

## Original Research Article

### Epidemiological Profile of gastrointestinal parasites at Analysis Center of hospital Abass NDAO from 2011 to 2012

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#### A B S T R A C T

#### Keywords

Abass NDAO Hospital; parasitosis; Health.

View the endemic nature of these parasites and their impact on the health of populations, it is appropriate to carry out this study extends over a period of one year eight months (from January 2011 to August 30 2012), the laboratory of medical biology analysis of Abass NDAO Dakar hospital, after which we saw that, of 462 people who were parasitological stool examination, 67 representing a prevalence rate 14.50% were infested by six parasite species *Entamoeba coli* (11.69%) followed by *Entamoeba histolytica* (1.08%), *Giardia intestinalis* (0.65%), *Ascaris lumbricoides* (0, 65%), and *Ancylostoma duodenale* (0.22%), and *Taenia saginata* (0.22%). These infections are more important in 2012 (21.25%) than in 2011 (10.92%) and are more common in the wet season (15.65%) in the dry season (14.12%). The age layer of 0-5 years is infested (46.15%), as well as male individuals (6.75%).The more common than biparasitisme and triparasitisme monoparasitisme, we also see that association between *Entamoeba histolytica* and *Entamoeba coli* is the most common of all. Comparing these results with those of past years shows that there has been a regressive evolution infestations related to intestinal parasites, but the situation remains alarming, despite the prevention and treatment developed.

## Introduction

Senegal is a developing country and located in the tropics is not spared. But to fight against something you must first know well, what makes a good knowledge of the mapping, the evolution of the infection and the life cycle of the parasite

is necessary to develop a method effective control. The overall objective of this study was to determine the incidence of parasitic infestations on request stool examination in the laboratory of medical biology analysis of 1 January 2011 to 30 August

2012 and compare the evolution of pest infestations intestinal species involved and their frequency. The most vulnerable in terms of age and sex and year, month and year when these infections are more common.

## **Materials and Methods**

### **Equipment**

The standard equipment is required from sterile jars up stool samples which are the biological material.

### **Examination methods parasitological stool**

#### **Sampling**

For sampling is given a sterile plastic pot, closed, numbered and contain the initials and number of the patient, who must put his stool in the laboratory using a purgative or at home and bring it soon possible.

#### **Stool examination**

After sampling, the examination is done in two steps:

#### **Macroscopic examination**

It is to the naked eye and can note the color (brownish, greenish, reddish, yellowish or blackish), consistency (molded or pasty, soft, very soft or liquid), and the presence of blood, phlegm, mucus or pus in the stool

#### **Microscopic examination**

##### **State fees**

This is the fastest easiest method and

cheaper allowing you to observe the parasites in the stool. A slide containing the number and the initials of the patient on which a drop of saline is placed is used. It may takes a stool with a stick and made a thin smear on the physiological water that covered with a cover slip and then observed under the microscope objective (obj) x 10 to identify parasitic elements then obj x 40 for confirmation.

#### **Examination after staining**

This is the same process as above but here instead of a drop of saline to 2% iodine that stains organelles eggs and cysts in yellow and destroys vegetative forms with iodine that is used it contains.

#### **The method of Ritchie (amended)**

It increases the sensitivity of the search of cysts or eggs. But usually they do not allow you to view the vegetative forms and roundworm eggs are destroyed. We use 2-5 grams of stool you put in a stemmed glass and then 20 ml of 10% formalin is mixed until a homogeneous solution is left rested for 1 min. The supernatant was poured into another goblet closed with a pad that serves sieve.

The resulting liquid is poured into a conical tube until beyond the middle and then poured into a tube the same volume of ether corresponding to one third of the volume of liquid poured. It closes the tube and stirred for one minute to homogenize and then centrifuged at 1500 rpm for 3 minutes. At the end of the first four ethereal layers were obtained, the second thick containing lipophilic debris, aqueous third and the fourth contains the base that accumulates parasitic elements. It suddenly pours the contents of the tube unless you put the cap on a slide object

that covered with a coverslip and observed under the microscope and then obj x 10 x 40.

## **Results and Discussion**

### **Study Population**

Our study population consists of 462 individuals.

### **Distribution of samples analyzed**

Figure 1 shows that only 67 were positive, with an overall prevalence of 14.50%

### **Distribution of samples by year**

Table II shows that parasitic infestations are most important in 2012 (21.25%) than in 2011 (10.92%).

