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ANAL FISSURE; PREVALENCE, CAUSES, RISK FACTORS AND TREATMENT MODALITIES IN THE EASTERN AREA OF SAUDI ARABIA

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Background:
Anal fissure causes severe pain and bleeding with bowel movements, and is associated with spasm of the internal anal sphincter which may lead to delayed healing. It is a common clinical problem, and the incidence varies substantially by age and sex.
Objectives: *to investigate the prevalence of anal fissure and its manifestations and causes among young general population of Eastern Governorate in KSA.*
Methods: *This is across sectional study was conducted among 372 of studied population, during the period from 1 March to 31 July, 2018. Data collected using a pre-designed online questionnaire.*
Results: *the prevalence of anal fissure among the studied participants was 31.9%, it was more prevalent among males (54.6%) than females (P= 0.03). However, there was no significant correlations with age (P= 0.244) and it was mostly found among the age group 22-40 years. Symptoms included severe pain during and after defecation in 47.1%, anal itching in 36.1%, anal bleeding especially after defecation in 35.3% and only 9.2% reported blood tinged secretions accompanied by foul odor. As regards the causes of anal fissure, we found that the most common cause was chronic constipation by 32.8% followed by anal itching 12.6%, chronic dysentery and pregnancy reported by 5.9% for each of them, Crohn's disease in 3.4% and anal fistula in 1.7%. Transformation of the fissure from acute to chronic was the most common complication (15.1%) followed by anal fistula in 13.4%, narrow anus due to scar formation in 12.6%. Regarding the treatment of anal fissure, herbal remedies was the most common method for treatment used by 53.8%, followed by laxatives, analgesics in 24.4% and topical ointments 21.8%. Improvement was found in only 47.9%.*
Conclusion: *AF is a common clinical problem, more common in males. Constipation is the most commonly associated comorbidity. herbal remedies was the most common method for treatment followed by laxatives, topical ointments, analgesics and topical ointments.*

Keywords: *Anal fissure, Risk factors, Causes, Treatment.*

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INTRODUCTION:

Anal fissure is a small break or tear in the skin of the anal canal. It is a longitudinal tear or disruption in the endoderm at the distal end of anal canal which typically runs from below the dentate line to the anal verge, and is usually situated in the posterior midline [1]. Anal fissures are classified based on etiology as primary and secondary. Primary is idiopathic whereas secondary fissure is due to some pathologies such as inflammatory bowel disease, tuberculosis, and malignancy [2]. Although the pathogenesis of AF is still uncertain, it is thought that most fissures are initiated by direct trauma from passage of hard stools or diarrhea [3].It causes severe pain that the patient is scared of defecation and therefore he makes an effort to delay the defecation [4]. Majority of the patients suffering from fissure are from young age group [5]. The diagnosis can typically be confirmed by physical examination and anoscopy in the office if tolerated by the patient. By gentle separation of the buttocks and examination of the anus, a linear separation of the anoderm can be identified at the lower half of the anal canal [6]. Topical agents that relax the internal anal sphincter and increase blood flow to the affected area, such as nitroglycerin ointments or calcium channel blockers including diltiazem or nifedipine, have been proven in randomized placebo-controlled trials to be effective in reducing healing time and success rates [7-9]

In a population-based cohort study found that among 1,243 AF cases (58%) females and (42%) males; (12%) of the cases occurred in children aged 6–17 years. The overall annual incidence was 0.11% (1.1 cases per 1000 person-years). The incidence also varied by sex, and was significantly higher among females 12–24 years, and among males 55–64 years ($P < 0.001$). Comorbidities associated with AF included chronic constipation (prevalence 14.2% vs 3.6%), hypothyroidism (14.7% vs 10.4%), obesity (13.0% vs 7.7%), and solid tumors without metastasis (5.2% vs 3.7%) ($P < 0.001$ for all comparisons). A total of 448 were dispensed a topical prescription medication, 31 had botulinum toxin injection, and only 13 had lateral internal sphincterotomy [10].

This study is designed to investigate the prevalence of anal fissure and its manifestations and causes among young general population of Eastern Governorate in KSA.

PARTICIPANTS AND METHODS:

Participants: This is across sectional study, included 372 participants, aged between 12-60 years, from the general population of the Eastern Governorate, KSA, during the period from 1 March to 31 July, 2018.

Data collection:

Data was collected by a pre-designed online questionnaire which distributed among the target population. It was self-administered by participants after a brief introduction or explanation of the idea of the research. The questionnaire included the relevant questions to collect data about:

- Socio-demographic characteristics of the participants including age, sex, marital status, working status and educational level
- If the participant has, a physician diagnosed Anal Fissure.
- Questions to detect signs and symptoms, causes, complications and state of treatment of the case

Statistical analysis:

Collected data coded and analyzed using statistical package for the social sciences (SPSS, version 15). Descriptive statistics for the prevalence and quantitative variables was used. Relation between anal fissure and other variables was determined using the X^2 test. P value of less than 0.05 considered statistically significant.

