### بسم الله الرّحمن الرّحيم

قال الله تعالى

فَتَبَسَّمَ ضَاحِكًا مِنْ قَوْلِهَا وَقَالَ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عَبَادِكَ الصَّالِحِينَ صَالَحَ الله العظيم

سورة النمل الآية ١٩

### Dedication

I dedicate this thesis with much love and appreciation to my father who has always been a brick wall that I can lean and depend on forever.

To my mother, brother and sisters, To my husband,

To my best friends, colleagues and teachers.

To all patients suffering from Schistosomiasis in the world.

#### **Abstract**

This study was conducted in Alkemair village, Shandi on 200 child comprising different gender and age groups. Two techniques were used in this study: centrifugation and viability techniques. The results revealed that out of the 200 urine samples examined by the centrifugation technique, 24 were found to be positive for *Schistosoma heamatobium* infection, and constituting on overall prevalence rate of 12%.

Out of 100 males examined, 8 were found positive for *S. heamatobium* infection and out of the 100 females examined, 16 were found positive. This constitutes 8% and 16% incidence rate respectively

The highest incidence rate (13.9%) was reported among the 4—8 age groups, while the lowest rate (2.9%) was reported among the 14—18 age group.

The result showed that the incidence rate was 19.8% for those who had contact with water.

The result revealed that 61.8%(535 1886) of the egg were viable using stain.

#### ملخص الدراسة

اجريت هذه الدراسة في قرية الكمير بمدينة شندي على ٢٠٠ طفل يمثلون جنادر مختلفة وفئات عمرية مختلفة. تم استعمال تقنيتين لهذه الدراسة، تقنية الطرد المركزي وتقنية الحيوية لمعرفة فعالية العلاج.

اظهرت النتائج ان من ٢٠٠ عينة بول فحصت بواسطة الطرد المركزي، ٢٤ وجدت موجبة بعدوي طفيل بلهارسيا المجاري البولية ممثلة بذلك ٢١% معدل الحالات الجديدة الكلي.

من عدد ۱۰۰من الذكور التي فحصت وجد ان ۸ كانت موجبة ومن بين ۱۰۰ من الاناث وجد ان ١٦ كانت موجبة. هذا يمثل ٨ % و ١٦ % معدل الحالات الجديدة على التوالي.

اعلي معدل انتشار (١٣.٩ %) سجل وسط الفئة العمرية ٤\_\_ ٨ سنة بينما المعدل الاقل (٢.٩ %) سجل وسط الفئة العمرية ١٤\_\_ ١٨ سنة.

اظهرت الدراسة ان معدل الحالات الجديدة كان ١٠٠% بهؤلاء اللذين كان لديهم اتصال مباشر بالماء.

### **List of contents**

	Topic	No
	Dedication	I
	Acknowledgement	II
	Abstract (English)	III
	Abstract (Arabic)	IV
	List of contents	V
	List of tables	IX
	List of figures	X
	Chapter one: Introduction and literature review	
1.1	Introduction	١
1.2	Historical background	۲
1.2.1	Schistosoma mansoni	٣
1.2.2	Schistosoma haematobium	٣
1.2.3	Schistosoma japonicum	٣
1.2.4	Schistosoma mekongi	٣
1.2.5	Schistosoma intercalatum	٣
1.7	Geographical distribution	٣
1.7.1	S. haematobium in Africa	٤
1.7.7	S. manson in Africa	٤
1.7.7	S. intercalatum	٤
1.7. £	S. japonicum	٤
1.7.0	S. mekongi	٤
1.7.7	Distribution of schistosomiasis in Sudan	0
1.5	Life cycle	Υ
1.0	Epidemiology of schistosomiasis	9
1.0.1	Prevalence of S.mansoni and S.haematobium	١.

1.7	Clinical feature of schistosomiasis	١٣
1.7.1.1	S. haematobium	١٣
1.7.1.7	Invasive stage	١٣
1.7.1.8	Acute phase	١٣
1.7.1.8	Chronic phase	١٣
1.7.7	S. japonicum, S. mekongi, S. mansoni and S.	١٤
	intercalatum	
1.7.7.1	Invasive phase	١٤
7.7.7.1	Acute phase	١٤
1,7,7,8	Chronic phase	١٤
1.7.7	Complications	١٦
1.7.8	Immunology of schistosomes	17
1.4	Diagnosis	١٨
1.4.1	Parasitological diagnosis	١٨
1.7.7	Clinical diagnosis	١٨
1.7.7	Immunological diagnosis	19
١.٨	Treatment	۲.
1.4.1	Mass (universal) chemotherapy	۲.
	Rationale	71
	Study objectives	77
	General objective	77
	Specific objectives	77
	Chapter two: Materials and methods	
۲.۱	Study design	74
۲.۲	Study area	۲۳
۲.۳	Study populations	۲۳
۲. ٤	Sample size	۲۳
۲.٥	Ethical consideration	Y £

۲.٦	Sample collection	7 £
۲.٧	Data collection	7 £
۲.۸	Methodology	۲ ٤
۲.۸.۱	Laboratory diagnosis of Schistosoma haematobium	۲ ٤
۲.۸.۱.۱	Urine sedimentation or centrifugation technique	7 £
۲.۸.۱.۲	Filtration technique	۲ ٤
۲.۸.۱.۳	Differentiating non-viable from viable schistosome	70
	eggs on filter	
۲.٩	Data analysis	70
	Chapter three: Results	
	Results	77
	Chapter four: Discussion	
	Discussion	٣٢
	Conclusions	٣٣
	Recommendations	٣٤
	References	٣٦
	Appendix	٤٤

### **List of tables**

Table No	Title	Page No
Table 1	The overall incidence rate of S .heamatobium	77
	among school children of Alkemair village,	
	Almatama locality Nahr Al Nil state using	
	centrifugation technique	
Table 2	The incidence rate of S .heamatobium among school	47
	children of Alkemair village, Almatama locality,	
	Nahr Al Nil state according to gender using	
	centrifugation technique	
Table 3	The incidence rate of S .heamatobium among school	79
	children of Alkemair village, Almatama locality,	
	Nahr Al Nil state according to age groups using	
	centrifugation technique	
Table 4	The incidence rate of S. heamatobium among	٣.
	school children of Alkemair village, Almatama	
	locality, Nahr Al Nil state according to contact with	
	canal water using centrifugation technique	
Table 5	Percentage of the viable and non-viable eggs	٣١
	in the infected population	

### **List of figures**

Figure No	Title	Page No
Figure 1	Distribution of Schistosomia haematobium in Africa	٤
Figure 2	life cycle of schistosomes	٨
Figure 3	The overall incidence rate of S .heamatobium among	7 7
	school children of Alkemair village, Almatama	
	locality, Nahr Al Nil state using centrifugation	
	technique	
Figure 4	The incidence rate of S .heamatobium among school	۲۸
	children of Alkemair village, Almatama locality,	
	Nahr Al Nil state according to gender using	
	centrifugation technique	
Figure 5	The incidence rate of S .heamatobium among school	۲٩
	children of Alkemair village, Almatama locality,	
	Nahr Al Nil state according to age groups using	
	centrifugation technique	
Figure 6	The incidence rate of S .heamatobium among school	٣.
	children of Alkemair village, Almatama locality,	
	Nahr Al Nil state according to contact with canal	
	water using centrifugation technique	
Figure 7	Percentage of the viable and non-viable eggs in the	٣١
	infected population	
	I	I .

## chapter one

# chapter two

## chapter three