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## INCIDENCE OF HOOKWORM (*ANCYLOSTOMA DUODENALE*) INFECTION BETWEEN TWO PRIMARY SCHOOLS IN YANDEL COMMUNITY

Ukoro, F. O., Azenge P. M. and Idogah E. E.

Email: frankukoro@gmail.com

### Abstract

The study was conducted in Yandev community to investigate the incidence of Hookworm (Ancylostomiasis) infection between two primary schools, in the study area; AOCAY staff Primary Schools and Root Primary School. Samples were collected randomly between the two primary schools. A total number of (200) two hundred samples were collected, hundred (100) from each schools. After the Analysis the Result shows that out of 100 samples collected from Root Primary Schools 6(6%) were positive and AOCAY staff schools 18(18%) were also positive on the incidence of Ancylostomiasis (Hookworm) infection. A total of 24(12%) were infected. The rate of infection was high in AOCAY Staff primary schools than Root primary School; 18% and 6% respectively as the infection rate. In AOCAY Staff primary school by sex, male were more infected than female; 10(20%) and 8(16%) infection rate. Regarding ages i.e. 10-13 in both male and female (Root primary) were lesser infected than AOCAY primary schools. 3(7.5%) and 9 (22.5%) respectively. This corresponds with the findings made by Huttly, (1990). That improper sanitation and unhealthy can cause the active penetration of this organism into the HOST.

**KEY WORD:** Hookworm, Ancylostomiasis, Infection, Parasite, Host, Diagnosis

### Introduction

Hookworm is a parasite that belongs to the family ancylostomatidae a part of super family stroglyoides. The two major genera that affect man are; Necator and Ancylostoma.

### Classification of the Parasites

**Kingdom**-Animalia  
**Phylum**- Ashehelminthes  
**Class**- Nematoda  
**Order**- Stroniloidea  
**Family** – Ancylostomatidea  
**Genus** – Ancylostoma  
**Species** -duodenale.

## Source: cruise and John (1994)

*Ancylostoma duodenale* is prevalent in the southern Europe, northern Africa, Indian, China and South East Asia, small area of United States, the Caribbean Island, and South Africa. This hookworm is well known in mines because of consistence in temperature and humidity that provide an ideal habitat for egg and juvenile development. (Hotez, 1995), Monica (1995). The distribution and prevalence of *Ancylostoma duodenale* and *Necator americanus* differs from region to region, (Gandhi, 2001).

Ancylostomiasis is an intestinal parasite of human that causes mild diarrhea and abdominal pain known as ancylostomiasis. It is transmitted to human by active penetration into the skin of its host ((Huttly, 1990). Human can contact this organism via inadequate sanitation; the parasites are *ancylostoma duodenale* and *Necator americanus*. Ancylostomiasis is a condition caused by *Ancylostoma*. *Ancylostoma* is also known as Miners Aneamia, tunnel disease-detailed by some brick- maker's anemia and Egyptian chlorosis. *Ancylostoma* is occurs when hook worms, present in large number produce and ion efficiency anemia by sucking blood of host intestinal walls (Gandhi, 2001).

*Ancylostoma duodenale* is considered to cause health problem for new birth and pregnant women and person who are malnourish thus causing intellectual cognitive and growth retardation prematurely in susceptible children. Hookworm is the leading cause of maternal and child morbidity. (Murray, 2004). About 740 million individuals today have been estimated to be infected with hookworm. The destruction causes decrease in economic productivities (WHO, 2008).

The aim of the present work was to determine the degree of infection of hook worm on children within the primary school in Root primary schools and AOCAY staff primary School in Yandev, Gboko in Benue State.

## Materials and Methods

### Study Population, Sample Collection and Techniques

The study was carried out in Root Primary Schools and AOCAY Staff Primary Schools. Sample collection was by random selection in both primary schools. Total number of sample collected was two hundred (200); One hundred (100) from each school. Collections were made between July –September, 2016. The gender, age and class of children in each school were randomly sampled for Ancylostomiasis. A sample container was given to each pupil to collect his/her stool. A total of sample daily; and twice weekly, bringing net collection sample to be 20. The sample was collected from both males and females. The techniques were done in such a way that containers were shared, faecal sample was collected the next day and taken to the laboratory and smear on grease free glass slide and covered with cover slip. The sex and age of the pupils were considered accordingly.

