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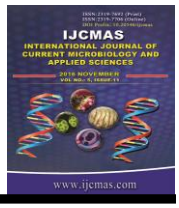

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Pathological and Therapeutic Association between Enterobiasis and Certain Perianal Problems

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A B S T R A C T

Enterobiasis is the commonest intestinal helminthic disease and is long believed to be a simple illness with no important local or systemic invasive complications. A cross-sectional analytic study of 175 patients attending the surgical clinics with complaints of perianal lesions like perianal fissure, perianal fistula, perianal abscess and perianal pruritus and excoriation. Forty two (93%) of the patients in the first group had a low serum zinc (mean 7.27umol/l), this was significantly lower than the second group and the two control groups (patients with uncomplicated Enterobiasis and a normal control group), however, the mean serum level was lower than normal in these groups. After treatment of the first group with two doses of Mebendazole (100mg) at two weeks interval, 8 patients (18%) had complete cure of their perianal pathology (two anterior perianal fissure and eight pruritus and excoriation), 10 patients (22%) had a moderate response and 13 patients (29%) had a mild response. Out of 175 patients, 45 patients had enterobiasis on twice scotch tape tests. There were 34 (76%) males and 11(24%) female positive cases of enterobiasis. Perianal fissure was the most common lesion in both groups: 30 (67%) in the first group versus 96 (75%) in the second group. Perianal pruritus with excoriation occurred in 14 cases (31%) in the first group and 16(12%) in the second. Perianal fistula and perianal abscess occurred in 5(11%) and 3(6%) in the first group and in 26(20%) and 24(18%) in the second group respectively.

Introduction

Enterobiasis, the commonest intestinal helminthic disease, is long believed to be a simple illness with no important local or systemic invasive complications (Weller *et al*., 2001; Haslett *et al*., 2005). Studies in the past have reported the occurrence of more severe form of the illness (Locas *et al*., 2003). In the recent past studies have documented the invasive problems related to this parasite alone or in association with other parasitic diseases (Olivares *et al*., 2004). Granuloma of liver, peritoneum, and perianal area have been reported by several investigators (Herrstrom *et al*., 2001; Craig *et*

al., 2005). Adult Enterobias worm can be found in a pulmonary granuloma (Rosalia *et al*., 2003). Direct relation with specific perianal conditions like fistula in ano and perianal fissure is not well documented, though reports of anal and perianal granulomas are increasing with accentuation of severity of these conditions by enterobiasis.

Interestingly, malabsorptive states are related to several types of intestinal parasitosis, leading to certain deficiencies of nutrients, minerals and vitamins. For a long time it was believed that enterobiasis is not associated with any of these medical problems. Olivares *et al.,* (2005) have found decreased levels of serum copper, zinc, magnesium and serum vitamin B12 and folate in enterobias infected children.

Materials and Methods

This study has been conducted at Al-Sader Teaching Hospital in Al-Najaf on 175 patients attending the surgery clinics with complaints of perianal problems. The type of the perianal lesions included in the study was perianal fissure, perianal fistula, perianal abscess, perianal pruritus and excoriation.

Four groups of patients were tested for serum zinc. First group: 44 patients with perianal problems and enterobiasis; Second group: 44 patients with perianal problems without enterobiasis; Third group: 15 patients with uncomplicated enterobiasis; Fourth group: 15 age matched normal controls.

Each patient was evaluated for enterobiasis, if he had history of observing the worm or positive scotch tape test. Serum zinc assessment was done by using atomic absorption (Schimatzo Corp., AA-6200) applying the equation: Conc. (umol/L) = conc. × Diluting factor (10). Every patient with enterobiasis was given 100 mg of mebendazole once daily, and the dose was repeated after two weeks; reexamined after one month of treatment for assessment of his perianal lesion. Some of the patients were also given antibiotic treatment on evidence of secondary bacterial infection

The patients were divided into three groups according to the response of treatment: First group: Those who had a complete cure after treatment. Second group: Those who had moderate improvement. Third group: Those who had mild improvement.

A descriptive data was given as a mean ± standard deviation (SD). The chi-square test and ANOVA LSD test was applied for statistical analysis at level of significance <=0.05. SPSS version 10 was used for statistical analysis.

Results and Discussion

Forty five patients (26%) were found to have enterobiasis and 134 (74%) had no evidence of enterobiasis.

Perianal fissure was the most common lesion in both the groups, i.e., with enterobiasis and without enterobiasis. 30 patients (58%) and 96 (59%) had perianal fissure in both the groups respectively. Perianal fistula was the second commonest lesion, seen in 5(10%) and 26 (16%) patients respectively. Perianal abscess was seen in 3 patients with enterobiasis (6%) and 24 patients (15%) without enterobiasis.

Perianal pruritus with excoriation was reported in 14 (26%) and 16(10%) patients respectively (Table 1). Most of the cases of fissure and pruritis with excoriation was seen below 15 years of age (Table 2).

In patient having perianal disease with and without enterobiasis, perianal pain was the

most frequent symptom 42 cases (93%) and 128 (98%) respectively (Table 3). Forty two patients (93%) with enterobiasis and perianal diseases had a mean serum level of 7.3umol/l. Thirty five patients (80%) with perianal diseases without enterobiasis had a mean serum zinc level of 10.32umol/l. Thirteen out of 15(86%) patients with enterobiasis and no perianal disease had a mean serum level of 9.9 umol/l. The control group had a mildly decreased serum levels with a mean serum level of 11.4umol/l (Table 4). The mean serum level of patients with enterobiasis was significantly lower than the other three groups (p value < 0.05).

