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CLINICOEPIDEMIOLOGICAL PROFILE OF PATIENTS WITH CHRONIC ANAL FISSURE

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ABSTRACT

Introduction: Anal fissure is a split in anoderm. Most fissures occur in posterior midline and persist beyond 6 weeks. There is a deficit in clinicoepidemiological studies regarding this common clinical entity. So our study aims to identify lifestyle related risk factors causing chronic anal fissure. **Materials and methods**: A total of 112 patients attending surgery OPD, diagnosed as chronic anal fissure were included in the study. **Results:** There were 36 (32.1%) males and 76 (67.9%) female patients in this study. There were 81 (72%) patients whose fissure were located posteriorly and 29 (26%) patients anteriorly. Two (2%) patients have multiple fissures. Most common clinical symptom is painful defecation in all of the patients. Constipation was present in nearly two third of patients i.e. in 73 (65.18%) patients. Nearly half of the patients (51.8%) gave history of low fibre intake. Anal tone was increased in 61 (54.5%) patients and was normal in 51 (45.5%) patients. Hypertrophied anal papillae was present in 71(63.4%) patients. **Conclusion:** Our study revealed strong association of anal fissure with female sex, constipation and low fibre diet. Though constructive lifestyle recommendations could not be definitely advised by our study, a multi-institutional well constructed study is recommended to do so.

KEYWORDS: Anal fissure, chronic anal fissure, painful defecation.

INTRODUCTION

A chronic anal fissure is a common clinical presentation. An anal fissure (synonym: fissure-in-ano) is one of the most common benign anorectal condition. It was first recognized as a clinical entity in 1934.[1] An anal fissure is a longitudinal split in the anoderm of the distal anal canal, which extends from the anal verge proximally towards, but not beyond, the dentate line.[2] Most fissures occur in the posterior midline of the anal canal at 6 o'clock position. In 1-10% of total cases and 10-20% of female cases, anal fissures are located in the anterior midline. [4] Multiple fissures or lateral fissures may have other causes, such as crohn's disease, ulcerative colitis, tuberculosis, or infection with human immunodeficiency virus or syphilis.[3,4] Fissures are classified as acute or chronic. Acute fissures are usually defined as those healed spontaneously within 6 weeks and look similar to a paper cut in the distal anal skin. Conversely, chronic anal fissures persist much longer and tend not to heal without intervention. Chronic fissures are wider and deeper than acute fissures and muscle fibers of the internal anal sphincter (IAS) can be seen at the fissure base with little granulation tissue. The edges of chronic anal fissures are often indurated and there may be a skin tag distally and a hypertrophied papilla proximally.[5,6]

As fissures are most commonly seen in the posterior midline, inadequate blood flow to this region has been hypothesized to play a role in its development.[7] End arterioles from the inferior rectal artery pierce both sphincters to reach the sub mucosa of the anal canal and travel cephalad in this plane. In a study of 8 cadavers, the mean number of arterioles seen in both the sub anodermal space and IAS were consistently fewer in the posterior midline of the sphincter. [7] Similarly, in another study of 41 cadavers without fissures, angiography demonstrated 85% of inferior rectal arteries had decreased branches to the posterior commissure.[8] It was suggested that the hypertonic sphincter decreased blood flow in these terminal vessels as they passed through the IAS fibers. This may also explain how treatments that demonstrate improved blood flow to the anoderm are associated with improved healing rates.[9-12]

There is a deficit in epidemiological studies examining this often encountered disease. Total of 2,35,000 new cases of anal fissures are reported every year in the US and about 40% of them persist for months and even years.[13] The exact aetiology of anal fissure is unknown but trauma caused by (especially hard) fecal mass and hyper tonicity of the internal sphincter is thought to be the initiating factor. Despite these findings, only 25%

patients with chronic anal fissure have constipation.[4] Furthermore, diarrhoea is a predisposing factor in about 6% patients.[3,14] For this reason, AF may be a consequence of bariatric procedure in obese people.[15]

