

Schistosomial Infestation and Histopathological Features to Patients Diagnosed as Acute Appendicitis

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Abstract

Background: Schistosomial infestation is commonly infested the appendix. However it is not known if this- is a predisposing, factor for appendicitis, or a mere coincidental histological finding.

Patients and methods: In the present study a total of 48 cases (40 males and 8 females) underwent appendectomy for schistosomial appendicitis over a 10-year period at Basrah and Hilla Teaching hospitals were studied. Their histological slides were reviewed carefully.

Results: showed that the highest incidence of schistosomial appendicitis was recorded in the 21-40-year age group. Ova were seen in the submucosal layers of all the excised appendices. The most common tissue responses were submucosal fibrosis (93.8%) and eosinophilia (89.6%), followed by the presence of suppurative inflammation (75%). Granulomatous reaction was evident in 32 cases (66.6%), and commonly found in the serosa and submucosa. A feature of atrophy of submucosal lymphoid follicles was noted in 48% of the cases and hyperplasia in 44%. most.. Similar tissue responses were histologically seen in three normal appendices examined.

Conclusion: Appendiceal infestation may predispose to appendicitis in the majority of affected cases, but in others, it may well be a mere coincidental histological finding. However, preoperative knowledge bears no Clinical significance and does not alter management.

الخلاصة

المقدمة: ابتلاء البلهارزيا عادة ما يصيب الزائدة الدودية, بيد أنه ليس معروفا فيما إذا كان هذا عاملا يجعله ميالاً إلى الإصابة بالتهاب الزائدة الدودية, أو هو مجرد صدفة العثور النسيجي عليه.
طريقة البحث: في هذه الدراسة ما مجموعه 48 حالة (40 ذكور و 8 إناث) خضعوا لعملية استئصال الزائدة الدودية على مدى 10 سنوات في مستشفيات البصرة والحلة التعليمية وذلك عن طريق الفحص النسيجي لهذه الزوائد المستأصلة.
النتائج: أظهرت النتائج أن أعلى نسبة من التهاب الزائدة الدودية المقترنة بالإصابة بالبلهارزيا سجلت بين 21 و 40 عاما من العمر. البويضات شوهدت في الطبقات تحت الطلائية لجميع الزوائد المستأصلة.
الاستنتاجات: من بحثنا هذا أن ابتلاء البلهارزيا يمكن أن يعده قليلاً لإصابة بالتهاب الزائدة الدودية عند معظم المرضى المصابين بالبلهارزيا وفي البعض الآخر ربما يكون مجرد متزامن مع نتائج البحث النسيجي. مع كل هذا فان المعرفة قبل العملية بالتشخيص بالبلهارزيا لا يغير من العلاج, ألا وهو استئصال الزائدة الدودية.

Introduction

As we know, acute appendicitis is one of the most common surgical emergencies in the world^(1,2,3,4) therefore early diagnosis and prompt operative treatment prevent many of its serious complications .

Schistosomiasis is endemic in the southern part of Iraq^(5,6) . A similar high incidence was reported from the other part in endemic areas of the Middle East such as Saudi Arabia and Egypt, a country with a high prevalence of schistosomiasis^(7,8,9) , So that the increasing incidence of schistosomial infection is giving rise to a major health problem, especially in these

endemic areas^(10,11). The pathological changes of the disease result from the development of a proliferative granulomatous response to the presence of eggs, which are deposited in the submucosa and the mucosa of the rectum and colon, especially the ileocecal region. As eggs are swept back in the portal blood, they become entrapped in the liver, giving rise to a similar granulomatous response⁽¹⁰⁾. The appendix is the site of ova deposition in 65% of patients infested with schistosomiasis and appendicitis may be the first clinical manifestation of schistosomal infestation⁽⁶⁾. In such patients, it is hard to determine if the presence of these proliferative lesions is a causative factor, or a mere coincidental histological finding. We report here our experience with schistosomal appendicitis in the Middle and South of Iraqi Provinces.

Patients and Methods

Table 1. Age distribution to 48 patients diagnosed as acute appendicitis and schistosomal infestation were found in their walls.

Patients age	Number (%)
14-20 years	5 patients (9%)
21-30 years	23 patients (48%)
31-40 years	16 patients (35%)
41-50 years	4 patients (8%)

The results of white cell counts examination documented that 29 patients (60.4%) had leucocytosis. Blood eosinophilia was recorded in twelve patients. All patients underwent emergency appendectomy. Three patients had a macroscopically normal appendix, i.e., no evidence of acute inflammation were seen by the naked eye, five had gangrenous appendicitis, and four had perforated appendicitis. Twenty patients were investigated for evidence of active schistosomiasis postoperatively. The histological slides of 48 patients were available for histopathological review (Table 2).

