



Intestinal parasitic infections in adults in Marrakech: review of 7 years Intestinal parasitic in adult at Marrakech: review of 7 years

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ABSTRACT

Objective : In order to determine the epidemiological profile of intestinal parasites, a retrospective study was conducted from January 2007 to December 2013.

Materiel and method Each patient had at least one stool examination (EPS) with direct examination (fresh and staining with Lugol) and after concentration techniques Willis and Ritchie.

Result : Performed on EPS 6176, 976 were positive for an average parasite rate of 15.18%. The average age of patients was 34 (25-45years). The parasites found were dominated by amoebae which alone represent 60% of the parasites encountered. *Entamoeba histolytica* is the most involved with 46.47% followed by *Entamoeba coli* (28, 86%). Flagellates (9.43%) were represented by *Giardia intestinalis* (4%), *Trichomonas intestinalis* (3.49%) and *Chilomastix mesnili* (1, 94%). Among the helminths incriminated *Taenia saginata* comes first (9.87%) of parasites encountered, followed by *Ascaris lumbricoides* (2.75%), *Enterobius vermicularis* (2,08%) and *Strongyloides stercoralis* (0.61%). Polyparasitism was common: 18, 4% of infected patients were at least 2 different parasites.

Discussion The different results achieved are substantially comparable to similar studies reported by data. The present study shows a prevalence substantially close to the other of the Maghreb region

Conclusion Compliance with the rules of hygiene are the best ways to fight against intestinal parasitic.

Keywords: intestinal parasites, hygiene, parasites, Morocco

INTRODUCTION

Intestinal parasites are a major reason for medical consultation. These are conditions associated with relatively high morbidity. They are indicators of lifestyle and level of health of a population. According to the World Health Organization (WHO), nearly 2 billion people are affected by intestinal parasites and 300 million people seriously ill suffering from worm infections [1]. The

objective of this study was to investigate the prevalence of intestinal parasitic infections in adults, assess the severity of the most common parasites and suggest ways of prophylaxis.

MATERIALS AND METHOD

Patients and methods

Location, type and period of study

This is a retrospective descriptive analytic study of 6176 parasitological stool analyzed in the parasitology of Avicenna military hospital over a period of seven years from 2007 to 2013.

Study Population

Our study deals with two classes of patients with digestive disorders. The outpatients external consultant who come from CHU Mohamed 6, garrisons and military infirmaries and private sector firms in Marrakech. While hospitalized patients are from different departments of the military hospital of Marrakech. The withheld information for each patient concerned the name-first name of the patient, age, gender, geographic origin, lifestyle, occupation, reason for consultation and the hospital service.

Sampling and parasitological stool analysis:

The fresh stool collected in the morning in clear sterile jars and seal are analyzed quickly. They are examined macroscopically first to rate their consistency and the presence of adult parasites. Then they were subjected to microscopic examination first at low magnification (x10) to detect helminth eggs and larvae and the medium and high magnifications (x40, x100) to search for vegetative and cystic forms of for protozoa. Microscopic examination is primarily composed of direct examination without staining and after staining with iodine, then reviewed after enrichment. The concentration technique routine "Ritchie" allows the diagnosis of the majority of gastrointestinal parasites. According to the clinical context, specific techniques will be implemented: Baermann for suspected Strongyloidiasis, Ziehl Neelson edited Cryptosporidiosis, the technique of Graham or scotch anal test for pinworm and staining Lactophenol for nematodes [2].

RESULTS AND DISCUSSION

Characteristics of the study population:

Among the 6176 subjects examined, extreme ages are 19 and 45 years with a mean age of 34 In our study 70% of them are male and 30% female. According to hospital status, 91.2% represent the external consultant in patients and 8.8% in hospitalized patients.

Prevalence of intestinal parasites:

Between the years 2007 and 2010, there was a significant growth of parasitism going from 12% in 2007, 29.86% in 2010 (Table 1), which has pushed to strengthen companions deworming treat cases of parasitism and breaking the chain of parasite transmission in areas of high endemicity. Impact: beneficial results of awareness and health education, degression of the parasite rate: 29% in 2010 to 15% in 2013.

**Table 1: Prevalence of intestinal parasites
EPS: stool examination**

année	2007	2008	2009	2010	2011	2012	2013
E.P.S (Nb)	1162	1057	932	1008	1025	1203	1093

E.P.S + (Nb)	148	234	202	301	214	215	165
% E.P.S +	12	22	21	29,86	20,87	17,87	15

Parasite rate:

The parasite rate of 80.23% (Figure 2), which may fluctuate depending on the year with a peak in 2010 (Figure 3).