Micro trauma of the anus by constant saddle vibration in professional mountain bikers can lead to chronic inflammation and a resultant AF.[16] There is also a suspicion that the water stream from bidet-toilets may be a cause of anterior fissure-in-ano.[17] Three to eleven percent of anal fissures are associated with childbirth and typically this type of aetiology predisposes to fissure localization in the anterior anal commissure.[18] Links between sexual abuse and AF have also been considered.[19]

Diet is not without significance. Consumption of spicy food like hot chilli peppers aggravates symptoms in patients with an acute AF.[20] Gupta et al in 2008 compared the effects of chilli capsule with placebo capsule in crossover trial showed in 81.3% subjects aggravated by chilli capsules.[20] The literature identifies that lifestyle-related factors such as diet, bowel habit and employment play an important role in the aetiology of anal fissure. The literature only touches on the interrelationship between these factors, however, no strong evidence-based research done to provide constructive lifestyle recommendations. So our study aims to provide safe and effective lifestyle recommendations for chronic anal fissure.

MATERIALS AND METHODS

INCLUSION CRITERIA

CASES MEETING CLINICAL CRITERIA:

Symptoms (pain on defecation and bleeding, or both) lasting for more than 6 weeks with the evidence of a circumscribed ulcer with or without a sentinel tag of skin, induration at the edges, and exposure of the horizontal fibers of the internal anal sphincter on clinical examination.

EXCLUSION CRITERIA

- Age less than 18 years
- Acute anal fissure
- Refusal of consent

ENROLLMENT OF PATIENTS

Patients with the diagnosis of chronic anal fissure attending the Surgery OPD of BPKIHS, Dharan were enrolled in the study. A prior informed written and understood consent was taken from each patient after explaining in detail about the nature of the study and their role. A detailed history with respect to the chief complaints like pain measured on visual analogue scale (VAS), bleeding per rectum, constipation, discharge, itching, duration of illness, precipitating factors and past treatment was documented in a preset proforma.

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A thorough general, systemic and local examination including position of the fissure, sentinel pile, hypertrophied anal papillae, anal tone and digital rectal examination was carried out and documented in the proforma.

RESULTS

AGE DISTRIBUTION

A total of one hundred and twelve patients were included in the study and their age ranged from 18-70 years with the mean age of 31.23 ±11.19 (28) years. A maximum of 68 (60.7%) patients were between the age group of 18-30 years. The age distribution is illustrated in the following table 1 and figure1.

Table 1: Age distribution of patients.

Age distribution (years)	Number of patients (n=112)	Percentage (%)
18-30	68	60.7
31-40	24	21.4
41-50	12	10.7
51-60	7	6.3
61-70	1	9

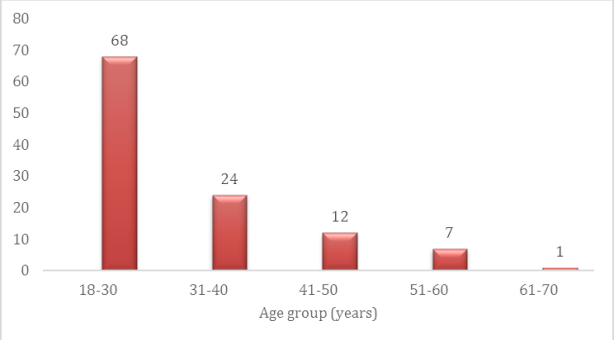

Figure 1: Age distribution of patients.

SEX DISTRIBUTION

There were 36 (32.1%) males and 76 (67.9%) female patients in this study. F:M ratio was 2.11:1 as illustrated in following table2 and figure 1.

Table 2: Sex distribution of patients.