Patients presenting with appendicitis who underwent appendectomy at Basrah and Hilla Teaching Hospitals over a 10-year period (1990-2000) and who were subsequently diagnosed as having appendiceal schistosomal infestation, were studied. The histological slides were reviewed carefully. All patients were diagnosed as having acute appendicitis based on clinical findings. WBC count and differentiation were done to all patients preoperatively.

Results

There were 48 patients (40 males and 8 females), with a mean age of 34 years (range 14-50 years). 45 patients presented with symptoms and signs of acute appendicitis, and (3) had an appendiceal mass. The highest percentage was in the 21-30 years (48%) and 31-40 years (35/0) age groups (Table 1).

The submucosal layer contained ova in all cases. 28 cases (58.3%) showed schistosomal ova in the mucosa, 32 (66.6%) in muscularis propria and 30 (62.5%) in serosa. The most common tissue responses were submucosal fibrosis (93.8%) and eosinophilia (89.6%), followed by the presence of suppurative inflammation (75%).

Granulomatous reaction was evident in 32 cases (66.6%). Atrophy of submucosal lymphoid follicles was present in 23 (48%), and hyperplasia in 21 (44%). Serosal granulomas were noted in seven cases.

Table 2. The histopathological results of 48 cases diagnosed as acute appendicitis and schistosomial infestation were found in their walls.

Histological Featur		Number (%)
Ova		
Mucosa	I	28 (58.3%).'
Muscularis propria		32 (66.6%)
Submucosa		48(100%)
Serosa		30 (62.5%)
Tissue response		
Submucosa1 Fibrosis		45 (93.8%)
Tissue cosinophilia		43 (89.6%)
Suppurative reaction		36 (75%)
Granulomatous inflammation		32 (66.6%)
Submucosal lymphoid follicles		
Atrophy		23 (48)
Hyperplasia		21 (44%)

In the three cases of normal appendices, there was no histological evidence of acute inflammation and in those, the pathological features revealed ova in the submucosa in all three cases, ova in all layers of the wall in one case, submucosal fibrosis in all three cases, tissue eosinophilia in two cases, and granulomatous reaction in two cases .

Discussion

In our study, the highest rate of schistosomial appendicitis was in the 21-30Years age group, followed by the 31-40 years group. This is a higher age group than those reports whose had a higher incidence in a Younger age group (11 to 15 years) ^(12,13,14). There was a male predominance (5:1), reflecting the occupational hazard of schistosomiasis, as men who work Outdoors in endemic areas are more at risk than females, who mostly work indoors. This is consistent with other previous reports on schistosomial appendicitis ^(15,16).

It seems that in some patients, the presence of schistosomial ova was a mere coincidental finding, as was indicated by the histology of the normal appendices. On the other hand, it can be argued that intense deposition of ova in the appendiceal wall sets up a chronic inflammatory reaction, with Subsequent

appendicitis. The characteristics of chronic appendicitis, such as fibrosis and chronic inflammatory cells, were strongly evident in the present Study. Moreover, inflammatory stricture formation and subsequent partial appendiceal obstruction may give rise to symptomatic chronic appendicitis. Therefore, in the majority of affected individuals, the presence of schistosomiasis predisposes to appendicitis and is not just a mere histological coincidence a fact which supports this view.

An interesting histological feature in our study was the presence of equal incidence of submucosal lymphoid hyperplasia, and lymphoid atrophy in about half of our cases. This is in agreement to other previous studies which revealed equal incidence of atrophy and hyperplasia of the submucosal lymphoid tissues ^(5,14,16). The significance of this is unknown but it warrants further investigation. The earliest histological features of schistosomial appendicitis are granuloma formation and eosinophilic inflammatory infiltrates.

Granulomas are most commonly found in the serosa and submucosa. This is later replaced by submucosal fibrosis with hyalinization ^(17,18). Submucosal granulomas were present in two-third of our cases, while serosal granulomas were encountered in seven cases. Submucosal fibrosis was the most common response

encountered (93.8%) in the studied specimens, reflecting the chronicity of the disease in our patients.

Most of our patients received antischistosomiasis therapy.

The investigations for active schistosomiasis were performed and Long-term follow-up was recommended for the patients.

Conclusion

We believe that the presence of schistosomal infestation increases the risk of appendicitis in the affected individual, but does not always precipitate it. Preoperative knowledge of the infestation does not bear any clinical significance, as it does not influence the ultimate treatment, which is simply an appendectomy. Nevertheless, lack of knowledge before histopathological confirmation may jeopardize the search for and treatment of the active disease in the absence of follow-up

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