Ethical considerations:

Participants informed that participation is completely voluntary, and written consent obtained from each participant before being subjected to the questionnaire. No names recorded on the questionnaires. Adequate training of took place to ensure protection of confidentiality, and all questionnaires kept safe.

RESULTS:

From the study tables, it is clear that, the prevalence of anal fissure among the studied participants was 31.9%, it was more prevalent among males (54.6%) than females (P= 0.03). However, there was no significant correlations with age (P= 0.244) and it was mostly found among the age group 22-40 years. Symptoms included severe pain during and after defecation in 47.1%, anal itching in 36.1%, anal bleeding especially after defecation in 35.3% and only 9.2% reported blood tinged secretions accompanied by foul odor. As regards the causes of anal fissure, we found that the most common cause was chronic constipation by 32.8% followed by anal itching 12.6%, chronic dysentery and pregnancy reported by 5.9% for each of them, Crohn's disease in 3.4% and anal fistula in 1.7%. Transformation of the fissure from acute to chronic was the most common complication (15.1%) followed by anal fistula in

13.4%, narrow anus due to scar formation in 12.6%. Regarding the treatment of anal fissure, herbal remedies was the most common method for treatment used by 53.8%, followed by laxatives and analgesics in 24.4% and topical ointments 21.8%. Improvement was found in only 47.9%.

Table 1: socio-demographic characteristics and the prevalence of anal fissure among the studied population. (N=372)

Age group	**Frequency (No.)**	**Percent (%)**
• ≤21	34	9.1
• 22-40	303	81.5
• >40	35	9.4
Sex		
• Female	143	38.4
• Male	229	61.6
Education		
• Illiterate	6	1.5
• Secondary	53	14.2
• University or more	313	84.1
Working		
• Not working	141	37.9
• Working	231	62.1
Marital status		
• Single	211	56.7
• Married	153	41.1
• Divorced	8	2.2
Anal fissure		
• Yes	119	31.9
• No	253	69.1

Table 2: Manifestations, causes and treatment of anal fissure among the studied cases. (N=119)

Symptoms (there is overlapping)	**No.**	**%**
• Severe pain during and after defecation	56	47.1
• Anal itching	43	36.1
• Anal bleeding red color, especially after defecation	42	35.3
• Blood and secretions accompanied by foul odor	11	9.2
Causes		
• Chronic constipation	39	32.8
• Anal itching	15	12.6
• Anal intercourse	7	5.9
• Chronic dysentery	7	5.9
• Pregnancy	7	5.9
• Crohn's disease	4	3.4
• Anal fistula	2	1.7
Type of complications		
• Transformation of the fissure from acute to chronic	18	15.1
• Anal fistula	16	13.4
• Narrow anus due to scar formation	15	12.6
• Anemia	6	5.0
Seeking medical care		
• No	64	53.8
• Yes	55	46.2
Medical treatment		
• Laxatives, topical ointments, analgesic tablets	29	24.4
• topical ointments	26	21.8
Herbal remedies	**64**	**53.8**
Improvement		
• No	62	52.1
• Yes	57	47.9

Table 3: relationship between anal fissure and socio-demographic characteristics of the studied population.

Variable	**Response**	**Anal fissure**		**Total (N=372)**	**P value**
		Yes (n=119)	**No (n=253)**		
Sex	**Female**	54	89	143	0.039
		45.4%	35.2%	38.4%	
	Male	65	164	229	
		54.6%	64.8%	61.6%	
Age group	**≤21**	10	24	34	0.344
		8.4%	9.5%	9.1%	
	22-40	94	209	303	
		79.0%	82.6%	81.5%	
	>40	15	20	35	
		12.6%	7.9%	9.4%	
Education	**Basic**	4	2	6	0.013
		3.4%	.8%	1.6%	
	Secondary	21	32	53	
		17.6%	12.6%	14.2%	
	University or more	94	219	313	
		79.0%	86.6%	84.1%	
Working	**Not working**	39	102	141	0.099
		32.8%	40.3%	37.9%	
	Working	80	151	231	

		67.2%	59.7%	62.1%	
Marital status	**Single**	68	143	211	0.143
		57.1%	56.5%	56.7%	
	Married	51	102	153	
		42.9%	40.3%	41.1%	
	Divorced	0	8	8	
		.0%	3.2%	2.2%	

DISCUSSION:

An anal fissure (AF) is a small break or tear in the skin of the anal canal, which typically runs from below the dentate line to the anal verge, and is usually situated in the posterior midline [11, 12]. AF causes severe pain and bleeding with bowel movements, and is associated with spasm of the internal anal sphincter which may lead to reduction of blood flow and delayed healing [12]. It is a common clinical problem, and the incidence varies substantially by age and sex. Constipation, obesity, and hypothyroidism are associated comorbidities. Most AF is minor and thought to heal spontaneously, but those that are still symptomatic after 4 to 6 weeks are often referred to as chronic AF [12]. General surgeons and colon & rectal surgery specialists regard AF as a common problem in adults and children [13, 14], but data on the epidemiology of this disease are very rare [15].