Sex	No of patients (n=112)	Percentage (%)
Male	36	32.1
Female	76	67.9

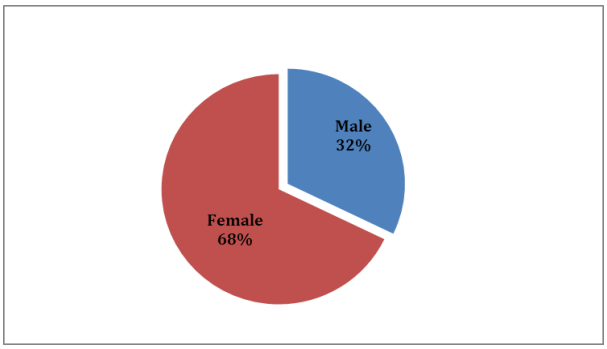

Figure 1: Sex distribution of patients.

LOCATION OF FISSURE

There were 81 (72%) patients whose fissure were located posteriorly and 29 (26%) patients anteriorly. Two (2%) patients have multiple fissures. Among males, 32 (89%) patients had posterior anal fissure. Among females, 58 (76%) patients had posterior anal fissure.

ASSOCIATION OF FISSURE WITH OTHER RELEVENT CONDITIONS

Eighty nine (79%) patients had no significant associations with other conditions. One patient with multiple anal fissure had acquired AIDS. Another patient had practised frequent anal sex. Two patients had suffered from Chrohn's disease.

DURATION OF ILLNESS

The duration of illness ranged from 6 weeks to 15 years with the mean duration of 18.54 ± 32.29 (6.5) months. Half (50%) of the patients presented within 6 months of onset of illness. Nearly one fourth (26.8%) patients presented with duration of illness greater than one year. The distribution of patients according to duration of illness has been shown in following table 3 and figure 3.

Table 3: Distribution of patients according to duration of illness.

Duration of illness	No of patients (n=112)	Percentage (%)
1.5-3 months	45	40.2
3-6 months	11	9.8
6-12 months	26	23.2
12-24 months	13	11.6
>24 months	17	15.2

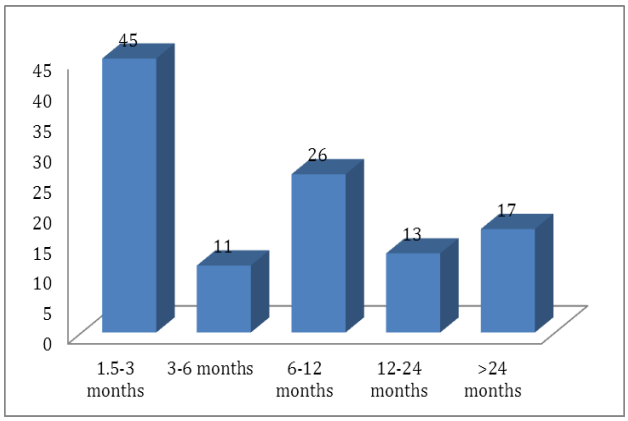

Figure 3: Distribution of patients according to duration of illness.

SYMPTOMS

All (100%) patients had ***painful defecation*** with mean VAS score of 7.23±.5 (7). Most of the patients complained of pain at the start of defecation and it persisted for few minutes with very few patients complaining of pain thereafter for few hours.

The next main complaint was ***bleeding per rectum*** which was observed in 89 (79.5%) patients. It usually occurred after defecation, was bright red in color and few drops in amount. It was present mostly during the passage of hard stool.

Itching was complained by 22 (19.6%) patients.

Perianal discharge was complained by 12 (10.7%) patients.

Table 4: Symptoms of patients.