### Preparation of Sample

An applicator stick was used to collect a pinch of stool sample from a batched sample container. A grease free slide was used to analyze the stool sample under the microscope. One (1) drop of normal saline was added on the free grease glass slide and a smear was made on the glass slide. 10g of sodium chloride (NaCl) was weighed and dissolved in 90ml Of distilled water in a volumetric flask. 1g of stool sample from the specimen bottle was put into a test tube mixed with physiological saline by dissolving all the particles with an applicator stick. The sample was centrifuged at 200rpm for 15mm using a manual bench centrifuged with 6pots. The supernatant fluid then decanted and the sediment transferred into a clean glass slip and was observed under x10 and x40 objective lens. Prepared slide was observed and identified according to the procedure outline by Anderson (1995). The glass slide sample was

mounted under x10 and x40 objective lens to confirm. Chart was used to aid the view of the sample to identify the ova of the organism *Ancylostoma duodenale*.

### Result and Discussion

The result of the incidence of Ancylostomiasis in Root Primary Schools and AOCAY Staff Primary school are presented in table 1-4.

**TABLE 1:** Incidence of Ancylostomiasis infection between Root Primary Schools and AOCAY staff schools.

<i>S/N</i>	<i>Schools</i>	<i>No. Examined</i>	<i>No. of Positive</i>	<i>% of infection</i>
1	Root primary school	100	6	06:00
2	AOCAY Staff primary schools	100	18	18:00
Total		200	24	24.00

**TABLE 2:** Distribution and percentage of infection rate by sex among children in Root primary school.

<i>S/No.</i>	<i>Sex</i>	<i>No Examined</i>	<i>No. of positive</i>	<i>% of Infection</i>
1	MALE	50	3	06.00
2	FEMALE	50	3	06.00
	TOTAL	100	6	12.00

**TABLE 3:** Incidence of Ancylostomiasis infection by sex among children in AOCAY Staff primary school.

<i>S/No</i>	<i>Sex</i>	<i>No Examined</i>	<i>No. of Positive</i>	<i>% of Infection</i>
1	MALE	50	10	20.0
2	FEMALE	50	8	16.0
	TOTAL	100	18	36.0

**TABLE 4:** Incidence of Ancylostomiasis infection by age-group among Root primary school and AOCAY Staff primary school.

<i>S/No</i>	<i>Age-Group</i>	<i>No Examined</i>	<i>No of Positive</i>	<i>% Infected</i>
1	Root Primary			
	6 – 8	25	1	4.0
	8 – 10	35	2	5.7
	10 – 13	40	3	7.5
2	AOCAY Staff Primary			
	6 – 8	25	4	16.0
	8 – 10	35	5	14.3
	10 -13	40	9	22.5
	TOTAL	200	24	12

The results showed that out of 200 pupils examined for Ancylostomiasis infection, 24 (12%) were found infected with *A. duodenale* in both schools. AOCAY Staff Primary school had higher infection rate than Root primary school with only 12% by difference. The result also

shows that 6% was identified in root primary school compare to AOCAY staff primary with 18% rate of infection.

The result obtained from the present study indicated that less than half of the children under 8 year old children were positive for disease of ancylostomiasis, between the two primary school than those above 10 years old. The low rate of infection in root primary school could have been due to better sanitation in that environment compare to the high rate of ancylostomiasis infection in the public AOCAY staff primary school which compromises sanitation. The result of the present study agrees with the earlier report made by Huttly (1990) and Hotwell, (2010) that improper sanitation could cause the inversion or contact of these ova of ancylostomiasis and active penetration of the larvae could affect the individual who play around with soil in the environment.

Base on the result of the study, it may be recommended that proper stool disposal into appropriate places must be followed while personal health and hygiene must be observed to check mate the disease. Albedazole, Mebendazole among others may also be recommended as a drug of choice to tackle the menace of the incidence of this disease.

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