Ten patients (22%) had a moderate response to treatment, 13 patients (29%) had a mild response and 14 patients (31%) had no response at all.

Enterobiasis or pinworm disease had been labeled for a long time as an innocent infection devoid of any important complications owing to its inability for tissue invasion or its inability for causing histological or biochemical derangement. Against this fact several researches and reports, including several case studies had stressed the implication of pinworm disease in important pathological sequels (Rosalia *et al*., 2003; Olivares *et al*., 2004).

Tissue invasion and inflammatory reaction of the host result in different pathological sequels, granuloma being the most frequent, recorded in different tissues including appendix, liver, rectum and perianal area. However, despite the high prevalence of enterobiasis and the common occurrence of perianal problems, including specific problems like perianal fissure and fistula, there are no serious and important studies to correlate between these two problems.

Table.1 Types of Perianal lesions in patients with Enterobiasis

Types of perianal lesions	Patients with enterobiasis (%)	Patients without enterobiasis (%)	P value
Fissure	30 (58%)	96 (59%)	>0.05
Fistula	5 (10%)	26 (16%)	>0.05
Abscess	3 (6%)	24 (15%)	>0.05
Pruritus with excoriation	14 (26%)	16 (10%)	<0.05

Table.2 Distribution of Perianal lesions with enterobiasis according to age

Perianal lesions	Number of Cases (%)	Age group (years)				
		<15 yrs No (%)	15-24 yrs No (%)	25-34 yrs No (%)	35-45 yrs No (%)	>45 yrs No (%)
Fissure	30 (100)	12 (40)	8 (27)	6 (20)	2 (7)	2 (7)
Fistula	5 (100)	-	1 (20)	2 (40)	1 (20)	1 (20)
Abscess	3 (100)	1 (33)	-	2 (67)	-	-
Pruritus & excoriation	14 (100)	5 (36)	4 (29)	2 (14.2)	2 (14.2)	1 (7)
Total	**52 (100)**	**18 (35)**	**13 (25)**	**12 (23)**	**5 (10)**	**4 (8)**

Table.3 Symptoms of patients having perianal lesion with and without enterobiasis

Symptoms	Patients with enterobiasis (%) (Total No: 45)	Patients without enterobiasis (%) (Total No: 130)	P value
Perianal pain	42 (93%)	128 (98%)	>0.05
Itching	30 (67%)	40 (31%)	<0.05
Bleeding	27 (60%)	120 (92%)	>0.05
Discharge	28 (62%)	104 (80%)	>0.05
Constipation	15 (33%)	60 (46%)	>0.05
Diarrhea	10 (22%)	30 (23%)	>0.05
Abdominal distension	4 (9%)	12 (9%)	>0.05

Table.4 Serum zinc levels in the four groups of patients

Patients group	No of patients	Mean serum zinc (umo/l)	Standard Deviation
First group: Patients with perianal disease and enterobiasis	44	7.3	1.85
Second group: Patients with perianal disease and no enterobiasis	44	10.3	2.10
Third group: Patients with enterobiasis only	15	9.9	1.91
Fourth group: Control group (Healthy individuals)	15	11.4	2.64
Total	**118**	**9.3**	**2.59**

In our study, enterobiasis was found in a significant fraction of patients attending the surgical clinics due to different types of perianal problems. Many cannot be attributed primarily to enterobiasis but there is a possible association between anterior anal fissure and enterobiasis as this lesion occurs only in patients with enterobiasis. associated with enterobiasis. Also this is an expected finding as nocturnal itching is very frequent in enterobiasis.

Rosalia *et al.*, reported a case of perianal mass in a six year old girl, attributed to penetration of the skin by eggs with focal granulomatous reaction in the squamous epithelium. worms penetration of tissues is recorded in places where scratching and secondary infection doesn't occur like intestinal mucosa and female genitourinary stem (Brown *et al*., 2002). Our study clearly shows the role of enterobiasis in the presentation and symptomatology of perianal problems as there is a high incidence of pruritus and excoriation

The association between enterobiasis and biochemical derangement is of more interest. Olivares *et al.*, reported iron deficiency to be associated with enterobiasis. Zinc is an important trace element, deficiency of which was underestimated in the near past. In our study a trial of assessment of zinc status in a group of patients with enterobiasis and perianal problem revealed a clear evidence of decreased serum zinc in this group of

patients as compared to controls, a finding is consistent with Brown *et al*., We are of the impression that the impact of the local perianal pathology with subsequent inflammatory reaction and systemic upset (psychological and physical) may help in accentuation of the state of zinc deficiency in patients with perianal disease.

Eight out of 45 patients had a complete cure, 10 had moderate improvement and 13 had mild improvement on medical treatment including antihelminthic drugs. Thirteen patients with perianal abscess and granuloma were treated with pyrantel with local and systemic antibiotics with complete cure. This strengthens our idea that despite the fact that enterobiasis is an innocent infection and not blamed to be the primary cause of most of the perianal lesions, it is still beneficial to check for this parasite and to treat it to ameliorate the patient's symptoms especially itching, discharge and pain.

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