: Both anal dilatation and internal anal sphincterotomy are practiced in our hospital for treatment of chronic anal fissure, The objectives of the study was to compare the two procedures especially regarding pain relief,ulcer healing,incontinence and recurrence .

Materials and methods: This study was carried out at Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh from october 2020 to September 2021 on a pool of 100 patient out of which, 50 underwent anal dilation using Park's dilator (AD) and 50 underwent LIS. AD patients were discharged on the same day while LIS patients were discharged on post op day 2. Approval for the study was obtained fromthe ethical committee of the college.

Results: 100 patients were studied and followed up.Pain was present in all the 100 (100%) patients and bleeding in 81 (82.6%) patients. Average duration of symptoms was 11.16 ± 12.17 (range, 1.8-60 months) and the difference between two groups was not significant. No patient had significant intraoperative complications. Four patients in LIS group complained of pain and some discharge on the fifth post-operative day.The average follow-up was 9 months. Pain relief was observed in 30 (Group A) and 35 (Group B) patients by the end of 1 week and 45 (Group A) and 50 (Group B) patients by the end of 1 month. By one month, healing of the ulcer was observed in 35 and 38 patients in group A and B respectively. By the end of 3 months, minor incontinence including mucous discharge was observed in 18 and 6 patients in group A and B respectively and the difference was significant (p=0.0062). True fecal incontinence occurred only in 2

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patients in group A and was minor. No patient had major incontinence. A few among these patients who followed up till late, incontinence was found to gradually improve. Regarding recurrence, over the period of 9 months follow-up, 9 and 2 patients in group A and group B respectively reported with recurrence of symptoms and the fissure was evident on examination also (p =0.0075)

Conclusions; Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD.

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Introduction:-

Anal fissure is a crack in the epithelial lining of the anoderm distal to the dentate line. In men, it is located in the posterior anoderm in the midline while in women, anterior fissures are more common1.Acute fissures are of less than 6 weeks duration while chronic are beyond 6 weeks. Chronicity is usually associated with sentinel piles, hypertrophied [2,3,4] anal papillae or visible internal sphincterfibers. Presenting complaints are pain during defecation, bleeding during defecation, and constipation; anal fissures are one of the most [5] common medical conditions encountered in proctology. The etiology is usually based on constipation and hard stools causing mechanical tears during the strenous attempts of defecation. There is also associated internal sphincter hypertonia caused by persistence of these conditions, which in turn reduces blood flow of the posterior wall and results in a higher anal tone. Thus, anal fissures [6] often become chronic. Studies on the methods of treatment of chronic anal fissures range from medical applications to surgery; there is no[7] general agreement on ideal therapy for chronic anal fissures. Medical therapies do not provide satisfactory long-term results and manual anal stretch methods result in a high-degree of sphincter damage.[7] Lateral internal sphincterotomy (LIS) is a surgical procedure which is performed routinely in the treatment of chronic anal fissures, especially in cases that have failed traditional medical modalities. It can be performed in the open type or the closed type with both the types, giving similar results.[3] Because of reports of the high incidence of incontinence (66%)[1] with these techniques, alternative methods have been investigated. Controlled application of a Park's retractor was found to be an alternative method[8,9] and with standardization, 88% healing [10] with a 12% recurrence were achieved in a large series. In this retrospective study, we compared intermittent dilation using Park's dilator with a standard LIS method to see the effect on chronic fissures management.

Materials And Methods:-

This study was carried out at Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh on a pool of 100 patient out of which, 50 underwent anal dilation using Park's dilator (AD) and 50 underwent LIS. AD patients were discharged on the same day while LIS patients were discharged on post op day 2. Approval for the study was obtained fromthe ethical committee of the college.

Exclusion criteria:

Patients who had suspected or proven inflammatory bowel disease,hemorrhoids, fistula, pregnancy, and previous anal surgeries were excluded from the study.

Diagnosis of CAFwas based on typical symptoms present for more than 6 weeks and signs. History suggestive of fissure included pricking type of pain at defecation and bright red blood drops in lavatory pan after evacuation of stool, blood stain on the surface of the stool or on the toilet tissue paper. History of constipation was present in most patients.

Surgical procedure:

The patients underwenteither AD or LIS depending on individual surgeon's preference. The patients who underwent AD were Grouped A and those who had LIS were grouped B. Spinal anesthesia was used in LIS patients and general anesthesia was used in AD patients. The procedures were performed in the lithotomy position.AD was usually performed using Park's speculum to dilate the anal canal to 4.8cm and then gradually relaxed in 20seconds. The dilation–relaxation sequence was repeated 15 times during a 5 min period. A LIS procedure, with an open

method was applied to patients in the lithotomy position. The internal sphincter was separated from the mucosa just under the dentate line; the distal part of the sphincter was dissected and cut with a Number 11surgical blade in the groove in left posterolateral aspect of anus.The length of cut was about 1 cm. As the sphincter fibers were divided, a loss of tone could be felt. Also, the division was confirmed by palpation of the defect in the sphincter at the site of division.

Postoperatively they were given oral antibiotics for 5 days, laxative for two weeks and sitz bath for 14 days. All were advised to take high fiber food. The patients were followed up at 1 week and then at 1 month of surgery. They were interviewed for pain, bleeding, mucous discharge and incontinence. Patients were asked for pain control and anal continence. Patients who had no complaint by the end of a month of surgery were advised to report in case they develop recurrence of symptoms. Others who had persistent symptoms, ulcer and complications were further followed up to variable extent of time maximum being 9 months.

