

Clinicopathological patterns and distribution of Schistosomiasis in Asir Region

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ABSTRACT

Objectives: The objective of this study is to report, for the first time, the histopathologic pattern of Schistosomiasis from the Asir Region and to compare it to patterns reported from other regions of the Kingdom of Saudi Arabia. Several studies have reported the patterns of Schistosomiasis in other regions of the Kingdom of Saudi Arabia and other countries where Schistosomiasis is endemic. Schistosomiasis is endemic in certain areas of Asir region, however no data is available concerning the clinicopathological pattern of Schistosomiasis in the Asir Region.

Methods: This is a retrospective analysis of 217 cases of Schistosomiasis from surgical and biopsy files of Asir Central Hospital during a period from January 1990 to October 1999.

Results: Our study revealed that Schistosomiasis was more common among the expatriate population of Asir Region than Saudi nationals residing in this area. The urinary tract was most commonly involved, and then in descending frequency came the vermiform appendix, liver and large bowel.

Conclusions: These findings are somewhat different from those observed in the Riyadh Region where the vermiform appendix was the most commonly affected organ. Based on the histopathologic pattern, our study describes the pattern of Schistosomiasis in the Asir Region and may serve as a base-line for future research work.

Keywords: Schistosomiasis, clinicopathological pattern.

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Schistosomiasis is common in the Asir Region due to the widespread practice of traditional agriculture in this area.¹ Several studies have reported the patterns of Schistosomiasis in other regions of the Kingdom of Saudi Arabia and countries endemic to the disease.²⁻⁴ This study is the first to report the pattern of the disease in the Asir Region and to compare the findings with reports from other locations endemic for Schistosomiasis.

Methods. We reviewed all the surgical and biopsy files in the histopathology laboratory of Asir Central Hospital, Abha, southern Saudi Arabia during a period from January 1990 to October 1999.

The files containing a diagnosis of Schistosomiasis were collected. The reports formed about 1% of the total number of specimens sent for histopathologic evaluation during this period. The diagnosis was confirmed by finding Schistosomal ova or worms, or both, in the microscopic slides. The slides were routinely stained by hematoxylin and eosin. Many of the ova were heavily calcified and proper location of their spine, to determine the exact species of Schistosomiasis, was not possible. The findings were tabulated according to organs or body sites affected. The sex and nationality of patients in each category were also identified.

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Table 1 - Distribution of 217 cases of schistosomiasis according to affected body sites.

Body site	Saudi Patients	Non-Saudi Patients	Unknown nationality	Total
Urinary tract	31	51	13	95 (44%)
Appendix	25	34	8	67 (31%)
Liver	12	6	1	19 (9%)
Large Bowel	11	6	0	17 (8%)
Female Genital Tract	5	2	0	7 (3%)
Others*	4	8	0	12 (5%)
Total	88	107	22	217 (100%)

*Includes male genital tract, spleen, omentum, lung, abdominal lymph nodes.

Results. The results are summarized in Table 1 which gives data according to affected body sites. The most common site affected by Schistosomiasis was the urinary tract, representing 44% of the cases, and then in descending frequency came Schistosomiasis of the vermiform appendix, liver, large bowel, and female genital tract. In general, males were more commonly affected by Schistosomiasis representing 86% of all cases. In patients with Schistosomiasis whose nationality was known, the percentage of expatriates was higher than Saudi nationals (55% versus 45%). Most of these non-Saudi patients were either Egyptians (56%) or Yemenies (42%). Patients' age ranged from 25-62 years (median 33.5 ± 6). In urinary tract Schistosomiasis, cystitis glandularis was observed in 53 cases (56%) and squamous metaplasia in 10 cases (10%). We observed 2 cases of invasive squamous cell carcinoma and one case of transitional cell carcinoma of the bladder associated with Schistosomiasis. In appendiceal Schistosomiasis, there was an associated acute appendicitis in 37 cases (55%). Schistosomal granulomas without acute inflammation were present in the remaining 30 cases (45%).

Discussion. Schistosomiasis is an infection caused by flukes (Trematodes) of any species of the genus *Schistosoma*. Geographic distribution of Schistosomiasis in man depends upon distribution of snail hosts and opportunities of infection of both the snail and man.³ As our study was based on surgical specimens, we could only determine the incidence of chronic Schistosomiasis. We were unable to determine the incidence of skin lesions, acute Schistosomiasis and immune complex renal diseases as most of them were clinical problems and did not

require tissue diagnosis. The lesions of chronic Schistosomiasis were of 2 types: Diffuse reaction around ova containing neutrophils, eosinophils, lymphocytes, plasma cells and macrophages and granulomatous reaction around a centrally located ova. The ova was surrounded by an immediate zone of epitheloid cells and outer zone of fibrous tissue infiltrated by lymphocytes.

In our study, urinary bladder and ureter were the most common organs involved by Schistosomiasis showing evidence of chronic inflammation in 44% of cases. Our findings, however, differ from observations of Tikku et al⁴ who reported urinary involvement in only 20% of all Schistosomiasis cases at Riyadh Central Hospital. In their study the appendix was the most common organ involved by the disease. This difference in the incidence of urinary Schistosomiasis between Riyadh and Asir Region is probably due to wide spread practice of traditional agriculture in Asir province and the high percentage of non-Saudi patients included in our study (55% of cases). Urinary Schistosomiasis has long been known as a risk factor for bladder cancer.^{5,6} Reports from Egypt and other Middle Eastern countries showed that Schistosomiasis is more linked to squamous cell carcinoma than transitional cell carcinoma.^{7,8} A report from our institution analyzing 60 cases of bladder carcinoma has shown that 70% were transitional cell carcinomas, 20% squamous cell carcinomas, 8% adenocarcinomas and 2% rhabdomyosarcomas.⁹ This data emphasizes that the incidence of bladder cancer in Asir region is similar to reports from Egypt and other Middle Eastern countries with a known high incidence of Schistosomiasis. These effects included increased number of bladder cancer cases with increased number of epidermoid carcinomas compared to transitional cell carcinomas and a tendency to occur among the younger age group. Squamous cell carcinoma of the bladder, however, differs from such tumors at other sites in their patterns of cytokeratin protein expression.¹⁰ We observed squamous metaplasia, a precursor of squamous cell carcinoma in 5% of urinary Schistosomiasis and invasive squamous cell carcinoma in 1% of cases.

Appendiceal Schistosomiasis constituted 31% of our cases, 55% of the appendiceal Schistosomiasis cases also showed evidence of acute inflammation. It seems reasonable to presume that these appendices were removed mainly for the symptoms related to acute appendicitis and Schistosomiasis was an incidental finding. However in 45% of cases, there was no evidence of acute inflammation in the appendix. The liver was the 3rd most common organ involved representing 9% of all cases. Most of the specimens which were obtained from the liver were wedge biopsies. Portal fibrosis and granulomas around Schistosomal ova were characteristic findings.

In conclusion, we have presented the first detailed account of histopathological lesions observed due to chronic Schistosomiasis in Asir region. These findings are somewhat different from those observed in the Riyadh Region. The reason for this observed difference could be geographical or due to the demographic distribution of the expatriate population, the later represented 55% of our patients. This study could be a reference for future research and also emphasizes the desperate need for a national study on the distribution and pathology of Schistosomiasis in the Kingdom of Saudi Arabia.

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