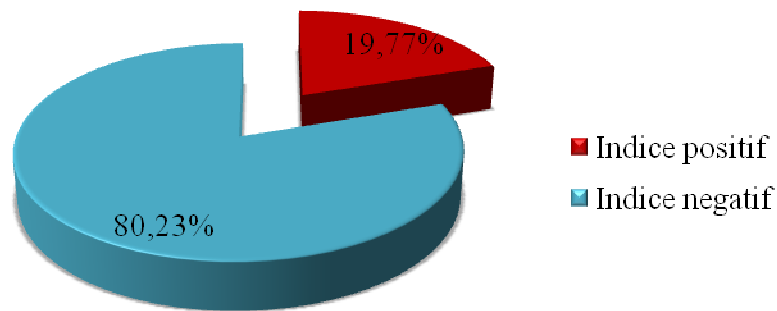


Figure 2: Index Parasitaire

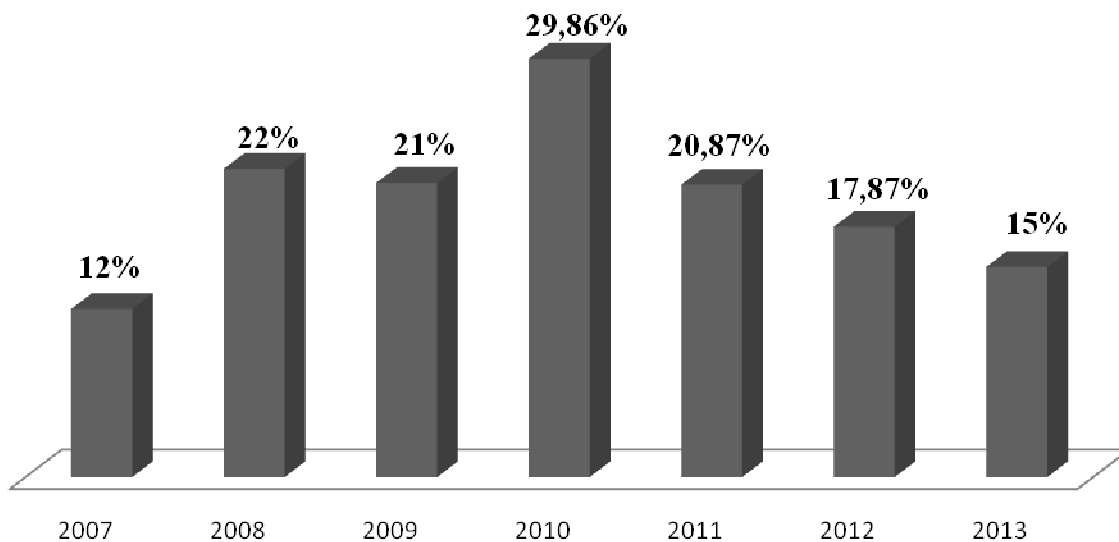


Figure 3: Changes in parasite rate by Years

Distribution of protozoa / helminths:

Our study shows a predominance of protozoa with 87% of the isolated species (Figure 4). Protozoa are the most numerous, there is a clear predominance of amoebae was 70.3%, followed by Blastocystis hominis in pathogenicity controversial with a prevalence of 12% and finally flagellates 6% (Figure 5).

The complex histolytica *Entamoeba histolytica* / *Entamoeba dispar* and *Entamoeba coli* come out on top with a prevalence of 28.9% and respectively 27.9%. In the group of flagellates: species were found: *Giardia intestinalis* with a prevalence of 4.1% followed by *Chilomastix mesnili* and finally *Trichomonas intestinalis* (Figure 6). Quant helminth, *Enterobius vermicularis* comes in the head while the other helminth are relatively rare.

The species recorded were left alone (monoparasitisme) in 95% and double or triple combination (polyparasitism) in 5% of cases.

