

Dedication

To my

**Beloved & blessed parent who did every thing for
me*

**Dear brother & sister.*

**Lovely grand mother (Rogia).*

**Dr Ogail El Nour Sur Eldahab*

**Dr Bashir Osman Bashir*

**Dear Yousif kassab*

**Lovely Taiser*

Elamin

**Dear Dr Saif.*

**Wonderful prof. Ibtisam &*

Dr. Miska.

I dedicate this work.

Aknoweldgement

The greatest thanks to ALLA.

*Iwould like to express my deep gratitude and thanks to prof
Ibtisam , for her expertise, support, endless assessment.*

*Iwould like to express my deep gratitude and thanks to Dr
Bashir Osman Bashir.*

Gratest thanks to Ustaz Amged .

*Gratest thanks to Miss Taiser & Dr Miska & Mr. Ahmed &
Sudan Universityand Ustaz Abobaker Khalid Sourage .*

Gratest thanks to DR Saif & Khalid.

*Thank you for schools in Alklakla &children whom live in these
areas*

Abstract

A cross sectional study was conducted in Alklakla area near the White Nile from January to April 2011. The study aimed to determine the prevalence of *Schistosoma haematobium* among school children and snail – parasite compatibility. The study included 500 urine sample collected randomly from targeted children (265 male and 235 female). The population was classified according to age group into two groups: less than 12 and 12-16 years. Also, the educational level of parents was classified into three levels :(low, medium and high) which corresponds to primary, secondary and graduated education levels respectively. The urine samples were examined for *S.haematobium* eggs by using sedimentation technique. The overall prevalence of urinary schistosomiasis was 0.6% (3 positive cases). All positive cases were males who showed direct contact with water and this showed a significant association between gender and contact with water to the rate of infection.

In this study, 32 *Bulinus* snail were collected randomly from shores of the White Nile by scoping method and examined for shedding of cercaria. All the examined snails showed no cercarial shedding.

The study concluded that the absence of infection in the studied snails (*Bulinus*) was the reason for the infection rate of *S.haematobium* in the study area.

اجريت هذه الدراسة الموقعية في منطقة الكلاكة بالقرب من النيل الأبيض في الفترة من يناير الى ابريل 2011. وهدفت الدراسة إلى تحديد مدى انتشار البلهارسيا البولية بين أطفال المدارس ومعرفة الحلزون (العائل الوسيط) الناقل للطفيل المسبب للمرض . وشملت الدراسة 500 عينة بول عشوائية تم جمعها من الأطفال المستهدفين (265 من الذكور و 235 من الإناث). تم تصنيف السكان حسب الفئة العمرية إلى مجموعتين : أقل من 12 سنة وما بين 12- 16 سنة . كما صنف المستوى التعليمي للوالدين إلى ثلاث المستوى : (منخفضة، متوسطة ، عالية) والتي تدل على (تعليم ابتدئى ، تعليم ثانوى ، تعليم جامعى) على الترتيب.

تم فحص عينات البول لبويض البلهارسيا البولية باستخدام تقنية الترسيب. وخلصت الدراسة الى ان معدل انتشار البلهارسيا البولية كان بنسبة 0.6 % (3 حالات إيجابية). جميع الحالات الإيجابية كانت من الذكور الذين اظهروا اتصال مباشر مع مياه النيل وأظهرت الدراسة وجود علاقة كبيرة بين جنس المريض وإرتباطه بالماء مع معدل الإصابة .

في هذه الدراسة، تم جمع 32 حلزون عشوائيا من شواطئ النيل الأبيض باستخدام طريقة الاسكوب، وخضعت الحلزونات لفحص السركاريا بداخلها . وخلصت الدراسة إلى أن نتائج فحص الحلزونات اظهرت عدم اصابتها بالسركاريا كما خلصت الدراسة الى ان عدم وجود عدوى في الحلزون الموجود (المحار الملثوي) ادى إلى انخفاض معدل الإصابة بالبلهارسيا البولية في المنطقة.

