

ORIGINAL ARTICLE

Medicine Science 2023;12(1):319-23

Conservative management of anal fissure accompanying constipation in school-age children

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Received 05 January 2023; Accepted 28 February 2023
Available online 01.03.2023 with doi: 10.5455/medscience.2023.01.04

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Abstract

An anal fissure is a common problem in children and it refers to a longitudinal tear or an ulcer in the anoderm. The conventional therapy for anal fissures has been warm sitz baths and the local application of analgesic ointments, stool softeners, and behavioral therapy as necessary. Simple wound care may often be sufficient for the treatment of anal fissure, but a comprehensive approach is required for accompanying constipation. Between 2015-2022, a total of 263 children suffering from constipation and perianal pain were diagnosed with anal fissure (AF) based on physical examination. Anal fissure and constipation (AFC) questionnaire forms were retrospectively reviewed and results of routine management protocol were assessed which was focused on local wound care and dietary regulation. The ratio of children consuming more than 2-3 cups of packed beverages containing artificial sweeteners, colorants or corn syrup was found 63,89 % (n=167). Daily water consumption of less than five glasses was 71.1% (n=187). Daily milk consuming was 71,86% (n=189). Stool withholding and soiling was found 57,41% (n=151) and 48,67% (n=128) respectively. In only four cases (1.52%), constipation persisted for more than eight weeks despite meticulous management and improvement was achieved with anal dilatation on the tenth week. It is possible to treat anal fissures successfully and in a reasonable duration with simple local care with prednisolone pomade and a strict diet arrangement that restricts the consumption of packed foods, beverages, snacks, and milk while promoting drinking water and raw fiber intake.

Keywords: Child, anal fissure, functional constipation, conservative management

Introduction

An anal fissure is a common problem in children and it refers to a longitudinal tear or an ulcer in the anoderm. Painful defecation and rectal bleeding are the main symptoms. In the etiology of anal fissure defecation of hard stools and elevated internal anal sphincter pressure are important factors. Acute anal fissures often heal spontaneously or with simple dietary modification and stool-softening laxatives when necessary [1]. Fissures persisting for more than 4 to 6 weeks are often referred to as chronic [2-4]. AF

affects all age groups with an equal incidence in both sexes [5-7]. Prolonged diarrhea or hard stool causing irritation and trauma to the anal canal are the primary and most common causes of AF [8]. In addition, secondary AF may develop in inflammatory bowel diseases, or after anal surgery.

The treatment and management of this anorectal condition are controversial. The conventional therapy for anal fissures has been warm sitz baths and the local application of analgesic ointments, adding stool softeners and behavioral therapy as necessary [10].

CITATION

Harma B. Conservative management of anal fissure accompanying constipation in school-age children. Med Science. 2023;12(1):319-23.



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On the other hand, local treatment of AF alone is not sufficient. A serious approach to frequently accompanying constipation is also necessary. In the vicious cycle of constipation and anal fissure, functional constipation should be carefully considered as well as local fissure treatment. The aim of this study is to present the treatment results of anal fissures in school-age children treated with simple wound care and dietary regulation, which were evaluated together with nutrition and toilet habits.

Material and Methods

Between 2015-2022 a total of 435 school-age children who presented at the outpatient clinic with constipation and perianal pain, 263 (60,45 %) were diagnosed with AF based on physical examination. In history dietary habits, bowel habits, rectal bleeding, painful defecation and constipation were focused on with a simple AF and constipation questionnaire form. Fissure localization was also evaluated and recorded in rectal examination. Cases with known gastrointestinal diseases or who are being treated by another center due to anal fissure or constipation were excluded. This study was approved by the Institutional Ethics Review Board for Clinical Research (2022/B.96).

Diagnosis and follow-up

All cases were evaluated in the outpatient clinic during the fourth, sixth, and eighth weeks. Parents were informed to continue the treatment of constipation for one more month after the lesion healing and to continue the suggested nutrition afterward.

Treatment applied to patients diagnosed with anal fissure

All cases were started liquid paraffin 15 ml twice a day. In those with many watery stools in the first week, the dose was halved and continued. Local wound care was performed twice a day with 0.125 mg prednisolone pomade and a hot sitting bath once a day was described.

Diet regulation

All cases were informed about determined nutritional suggestions. Snacks containing sweeteners, carbonated and non-carbonated beverages, and milk consumption were prevented. Two servings of fruit and one to one and a half liters of daily water consumption were obligated. Dried or fresh apricot, unpeeled apples, and pear were preferred depending on the season. It was recommended daily to five to ten pieces of dried or fresh apricots and unpeeled apples and pears each. In addition, families were informed that the main meal should definitely contain vegetables. Instead of packaged snacks, dried apricot dried apples, and pears were recommended. Daily two or three servings of apricot kernels were recommended for children's snack needs.

