

OCCUPATIONAL RISK OF ANAL FISSURE IN YOUNG PATIENTS

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ABSTRACT

Objective: The aim of this study was to assess the current prevalence and find out the etiology of anal fissure in young patients.

Study Design: Case series.

Setting & Duration: Baqai Medical University and private clinics from June 2004 to June 2008.

Methodology: A total of 315 patients of anal fissures were included in this study. The detailed information was recorded on a pre-designed questionnaire, including: age, sex, type of occupation, meal timing, and duration of job timing and nature of their work.

Results: Out of 315 patients 291(92.3%) were male and 24(7.6%) were females. Patients were between the ages of 20-60 years. 205(65%) patients were having long duration sitting occupation, while 110(34.9%) patients had other occupation. Long duration sitting elevates the resting anal pressure and impairs the local blood flow, which may result in ulceration posteriorly in the midline.

Conclusion: Evidence from the present study suggests that prolonged duration of sitting in certain occupations may have a role in the pathogenesis of anal fissure.

KEY WORDS: Anal Fissure, Prevalence, Prolonged Sitting Occupation, Occupational Risk

INTRODUCTION

Anal fissure is one of the most common lesions to consider in the differential diagnosis of anal pain.¹ Its etiology and pathophysiology is still not completely understood.² Anal fissure is a vertical tear in the squamous epithelium of the distal anal canal, presents with painful defecation and fresh bleeding.^{1,3} This feature uniquely distinguishes anal fissure from other causes of anal pain such as thrombosed haemorrhoids, abscess, and others.

Pubmed search showed that many studies have been done on anal fissure. These studies showed that different factors are involved in the etiology of anal fissure. Common factors are constipation, trauma of faecal mass,

hypertonicity of internal sphincter⁴ Ano-rectal disorders like: Crohn's disease, AIDS, sexually transmitted disease, tuberculosis, anal carcinoma.^{2,5} These are associated with a higher incidence of anal fissure. Certain new specific factors are also identified like, Increasing number of cycling enthusiasts report functional and morphological problems in the anal region lead to defecation disorders.⁶

Use of Nicorandil in the treatment of ischaemic heart disease has been associated with oral, ileal and more recently anal ulceration.⁷ Change in dietary pattern has also play a role in the etiology of anal fissure.^{9,10} This study aims to show that patients having occupation of long duration sitting are commonly developing anal fissure.

Occupations of these patients were, long vehicle drivers, motorcycle riders, computer operators, shopkeepers, tailors and students. These occupations causes prolonged or sustained pressure on anal verge compresses the posterior wall of the anal canal between coccyx and sitting object, which impair the local blood flow. This local ischemia is responsible for anal ulceration in the posterior midline of anal canal.^{7,8}

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METHODOLOGY

This study was conducted at Baqai Medical University Hospital and Korangi Surgical Clinic during the four year periods from June 2004 to June 2008. In these areas all patients belong to low profile families, and mostly have labor work. Three hundred and fifteen patients were studied prospectively to identify the risk factor of anal fissure. Besides collecting routine data special attention was focus on age incidence, sex distribution, and occupational details like type of work, duration of work time and duration of total sitting time per day. Information on anal pain, blood on the toilet tissue, history of hemorrhoids, anal fissure, abscess formation and problems with defecation was collected by questionnaire and local examination was carried out. Site of fissure was also noted. Clinical diagnosis of fissure was confirmed by visual inspection of fissure by parting the anal verge. Patients were treated by application of 0.2% glycerin trinitrate paste, or lateral internal sphincterotomy, depending on clinical response.

RESULTS

Three hundred fifteen patients having anal fissure were selected. Their age incidence is shown in Table I. 92% of these patients were below 40 years of age, mostly they were young. While 7.6% were above the age of 41 years. Overall the fissure was commonly found in male 296(93.9%) as compare to female 19(6%). Out of 315 patients 205(65%) had long duration sitting occupations, while 110(34.9%) patients had other occupations. History of long sitting occupation in these patients is from 02 years to 06 years, with an average of 3.5 years. Duration of daily sitting is varied among different occupation, ranging from 08 hours to 16 hours. Single continuous sitting session was varying in different occupations. Their occupational detailed is shown in Table II.