Symptoms	Number of patients (n=112)	Percentage (%)
Pain	112	100
Bleeding P/R	89	79.5
Itching	22	19.6
Discharge	12	10.7

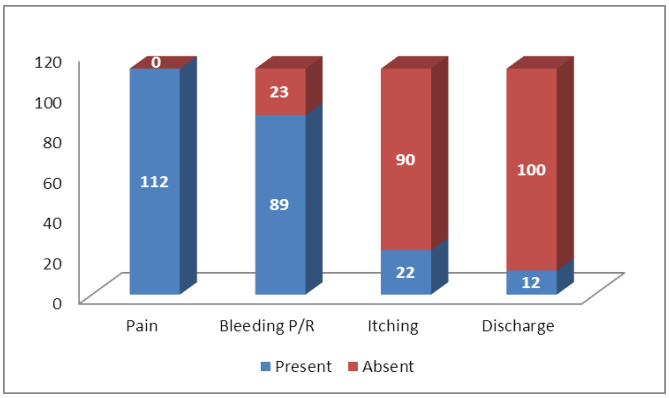

Figure 4: Symptoms of patients.

DEFECATION HABIT

Constipation was present in nearly two third of patients i.e. in 73 (65.18%) patients. Normal defecation habit was present in 18 (16.07%) patients. Loose stool was complained by 13 (11.61%) patients. Irregular bowel habit (constipation alternate with diarrhoea) was present in 8 (7.14%) patients as shown in table 5 and figure 5.

Table 5: Defecation habit of patients

Bowel habit	Number of patients (n=112)	Percentage (%)
Normal	18	16.07
Constipation	73	65.18
Loose stool	13	11.61
Irregular bowel habit	8	7.14

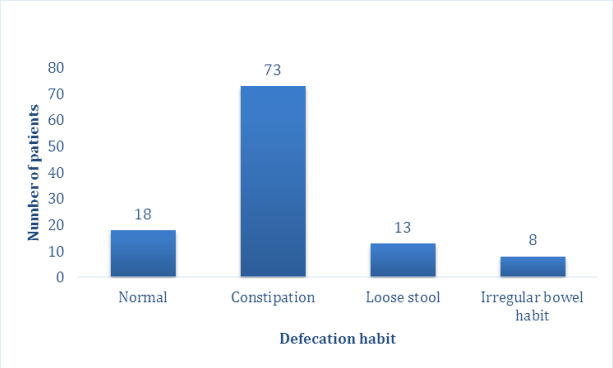

Figure 5: Defecation habit of patients.

FIBRE INTAKE

Nearly half of the patients (51.8%) gave history of low fibre intake. Forty eight (42.9%) patients had normal fibre intake and 6 (5.4%) patients had high fibre intake as shown in the table 6 and figure 6.

Table 6: Fibre intake of patients.

Fibre intake	No of patients (n=112)	Percentage (%)
low	58	51.8
normal	48	42.9
high	6	5.4

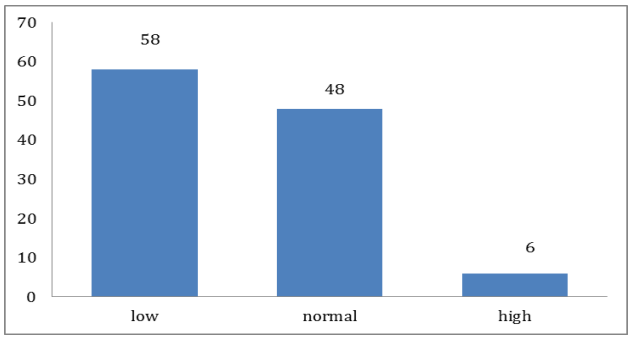

Figure 6: Fibre intake of patients.

DIETARY HABITS

Out of 112 patients, 58 (51.78%) had normal dietary habit, 18 (16.08%) had spicy dietary habit, 16 (14.28%) had chilly dietary habit and 20 (17.86%) patients had both chilly and spicy dietary habit as shown in following table 7.

Table 7: Dietary habits of patients.