Biostatistical Data Analyses

While the type error amount (alpha) was 0.05, the strength of the test (1-beta) was 0.8, the predicted effect size for the recovery time was 0.18, and the alternative hypothesis (H1) was two-way, the minimum sample size was calculated by theoretical power analysis that the minimum sample size was 236 to find

a significant difference using this test [11]. The categorical variables in the study were summarized by number (percentage) and the numerical variables were summarized by the median and inter-quarter width (IQW). Shapiro Wilk test was used to match the normal distribution of the data. Mann Whitney U test, Kruskal Wallis test and Pearson chi-square tests were used where appropriate for statistical analysis. In the applied statistical analyses, the value of $p<0.05$ was considered statistically significant. American Psychological Association (APA) 6.0 style was used to report statistical differences. All analyses were conducted with IBM SPSS Statistics 28.0 for Windows (New York; USA).

Results

A total of 263 patients included in the study, of which 147 (55.89%) were male and 116 (44.11%) were female. The median (width between quarters; WBQ) age was 115 (39) months (9.6 years). Table 1. Examination of symptoms, signs, and recovery times of cases according to gender.

Table 1. Evaluation of symptoms, signs and recovery times of cases according to gender

	Boys	Girls	p*
Bleeding	102 (69.39%)	80 (68.97%)	p>0.05
Perianal pain	128 (87.07%)	103 (88.79%)	p>0.05
Soiling	73 (49.66%)	55 (47.41%)	p>0.05
Anterior fissure	50 (34.01%)	44 (37.93%)	p>0.05
Posterior fissure	70 (47.62%)	63 (54.31%)	p>0.05
Circularfissure	27 (18.37%)	9 (7.76%)	p<0.05
Recovery time	8 weeks ^a (2)	8 weeks ^a (2)	p>0.05

*: Mann Whitney U test. a: According to the APA style, different letters in each line a,b indicate a statistically significant difference. The fact that there is only a here expresses $p>0.05$

Recovery time was the same in boys and girls and was found to be 8 weeks. There was no statistically significant difference between gender and recovery time ($p>0.05$). While there was no significant difference between fissure location and gender in anterior and posterior locations, circular lesion location was statistically significantly higher in men ($p<0.05$).

Table 2. Examination of the cases by stool withdrawal, toilet type preferences, and cleansing after defecation habits according to their gender .Statistically significant difference was not found ($p>0.05$).

Table 2. Examination of the cases by stool withdrawal, toilet type preferences and cleansing habits after defecation according to their gender

	Boys	Girls	p*
Stool withholding	88 (59.86%)	63 (54.31%)	p>0.05
Defecation position			
Crouching	36 (24.49%)	34 (29.57%)	
Sitting	93 (63.27%)	71 (61.74%)	p>0.05
No difference	18 (12.24%)	10 (8.70%)	
Cleansing after defecation			
Just washing	34 (23.13%)	30 (25.86%)	
With paper only	6 (4.08%)	5 (4.31%)	p>0.05
Washing and paper	107 (72.79%)	81 (69.83%)	

*: Mann Whitney U test

Table 3. Examination of the cases according to gender, consumption of carbonated-noncarbonated sweetened beverages, consumption of chips and similar sweetened or salty snacks, water and milk consumption habits. There was no statistically significant difference was found between the sexes.

Table 3. Examination of the cases according to their gender consumption of carbonated non-carbonated sweetened beverages, consumption of chips and similar sweetening/salty snacks, water and milk consumption

Consumption	Amount	Boys	Girls
Packed beverages	2-3 glass per week	89 (60.54%)	78 (67.24%)
	<3 glass per week	58 (39.46%)	38 (32.76%)
	every day	103 (70.07%)	80 (68.97%)
Packed snacks	1-2 times per week	20 (13.61%)	14 (12.07%)
	3-4 times per week	24 (16.33%)	22 (18.97%)
Water	<5 glass daily	105 (71.43%)	82 (70.69%)
	> 5 glass daily	42 (28.57%)	34 (29.31%)
Milk	1 glass every day	103 (70.07%)	86 (74.14%)
	3-5 glass per week	44 (29.93%)	30 (25.86%)

Discussion

Treatment of constipation is an important part of the management of anal fissures in children as the majority of fissures are believed to be due to the passing of hard stools. Approximately 35 to 50% of fissures heal with general conservative management [12,13]. In only four of the cases (1.52%) in this study, constipation persisted for more than eight weeks despite meticulous management, and improvement was achieved with anal dilatation on the tenth week. Sitz baths, topical analgesics, a high fiber diet, and adequate fluid intake as well as stool softeners are the most often advised for the initial conservative treatment of AF in the related literature. In our treatment protocol, liquid paraffin orally 15 ml twice a day was used and in those with much watery stools in the first week, the dose was administered as once a day.