Data showed that higher incidence was found in motorcycle riders and long vehicle drivers as compare to other occupations. Most of these patients also given a

Table I. Age Incidence

Age	Male	Female
18-20 Years	44	--
21-30 Years	181	--
31-40 Years	52	14
41-50 Years	19	4
51-60 Years	--	1

history of irregular meal timing, inappropriate cooked diet and irregular sleep. These factors might be aggravating effect on pathogenesis of anal fissure.

DISCUSSION

Anal fissure is a common problem that causes significant morbidity in a young and otherwise healthy population. Treatment has remained largely unchanged for over 150 years and the pathogenesis of this condition is not yet fully explained.^{2,3}

Different etiological factors have been evaluated like; constipation, family history of anal diseases, change in dietary pattern and colorectal diseases. This study showed the incidence of anal fissure is high in young age group and mainly affect the male population. Outcome of 315 cases of anal fissures, one feature is common in 205 patients that is occupational risk in persons having long duration sitting. Prolonged sitting compresses the soft tissues supporting the anal canal, between the coccyx and sitting object and that reduces the blood supply to the anal canal and increases the resting anal pressure. The sitting compresses the posterior wall of anal canal, while anterior wall escape from this pressure effect. This may be a reason of fissure commonly involving the posterior wall of anal canal.

The study rationale presented is supported by the study of Klosterhalfen and colleagues. They demonstrated by postmortem angiographies that the posterior commissure in which up to 90% of fissure occurs is less perfuse than the other sections of the anal canal. Prolonged sitting causes pressure effect on posterior wall which further decreases the blood flow. This concept is also supported in the theory of Crohn's disease, where microvascular ischemia is a contributing factor of fissure formation.¹¹

Another study of Schouten confirmed the reduced blood flow in posterior wall of anal canal by Doppler Laser flow metric investigation of the ano-dermal blood flow.

Table II. Occupation Detail

Nature of Work	No. of patients	%
Motor Cycle Riders	62	33.6
Tailors/Related Work	37	7.9
Drivers	43	13.9
Shopkeeper	19	4.1
Computer Operators	25	11.1
Students	19	8.8

Resting anal pressure (80-100mmHg) in healthy volunteers approximates the pressure within the arterioles of the inferior rectal artery.¹² Permanent elevated resting pressure is thought to impair the intersphincteric blood flow. This point augments our concept of long duration sitting which causes constantly high resting anal pressure, reduces the blood flow to the anal mucosa. This correlation of anal pressure and anodermal blood flow at the posterior midline is responsible for fissure formation.

In this study the authors focused on subjective finding and did not perform anal manometry. Study of Prohm concludes that manometry before surgical management of anal fissure by lateral sphincterotomy is not mandatory.¹³ Electromanometric examinations showed that internal sphincterotomy significantly reduces pressure within the anal canal, thus permitting the anal fissure to heal.

Individual specific etiological factors were also seen on literature search; Sauper study showed that proctological problems are very common in professional mountain bikers. Permanent microtrauma through constant saddle vibration may lead to chronic inflammation and anal fissure resulting in anal pain and therefore high sphincter pressure. Muscle hypertrophy as a consequence may lead to defecation disorders.⁶

Jensen and co-workers showed that dietary factor has a role in the etiology of anal fissure. Significantly decreased risks were associated with frequent consumption of raw fruits, vegetables, and whole-grain bread and significantly increased risks were associated with frequent consumption of white bread, sauces thickened with roux, and bacon or sausages. Risk ratios for consumption of coffee, tea, and alcohol were not significantly different.⁸

CONCLUSION

It is concluded that, occupational risk of fissure in ano should be included in health awareness programme for public knowledge.

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