Dietary habit	No of patients (n=112)	Percentage (%)
Normal	58	51.78
Spicy	18	16.08
Chilly	16	14.28
Both chilly and spicy	20	17.86

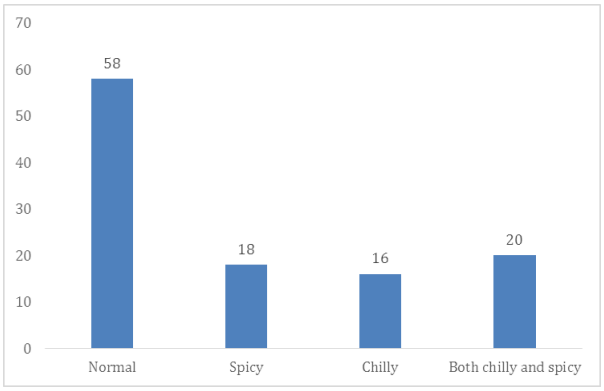

Figure 7: Dietary habits of patients.

CLINICAL FINDINGS

Anal tone was increased in 61 (54.5%) patients and was normal in 51 (45.5%) patients. Hypertrophied anal papillae was present in 71(63.4%) patients.

HISTORY OF PREVIOUS TREATMENT

Sixty (53.6%) patients gave history of previous treatment in the form of local ointments or laxatives. Forty five (40.2%) patients were treated only with laxatives before visiting our OPD.

ILLUSTRATIONS

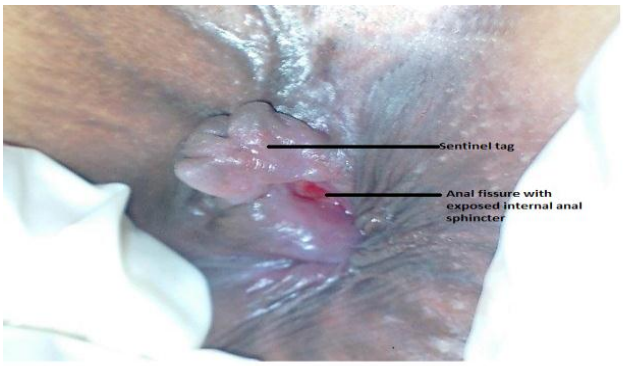

Figure showing chronic posterior anal fissure with sentinel tag.

Figure showing chronic posterior anal fissure.

DISCUSSION

Fissure in ano is a common benign anorectal problem amongst Nepalese population and we see two to three patients per day in surgical OPD. Patients are very often

reluctant to visit clinic regarding this problem. So most often we see the patient of anal fissure in its chronic form. Most anal fissures heal spontaneously with conservative treatment, viz., stool softners and diet modification.[3,4] Such anal fissures are termed as acute but a proportion of them persist for a longer period and is known as chronic. Most surgeons consider the persistence for 6 weeks as a reasonable point when an anal fissure is unlikely to heal with conservative treatment and may be considered chronic.[21-24] Morphologically, the presence of visible transverse internal anal sphincters fibers at the base of a fissure typifies chronicity. Associated features include indurated edges, a sentinel pile and a hypertrophied anal papilla. An acute fissure looks like a fresh tear in the skin, while in CAF the walls of the tear become thickened.

Most of those who visited our OPD had already received some previous treatment either in the form of local application or oral therapy (laxatives and pain killers). Sixty (53.6%) patients gave history of previous treatment in the form of local ointments or laxatives. Forty five (40.2%) patients were previously treated with laxatives before visiting our OPD. These data reflects the chronicity of anal fissure amongst Nepalese population.

AGE DISTRIBUTION

Age of the patients ranged from 18-70 years. Maximum patients in our study were of the age group 18 to 30 years with the mean age 31.2±11.2 (28) years.

This result was in corroboration with the study done by Nasr et al in 2010 where the mean age was 33.8 years.[25] However, Arroyo et al in 2005[26] and Mentes BB et al in 2003[27] observed the mean age of 38 years. It was 35 years in the study done by Christie et al in 2002.[28] The mean was 40 years in the study done by Brisinda et al in 2009.[29]

The result showed inconsistency in mean age years between studies done in various geographical location, probably due to varying incidence in different locations. Also the mean age group was lower in our study as compared to others reflecting early affection of illness in our part of world due to ignorance about lifestyle changes, illiteracy and indulgence to wrong work (sodomy) due to jobless situation amongst youth.