### **Comparison of the frequency of parasitic infestations by month**

The curves representing parasitic infestations of 2011 and 2012 have the same pace from January to June with a number of people infested most important in 2012 (21.25%) than in 2011 (10.92%). However, a maximum of monthly prevalence 10.14% was observed in January and May 2012 and a minimum of 0% in June and November 2011. (Figure 3)

### **Comparing the frequency of parasitic infestations according to the season**

Table III shows that parasitic infestations are most important in the wet season (15.65%) in the dry season (14.12%).

### **Comparison of the frequency of parasitic infestations by age**

Figure 4 shows that children aged 0 to 10

years are most affected by parasitic infestations with a prevalence of 46.15%, followed by adults 30 years and over (30.76%), and lastly come the young 11 to 30 years (23.07%).

### **Comparison of the frequency of parasitic infestations sex**

Table IV shows that male individuals (6.75%) are slightly more infected individuals than females (5.33%).

### **Intestinal parasites find and prevalence**

Table V shows a predominance of *Entamoeba coli* cyst (11.69%) 's followed by *Entamoeba histolytica* (1.08%), *Giardia intestinalis* (0.65%), eggs of *Ascaris lumbricoides* (0, 65%), eggs of *Ancylostoma duodenale* (0.22%), and eggs of *Taenia saginata* (0.22%)

### **Type of parasitism**

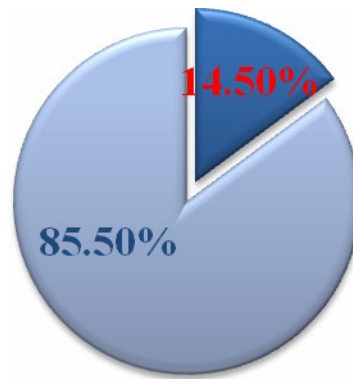
Table VI shows that the monoparasitisme (91.04%) is more common than biparasitisme (8.95%) and triparasitisme (0%).

### **Parasitic associations met**

Table VII shows that the association between *Entamoeba histolytica* and *Entamoeba coli* is the most common (33.33%).

This study shows that 67 stool samples were positive on 462 analyzed is 14.50% with a predominance of *Entamoeba coli* (11.69%). We see that our prevalence is lower than those of previous years because in 2001 DIONGUE found an overall prevalence rate of 70.20% at the health center Fatick. Three years after Ndiaye recorded a prevalence of 54.4% in Pikine;

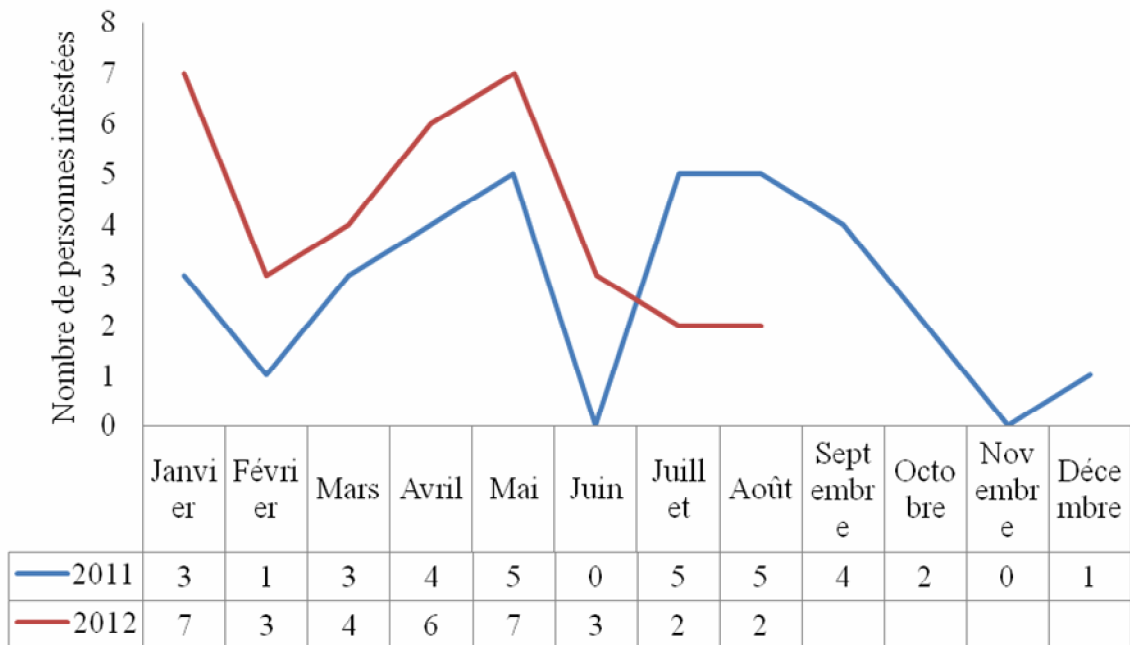
**Figure.1** Distribution of samples analyzed