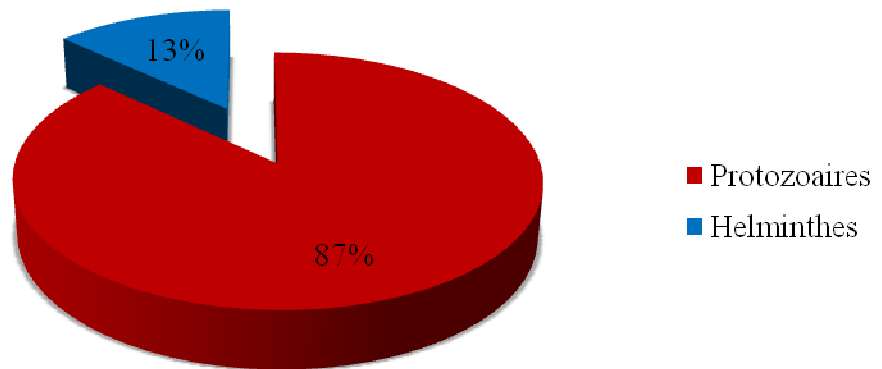


Figure 4: Distribution of parasites found

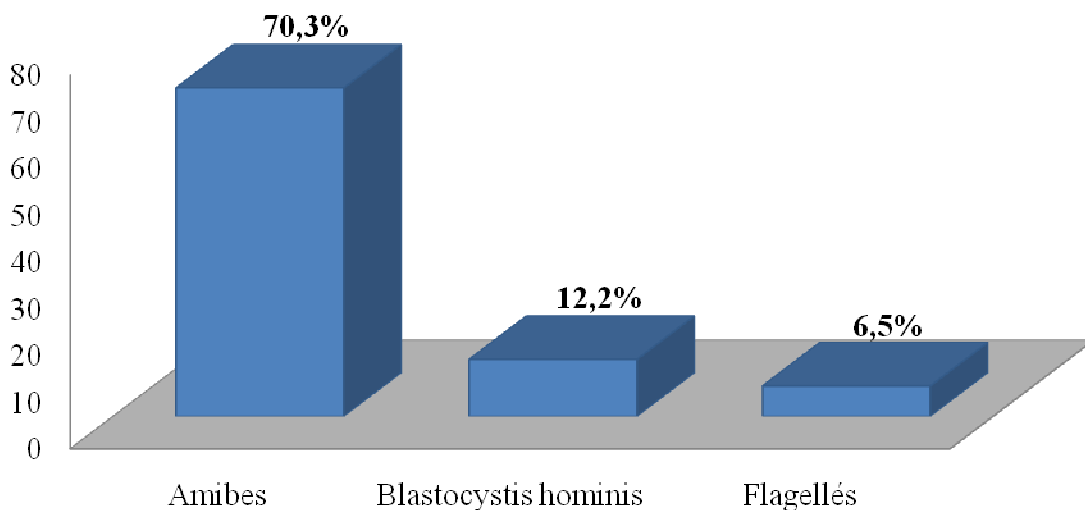


Figure 5: Prevalence of parasitosis

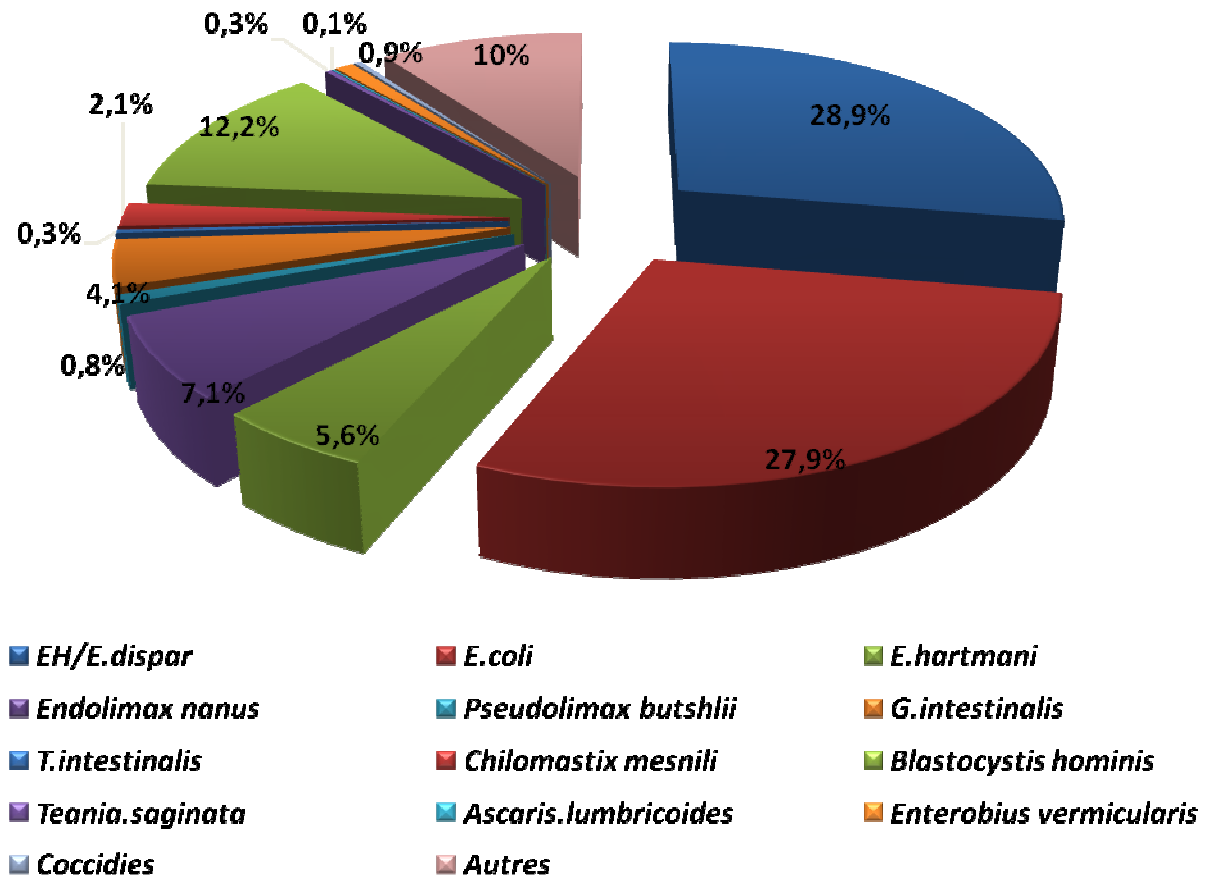


Figure 6: Distribution of parasites found

Discussion:

Our study provided for based on cases diagnosed in our laboratory and not an active population screening data. But the data found can tell us about the prevalence of intestinal parasites as geographic origins of our patients are perfectly mixed in Marrakech.

The average age of our patients is 34 years. The effect of patient age on the prevalence of intestinal parasites can not be considered as our study concerns only adult subjects.

In our series, the prevalence of intestinal parasites and distribution of pest species are not affected by gender. This can be explained by equal exposure cases collected. Indeed, our patients experience the same risk of infection as they are subject to the same environmental health conditions. This result is consistent with that of the study conducted at Oran in Algeria. [3] For cons, the study conducted in Kenitra (Morocco) showed a significant association between parasites found and sex. Thus, Entamoeba histolytica, Entamoeba coli and Enterobius vermicularis species are more common in females, Giardia intestinalis and cons by Ascaris lumbricoides are found more in males [4].

The prevalence of pathogenic parasites for complex E histolytica / E .dispar is pretty nearly a third of cases with a prevalence of 33%. Despite the frequency of amebiasis, it was found that rare forms dysentery, this would be for the low aggressiveness of amoeba strains Morocco despite a large tank and a level of intense transmission.