SEX DISTRIBUTION

There were 36 (32.1%) males and 76 (67.9%) females in our study. We observed that females had anal fissure twice as common as males with the ratio of 2.11:1.
It is in corroboration with the study done by Pitt et al in 2001 at Isleworth, UK.[30] The study done by Rahman et al in 2011 had female: male ratio of 1.2:1.[31] Most of the studies done worldwide had male preponderance unlike our study.[20-30]

The higher prevalence amongst females could probably be due to sedentary life style, ignorance, more illiteracy in females, and consumption of less water and fibre diet which leads to constipation. Also anal fissure following delivery can also explain the higher prevalence of fissure amongst females. Three to eleven percent of anal fissures are associated with childbirth and typically this type of aetiology predisposes to fissure formation, more commonly in the anterior anal commissure.[18]

DURATION OF ILLNESS

The duration of illness ranged from 6 weeks to 15 years with the mean duration of 18.54±32.29 (6.5) months. It was 20.7±33.7 (7) months in BTX group was and 16.4±30.9 (6) months in NTG group.

The mean duration of illness was 9.5 ± 6.8 months in BTX group and 14.7 ± 10.7 in NTG group in the study done by Brisinda et al in 1996[21], 16.6 ± 7.2 in BTX group and 14.9 ± 8.4 months in the study done by Brisinda et al in 2007[22] and 3.4 ± 2.7 in BTX group and 3.4 ± 2.5 months in nitrate group in the study done by Festen et al in 2009.[24]

So we observed the duration of illness was more in our study. This may be due to the fact that patients are very often reluctant to visit clinic regarding this problem and many patients try to cure this often encountered disease from nearby local health practitioner before visiting the tertiary centre like ours. We had observed sixty (53.6%) patients already used over the counter drugs like laxatives or analgesics before visiting our OPD. This data reflects the chronicity of the disease in our location.

SYMPTOMS

A tearing or burning discomfort during defecation is by far the most common symptom of fissure in ano.[32] It occurs both during and after defecation. The severity of pain is believed to be caused by two factors:
a. Exposure of sensory nerve endings in the raw area.
b. Reflex spastic contraction of the sphincter muscle.

In our study, all (100%) patients complained of painful defecation at the time of presentation with the mean VAS score of 7.2 ±1.5 (7) which is more than the study done by Giuseppe et al in 2009[33] where the mean VAS score was 5.7. However, it was 6.7±1.6 in botulinum toxin group and 6.4±1.0 in nitrate group in a study done by Festen et al in 2009.[24]

We observed more VAS score in our study. This may be because the patients of chronic anal fissure in the developing country like ours present late with severe pain than the western countries where patients present early during the course of disease.

Bleeding occurs in association with most anal fissures,[32] but is not as common symptom as pain. It is characteristically bright and occurs in small amount at the time of defecation. If associated with haemorrhoids, the bleeding may be profuse. In our study 89 (79.5%) patients had bleeding per rectum during defecation which

is higher than the study done by Rahman et al in 2011[31] where 63% patients had bleeding per rectum. A study done by Giuseppe et al in 2009[33] showed bleeding in only 49% of cases which is slightly lower than ours. Bleeding was present only in 18% patients in a study done by Brisinda et al in 1999[21] and 46% in a study done by Brisinda et al in 2007.[22]

The irritation of anal mucosa with subsequent hyperactive anal glands results in perianal discharge. Discharge may be quite profuse and soiling of undergarments is one of the common features. A purulent discharge will occur if a sub mucous abscess develops and ruptures into the anal canal or externally.[32] In our study 12 (10.7%) patients had complained of perianal discharge during presentation.

Itching is another troublesome feature of chronic anal fissure. Profuse discharge leads to excessive moisture. With swollen perianal skin, this results in intensive itching.[32] In our study 22 (19.6%) patients had itching during presentation which is similar to the study done by Giuseppe et al in 2009 where 15% patients had itching. [33]

The associated symptoms like bleeding per rectum, perianal discharge and pruritus ani, were observed more in our study. It may be because of delayed presentation due to illiteracy, ignorance and inaccessible health care facilities.