According to the diet protocol we followed, apricot, unpeeled apple and pear are recommended daily as a source of fiber. At least two servings a day sun-dried apricots (fresh apricots in the season) and unpeeled apple and pear one each have been recommended.

The effect of fiber is controversial due to lack of randomized, controlled studies addressing this problem in otherwise healthy children with constipation. In some uncontrolled studies it is suggested that both normal and constipated children have low fiber intake [14,15]. In a study by Williams et al. [16] in children older than 2 years old, safe range of dietary fiber intake is suggested to be between age +5 and age +10 g/d. This formula may offer a standard, but how much of a daily amount of fiber can be obtained from a wet weight may vary for different foods. Therefore, its applicability in practice may be small. Besides the fresh fruits we also recommend to consume dried apricot and

apricot kernels to address the children’ snack needs during the day. Thus, children's sweet, fiber and snack needs can be met effectively. It has also been observed that it can be a healthy and effective alternative to packaged foods containing various preservative, coloring and sweetening chemicals. In addition, families have been informed about the consumption of vegetables with protein according to the season in the main meals to provide additional fibre. On the other hand there is no significant benefit of excessive intake of fibre. In children with faecal impaction or stool withholding behaviours, excessive fibre intake should be avoided as it can worsen symptomsin [17-20].

The ratio of children consuming more than 2-3 cups of various carbonated or non-carbonated beverages containing artificial sweeteners, colorants or corn syrup was found 63,89 % (Table 3). Excessive consumption of these foods causes satiety and prevents children to eat healthy foods. Additionally frequent consumption of pulp-free fruit juices also makes a negative contribution to constipation. Like fiber, sufficient water intake is necessary for the prevention and treatment of functional constipation in children [21-23]. However, evidence does not support the use of extra fluid intake [24]. It is found that 71.1% of the cases (Table 3) consumed less than five glasses of water (not fluid but water) per day. Children who were followed up were advised to consume 1-1.5 liters of water per day. In this process, children and families have been especially instructed to quit colored and sweetened liquids and to meet their water needs with just water.

When toilet habits were questioned, it is found that 71.6% of the children declared to clean by washing and drying with paper, 23.95% are only washing and 4.18% are only paper (Table 4). As described by Inan et al.[27] avoidance of toilets can be an important factor for childhood constipation. In this study stool withholding was found 54,31% (n=63) and 59,86%(n=88) in girls and boys respectively (Table 1). Withholding causes prolonged fecal stasis in the colon and with the passage of larger stools rectum becomes dilated, and fecal soiling may ocur in course of time. In this study soiling was found 47,41% (n=55) and 49,66% (n=73) in girls and boys respectively (Table 1). The main reason why school-age children avoid using school toilets other than peeing is thought to be related to the privacy, cleanliness and hygiene conditions of the school toilets and the toilet paper that is not always available [27,28]. In order to enable school-age children to use toilets for defecation, making school toilets cleaner, more comfortable and hygienic should be considered as a public health requirement and measures should be taken in this direction. Thus, the treatment of anal fissures accompanied by constipation will give faster and more successful results.

The role of other nutrients in development of chronic constipation has recently been reexamined. Intolerance to cow’s milk may be another underlying cause of chronic constipation in children [29,30]. It has also recently been claimed that chronic constipation and anal fissure may often be troublesome in children who consume excessive cows milk [31]. Limiting

cow's milk consumption may ease constipation in some children, particularly if its consumption is excessive. It is supported by the evidence of inflammatory histological alterations in the colonic mucosa of children with chronic constipation. [24]. In this study a significant proportion of school-age children (72,1%) was found to consume milk regularly in every day (Table 3). In our diet protocol, we also prevented milk consumption during the treatment process. When children completed the treatment process parents were informed to consume pasteurized daily milk other than packaged, processed and additive containing milks when necessary.

Conclusion

Although several theories have been postulated, the cause of anal fissure still is obscure. Whether the concomitant functional constipation is the cause or result, anal fissure treatment, which adversely affects the quality of life of families and school-age children, gives successful results with simple wound care and a serious dietary arrangement. At this point, children's nutrition habits, water consumption and toilet habits should be carefully analyzed and regulated. Instead of sweet beverages containing sweetening and coloring chemicals or corn syrup, daily fluid needs should be met with just water. It is possible to treat anal fissure successfully and in a reasonable duration with a strict diet arrangement and a simple local care.

Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical approval

This study was approved by the Institutional Ethics Review Board for Clinical Research (2022/B.96).

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