**Table.2** Distribution of samples by year

Years	SAMPLE				
	Total	Percentage	Négative	Positive	Prevalence
2011	302	65	268	33	10.92
2012	160	35	125	34	21.25
Total	462	100	393	67	14.50

**Figure.3** Comparison of the incidence of parasitic infestations in the month



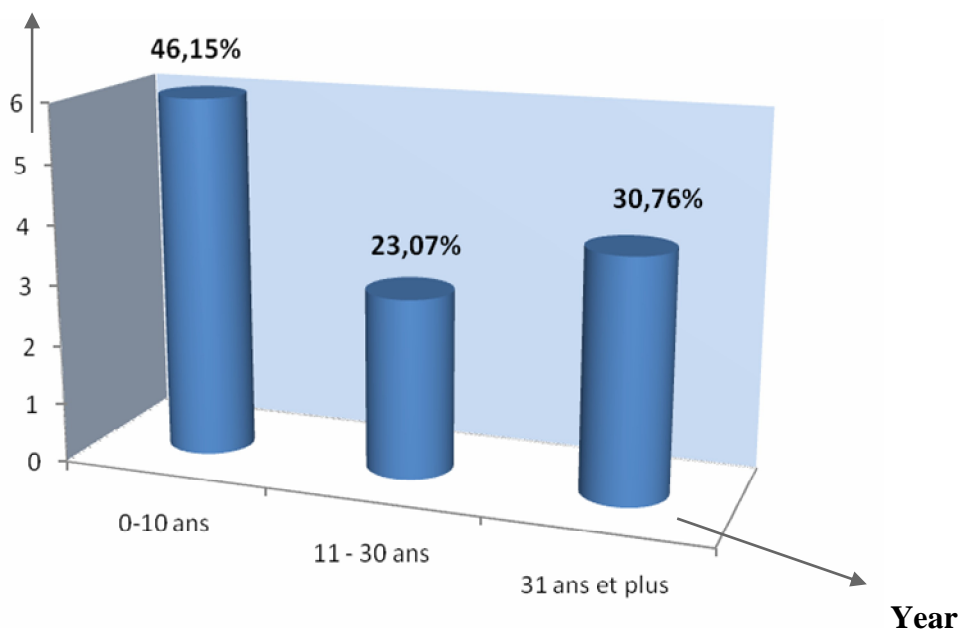
**Table 3** Comparison of the incidence of parasitic infestations according to the season

Season	Total KAOP	Positive KAOP	Prevalence
Dry season	347	49	<b>14,12</b>
Wet season	115	18	<b>15,65</b>

III: Comparison of the incidence of parasitic infestations according to the season  
 Wet season: juillet – septembre ; Dry season: octobre –juin.

**Figure.4** Comparison of the incidence of parasitic infestations age

**Infected People**



**Table.4** Comparison of parasitic infestations by sex

Workforce	Sex	
	Male	Female
<b>Total</b>	237	225
<b>Positive</b>	16	12
<b>Prevalence</b>	<b>6,75</b>	<b>5,33</b>

**Table.5** Intestinal parasites found and their prevalence

Cash	Number of positive samples		Total positive	Percentage	Specific prevalence
	2011	2012			
<i>Entamoeba coli</i>	25	29	54	80,60	11,69
<i>Entamoeba hystolytica</i>	2	3	5	7,46	1,08
<i>Gardia intestinalis</i>	2	1	3	4,48	0,65
<i>Ascaris lumbricoides</i>	2	1	3	4,48	0,65
<i>Taenia saginata</i>	1	0	1	1,49	0,22
<i>Ankylostoma duodenale</i>	0	1	1	1,49	0,22
Total	32	35	<b>67</b>	100	<b>14,51</b>