This is across sectional study was conducted among 372 of studied population, KSA. The study aim to investigate the prevalence of anal fissure and its manifestations and causes among young general population of Eastern Governorate in KSA.

As regards the prevalence of anal fissure we found that there were 31.9% of cases had anal fissure. Another study reported less prevalence rate than our result, which revealed that out of 416 subjects, 65 (15.62%) were found to be suffering from anal fissure [18]. Another populations based study reported the prevalence of anal fissure was 9.85% [19]. Similar to our results in India, another study was conducted among 325 patients from them 100 (30.7%) had anal fissure [24].

As regards relation between anal fissure and gender, it was more prevalent among males 54.6% than female 45.4% with a significant correlations (p= 0.03). Another study found that women (85%) had a higher overall incidence than men (42%), but the difference did not reach statistical significance (p= 0.08) [6].Another study reported that among patients with anal fissure there were 58.94% male and 41.05% were female patients [19].However, there were no significant correlations with age (p= 0.244) and it was prevalent among age group 22-40 years by 79%. Another study reported 47.9% of patients belonged to the age group of 30–40 years, this data justifies the fact that anal fissure is mostly seen in the age of 30–40 years because of tonicity of anal sphincter [19]. Giridhar et al. reported increased prevalence of fissure-in-ano in age group 21–30 years with male predominance [25]. Gupta et al. reported that the mean age of presentation of fissure-in ano is 40.13 years with male to female ratio 1.47:1 [26]. The reason of this may be due to the higher attendance of male patients in our hospital, or it may be due to that the females are too shy to talk about or to consult the physician for ano-rectal disorders [18].

Regarding to symptoms of anal fissure, we reported severe pain during and after defecation by 47.1% followed by anal itching 36.1%, anal bleeding red color, especially after defecation 35.3% and only 9.2% for blood and secretions accompanied by foul odor. Another study showed that 34.68% of patients presented with only pain during defecation and burning sensation was the second most symptoms among anal fissure patients 17.39%. Bleeding in 4.34% and discharge in 4.75% and a combination of symptoms such as pain+ burning+ bleeding+ skin tag in 27.18% of patients and pain+ burning+ discharge+ skin tag in 11.72% [19]. Another study found that Majority of the patients presented with pain during defecation (86%) followed by bleeding (62%), constipation (56%) pruritus (12%) and only 6% for discharge [24]. Popat et al. and Khan et al. reported pain during defecation as the most common presentation followed by bleeding and constipation [18, 27].

Although the pathogenesis of AF is still uncertain, it is thought that most fissures are initiated by direct trauma from passage of hard stools or diarrhea [12, 14].

Our study found that the most common cause of anal fissure was chronic constipation by 32.8% followed by anal itching 12.6%. Anal intercourse, chronic dysentery and pregnancy reported by 5.9% for each of them, Crohn's disease 3.4% and anal fistula 1.7%. However, in one review of the etiology of AF only 25% of patients with AF had chronic constipation [17]. Furthermore, diarrhea is a predisposing factor in about 6% patients [17, 28].Another study reported;

88.16% of patients having less fibrous diet, 94.84% having history of passing hard stool on and off [19].
The majority of initial anal fissures can be managed medically. In fact, almost half will heal with conservative therapy alone using warm baths and increased fiber intake [20, 21, 22].

Regarding the treatment of anal fissure our study reported that herbal remedies was the most common method for treatment used by 53.8% followed by laxatives, topical ointments, analgesic tablets 24.4% and topical ointments 21.8%. As the passage of a hard stool is thought to contribute to the development of anal fissure, the control of constipation has been considered the main treatment for years [29].
According to the practice parameters set by the American Society of Colon and Rectal Surgeons, increased fluid and fiber ingestion, the use of sitz baths, and if necessary, the use of stool softeners are safe, have few side effects, and should be the initial therapy for all patients with anal fissure [23]. Patients with a history that suggests only recent fissure development are often treated successfully by conservative measures, such as stool softeners, bulking agents, a high-fiber diet and sitz bath. To prevent recurrence, patients should be encouraged to continue with the diet, and to use a bulked laxative agent, if required, even after symptoms are resolved [30].

CONCLUSION:

AF is a common clinical problem, more common in males. Constipation is the most commonly associated comorbidity. herbal remedies was the most common method for treatment followed by laxatives, topical ointments, analgesics and topical ointments.

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