Statistical analysis:
Data were entered in Microsoft Excel version 2016 and analyzed using T-test. Statistical significance was set to $p<0.05$

Results:-
100 patients were studied and followed up. 60% patients were male, and male to female ratio was1.5:1.Group A and B included 50patients each. The mean age was 40.27± 2.41 (range: 25-69) years, and there was no significant age difference between the two groups (Table).Pain was present in all the 100 (100%) patients and bleeding in 81 (82.6%) patients. However, pain was the main presenting symptom in 75 (75%) patients only while in the others bleeding was predominant. 76 (76%) patients complained of constipation. Average duration of symptoms was 11.16 ± 12.17 (range, 1.8-60 months) and the difference between two groups was not significant. No patient had significant intraoperative complications. Four patients in LIS group complained of pain and some discharge on the fifth post-operative day. They were suspected of having infection based on clinical judgment. It was controlled by switching over the oral antibiotic to intravenous ceftriaxone and metronidazole combination. The average follow-up was 9 months. Pain relief was observed in 30 (Group A) and 35 (Group B)patients by the end of 1 week and 45 (Group A) and 50 (Group B) patients by the end of 1 month. By one month, healing of the ulcer was observed in 35 and 38 patients in group A and B respectively.By the end of 3 months, minor incontinence including mucous discharge was observed in 18 and 6 patients in group A and B respectively and the difference was significant (p=0.0062). True fecal incontinence occurred only in 2 patients in group A and was minor. No patient had major incontinence. A few among these patients who followed up till late, incontinence was found to gradually improve. Regarding recurrence, over the period of 9 months follow-up, 9 and 2 patients in group A and group B respectively reported with recurrence of symptoms and the fissure was evident on examination also (p =0.0075)

Table:- Demography, ulcer details and results of surgery in AD and LIS patients.

Parameter	Group A (n=50)	Group B (n=50)	p Value
Age in years: mean (range)	40.27± 2.41 (25-69)	39.1 ± 4.6 (20-62)	0.44
Male to female ratio	1.47	1.43	
Duration of symptoms (months): mean (range)	12.7 ± 9.72 (1.5-60)	13.6 ± 8.2 (2-60)	0.564
Posterior ulcer, n (%)	43 (86%)	37 (74%)	0.974
Pain relief in 1 week, n (%)	30 (60%)	35 (70%)	0.784
Pain relief in 1 month, n (%)	45 (90%)	50 (100%)	0.541
Ulcer healed in 1 month, n (%)	35 (70%)	38 (76%)	0.703
Minor incontinence and Mucous discharge, n (%)	18 (36%)	6 (12%)	0.0062

Recurrence	9 (18%)	2 (4%)	0.0075

Discussion:-

Both AD and LIS lead to reduction of resting anal pressure. Both the techniques have been found to result is quick pain relief and high ulcer healing rate. Watt et al reported satisfactory early relief of symptoms in 95% of patients with AD.[11]Hoffmann reported that about 93% patients were quite free of pain in 1 week of LIS.Little John reported 99% initial healing with tailored LIS[14]. Current study also revealed rapid improvement in symptoms and ulcerhealing in both the groups. AD is associated with uncontrolled damage to the internal sphincter fibers, and in some cases external anal sphincter may also be damaged.[15,16,17].In 1968 Lord suggested anal dilatation technique in which four fingers of each hand are inserted into the anal canal and stretched for 3 to 4 minutes.[18]Konsten et al, in a prospective randomized trial involving 138 patients treated by Lord's anal sphincter stretch technique, and 17- year follow-up,demonstrated that 52% of patients had varying degrees of incontinence after Lord's procedure.[18] In 1992 MacDonald and colleagues reported incontinence as high as27%.[16] Strugnell and colleagues performed controlled digital dilatation of anus in 273 patients and over a median follow up of 7.8 years revealed that incontinence rate was as low as 9 (3.8%).[19] In the current study, minor incontinence rate was relatively lower compared to studies in the past. The highrate of incontinence reported by Lord's technique was not observed in the current study because the extent of stretch was limited to four fingers and in a few patients only to five or six fingers. Since the description of the technique of LIS by Eisenhammer in the 1950s, practice was to divide the internal sphincter to the dentate line.[20]Khubchandani et al documented complication up to 35% of cases following LIS.[21] Littlejohn et al reported aretrospective review of 287 patients whounderwent division of the internal analsphincter tailored to the length of the fissure and there was 35% incidence of minor staining.[14] Sphincterotomy tailored to the apex of fissure has been shown to have lower rates of mild incontinence (2%) compared with sphincterotomy to the dentate line (11%).However, this comes with a higher overall treatment failure rate on long-term follow-up (13%) compared with a larger sphincterotomy either to the dentate line (0%) or to an anal diameter of 30 mm (3%).[22] Regarding incontinence, Watts et al had at least 5 month follow up of 99 patients treated by sphincter stretch and reported recurrence rate of16%.[11] Sphincterotomy results in sustained reduction of maximum resting anal pressure.[23] Hiltunen et al, after 2 months of surgery found that the basal pressure was significantly lower in the patients who underwent LIS, however, there were 4 failures among the 19 patients who underwent AD.[24] This might be the reason for less chance of recurrence observed in the our study also. Several studies have demonstrated lower incontinence rate following LIS compared to AD.[16,25,26,27] The current study also demonstrated lower rate on incontinence and recurrence with LIS compared to AD.

Conclusion:-

Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD.

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