FIBRE INTAKE/ DIETARY/ DEFECATION HABIT

The exact aetiology of anal fissure is unknown[3] but trauma caused by fecal mass (especially hard scybolous stool) due to constipation resulting from low fibre intake are thought to be the initiating factors for chronic anal fissure. If the anal orifice is tight, a large dry faecal bolus may cause a traumatic fissure. When the anal orifice is of normal size, an unusual increase in local activity such as severe diarrhoea or acute constipation with straining may overcome the normal resistance of the anoderm and also result in a fissure. Subsequent internal sphincter spasm exacerbates the problem by promoting further local trauma and interfering with the healing of the fissure. Sir Charles Ball of Dublin (1908) believed that the anal fissure resulted from tearing down of anal valve by faecal mass leaving a linear wound extending from the pectinate line to the anal orifice. The literature only touches on the interrelationship between these factors, however, with no strong, evidence-based research to provide constructive lifestyle recommendations.

In our study, 58 (51.8%) patients had low fibre intake, 48 (42.9%) had normal fibre intake and 6 (5.4%) had high fibre intake. Nearly half of the patients had dietary habit of low fibre intake. None of the studies had correlated low fibre intake and incidence of anal fissure. But many studies have been done showing fibre intake as a method of healing of anal fissure.

Fibre has been shown to heal up to 87% of anal fissures in a study done by Jensen et al in 1986.[34] It was significantly more than the healing rate with topical analgesics (60%) and hydrocortisone (82.4%) ($P<0.05$).

Fibre has also been shown to be effective in the prevention of fissures following initial healing. Jensen et al in 1987,[35] studied about the maintenance therapy with unprocessed bran in the prevention of acute anal fissure recurrence. At 1 year follow-up, he reported significantly fewer recurrences took place in the 5 gram fibre group when compared with either the 2.5 gram group or placebo. He reported the recurrence rate of 16% in 5 gram fibre group, 60% in 2.5 gram fibre group and 68% in placebo group (p value<0.05).

In our study, constipation was present in 73 (65.2%) patients, normal defecation habit was present in 18 (16%) patients, loose stool was complained by 13 (11.6%) patients and irregular bowel habit (constipation alternate with diarrhoea) was present in 8 (7.14%) patients.

Fibres of the superficial external anal sphincter decussate to form a Y shape posteriorly; the overlying skin was said to be poorly supported and was prone to tear on passage of hard stool. However, a history of constipation preceding the onset of anal fissure is obtained only in one of four cases (25%) and diarrhea is seen to be a predisposing factor in 4-7% of patients.[29,36,37] Rahman et al in 2011 described constipation as complication of anal fissure in 26% of cases.[31] So unlike these results, our study showed constipation more commonly associated with anal fissure. This may be due to the higher incidence of constipation rate in our country.

In our study 58 (51.8%) patients had normal dietary habit, 18 (16.08%) had spicy dietary habit, 16 (14.28%) had chilly dietary habit and 20 (17.86%) liked both chilly and spicy food. So 30% of patients had preferential chilly diet. None of the studies compared the incidence of anal fissure amongst different dietary habits. However, Gupta PJ et al in 2008 compared the effects of chilli capsule with placebo capsule in the crossover trial, which showed 81.3% subjects had aggravation of anal symptoms by chilli capsules.[20] This may be due to direct exposure of denuded anal mucosa (due to fissure) with nerve endings to chilli products.

CONCLUSION

Similar to the results of other studies done in the past, our study revealed strong association of anal fissure with female sex, constipation, low fibre diet and to those who prefer chilly and spicy foods. Though constructive lifestyle recommendations could not be definitely advised by our study, a multi-institutional well constructed study is recommended to do so.

CONFLICT OF INTEREST

None

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