**Table.6** Type of parasitism

Degrees	Monoparasitisme	Biparasitisme	Triparasitisme	Total
Workforce	<b>61</b>	<b>6</b>	<b>0</b>	<b>67</b>
Frequency	<b>91,04</b>	<b>8,95</b>	<b>0</b>	<b>100</b>

**Table.7** Parasitic Associations

Associations	Workforce	Frequency
<i>Entamoeba coli</i> - <i>Gardia intestinalis</i>	<b>1</b>	<b>16,66</b>
<i>Entamoeba coli</i> - <i>Entamoeba histolytica</i>	<b>2</b>	<b>33,33</b>
<i>Entamoeba coli</i> - <i>Ankylostoma duodenale</i>	<b>1</b>	<b>16,66</b>
<i>Entamoeba coli</i> - <i>Ascaris lumbricoides</i>	<b>1</b>	<b>16,66</b>
<i>Gardia intestinalis</i> - <i>Entamoeba histolytica</i>	<b>1</b>	<b>16,66</b>
Total	<b>6</b>	<b>100</b>

DIEDHIOU 44.52% at the villages along the lower Ferlo DIAKHATE 40.9% in Richard Toll DIATTA 34.09% in plots reclaimed. Diallo in 2005 had a rate of 36.3% at the University Hospital of Fann; Diouf 32.6% at the health center Nabil Choucair Dakar and 33.1% Ndiaye Albert Royer Dakar . In 2006 GUEYE was recorded 38.99% In 2007: NIANE recorded 21.5%. 2008: Ndiaye saves evolution of parasitic infestations is due to increased individual and collective hygiene of the Senegalese population over the years, awareness becomes more efficient, thanks to the increase of the means of communication, which are becoming increasingly accessible to even

30.49% These differences may be justified by an improvement in the management and prevention methods that have led to a systematic deworming even without medical consultation..

Our results are similar to those of NIANE 16.2% in 2008. 2009: Ndiaye records 16.2% and NIANE 17% and in 2010 NIANE records 15.5% . The regressive the poorest, accessibility to drinking water, construction of public toilets, sanitation, etc.. The increased prevalence noted in 2012 is due to the floods in 2011 and 2012 in several areas of Dakar. These results also show that parasitic infestations are most important in the wet season than the

dry season which is similar to results obtained by Ndiaye. This is explained by the fact that the climatic and ecological conditions are more favorable the development of parasites in the wet season than the dry season. We also see that some species are more common than others. Because there was a maximum of 11.69% for *Entamoeba coli* and a minimum of 0.22% for *Taenia saginata* and *Ancylostoma duodenale*. The prevalence of *Entamoeba coli* was noted by Ndiaye and Diallo found that 21.54% and 16.3%, contrary to the results found by DIATTA 3.88% and 5.93 FALL % . The prevalence of *Entamoeba coli* can be explained by the fact that this parasite is not pathogenic to humans and lives in perfect commensalism in the digestive tract of the latter. The finding of a small amount of *Entamoeba coli* may be due to the confusion of cysts of *Entamoeba coli* with those *Entamoeba histolytica* because those who found a low rate of *Entamoeba coli* (3.88% and 5.93 %) found high rates of *Entamoeba histolytica* (14.56% and 19.49%). The results also show that children up to ten years are the most vulnerable layer, which is due to geophagy children of this age. We also see that the male individuals (6.75%) were more infected individuals females (55.33%). We also note that the monoparasitisme is more common than biparasitisme and triparasitisme, and that the association between *Entamoeba histolytica* and *Entamoeba coli* is the most common associations found.

Intestinal parasites that cause intestinal parasitic diseases are responsible for considerable morbidity and mortality worldwide, especially in third world countries where hygiene is precarious and low socio-economic level. Added to this are the weather conditions are more favorable to their development tropics.

This makes these parasitic worms still continue to pose a serious public health every day, despite all the prevention and treatment developed. View our results still alarming, it is important to make recommendations. A population, we will have by the rules of hygiene, thorough cooking of meat from beef and pork. Health authorities should focus on the fight against faecal peril; promoting health education to change people's behavior, the continuity of the administration of mebendazole coupled with vitamin A to children aged 0 to 5 years and identify

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