Table of contents

Decication	I
Aknoweldement	II
Abstract (English)	III
Abstract(Arabic)	IV
Table of content	V- VI
List of figures	VII
List of tables	VIII
Chapter one: Introduction and literature review	
1.1 Introduction	1
1.2. <i>Schistosoma</i> in Sudan	3
1.3 <i>Schistosoma haematobium</i>	3
1.4 History	4
1.5 Geographical distribution	5
1.6Morphological character	7
1.6.1 Adult worm of <i>S.haematobium</i>	7
1.6.2 Egg <i>S.haematobium</i>	8
1.6.3 Cercaria <i>S.haematobium</i>	9
1.7.1 Snail biology	9
1.7.2 Snail life cycle	10
1.7.3 Snail ecology	10
1.8.1 Transmission	13
1.8.2 Life cycle in definitive host	14
1.8.3 Life cycle in intermediate host	15
1.9 Clinical feature	17
1.10.1 Acute stage of disease	17
1.10.2 Chronic stage of disease	18
1.11.1 Immune response	19
1.11.2 Immunomodulation of granuloma	20
1.12 Laboratory diagnosis	20
1.12.1 Examination of urine for <i>S. haematobium</i> egg:	21
1.12.2 Examination of biopsies	21
1.12.3 Serological diagnosis	22
1.13 Prevention and control of schistosomiasis	23
1.14 Treatment	24
Objectives	26
Rationale	25
Chapter two : material and methods	
2.1 Study design	27
2.2 Study area	27
2.3 Study population	27

2.4 Type and period of study	27
2.5 Collection of sample	27
Figure 1	Geographical distribution
Figure 2	Adult worm ion and analysis
Figure 3	Ova of <i>S.haematobium</i>
Figure 4	valence of <i>Schistosoma haematobium</i> in study <i>Bulinus truncatus</i>
Figure 5	of <i>Schistosoma haematobium</i> according to gener:
Figure6	of <i>Schistosoma haematobium</i> according to contact
Figure7	Life cycle of <i>S.haematobium</i>
Figure7	of <i>Schistosoma haematobium</i> according to Praziquantel
Figure 8	of <i>Schistosoma haematobium</i> according to water Snail collection areas
Figure 9	of <i>Schistosoma haematobium</i> according to water Snail collection areas
Figure 10	of <i>Schistosoma haematobium</i> according to For the cycle of samples examined according to
Figure 11	of <i>Schistosoma haematobium</i> according to Frequency of contact with water
Figure 12	snail history of previous infection in the study of <i>Bulinus</i> snails from Algoba area population of <i>Bulinus</i> snails from Altria
Figure 13	of <i>Bulinus</i> snails from Wad Elagali; Different water sources used in study area urvey to all study areas
Figure14	Discussion
Figure14	the knowledge about schistosomiasis in the study population
Figure 15	Educational level of the pupil's parents.
References	
Appendix	

List of figures

List of tables

<u>Table 1</u>	Over all prevalence rate of <i>Schistosoma haematobium</i> among school children in AlKalaka area	<u>30</u>
<u>Table 2</u>	Prevalence of <i>Schistosoma haematobium</i> according to gender among school children	<u>31</u>
<u>Table 3</u>	Prevalence of <i>Schistosoma haematobium</i> according to water contact in study population	<u>32</u>
<u>Table 4</u>	prevalence of <i>Schistosoma haematobium</i> according to history with previous infection in the study population	<u>33</u>
<u>Table 5</u>	Prevalence of <i>Schistosoms haematobium</i> according to different water sources used in study area	<u>34</u>
<u>Table 6</u>	Prevalence of <i>Schistosoma haematobium</i> according to knowledge about disease	<u>36</u>
<u>Table 7</u>	Prevlenceof <i>Schistosoma haematobium</i> according to different age group	<u>37</u>
<u>Table 8</u>	The number of <i>Bulinus</i> snail in all study areas	<u>38</u>