Comparing our study to other made in Morocco and neighboring countries, we notice that the parasite rate of 19.77% found in our study is substantially close to those reported in Kenitra and Algeria, which are respectively 14, 15% and 19.96%, for against even greater prevalences were found in Tunisia with a prevalence of 26.6% [4.3, 5].

We note that the amoebas are more prevalent, dominated by *Entamoeba histolytica* / *Entamoeba dispar* complex in our study and that of Algeria, while in Kenitra the complex *E. histolytica* / *E. dispar* comes first. As against the *Dientameaba fragilis* ranks first in Tunisia.

Regarding flagellates, *Giardia intestinalis* is dominant in all studies, although its prevalence remains low in our. The *Enterobius vermicularis* is the parasite most implicated in helminth in Algeria and Tunisia in us as *Ascaris lumbricoides* was the predominant species in Kenitra [4,3,5]. It should be noted that parasitism is dominated by protozoa and helminths rarely in these studies including ours (Table 2).

Table 2 [3, 5, 4] : table comparing the results of three studies of the Maghreb countries

	Algeria Benouis 2013	Tunis Ayadi 2006	Maroc El guamri 2005	Marrakech Notre étude
amibes	<i>E coli</i> 18,85 %	<i>D fragilis</i> 30,3%	<i>E. histolytica/ E. vanish</i> away 26,4%	<i>E. H/E. vanish</i> away 28,9%
flagellés	<i>G. intestinalis</i> 15,32%	<i>G. intestinalis</i> 17%	<i>G. intestinalis</i> 22,7%	<i>G. intestinalis</i> 4,1%
helminthes	<i>E. vermicularis</i> 2,82%	<i>E. vermicularis</i> 3%	<i>A. lumbricoides</i> 11,87%	<i>E. vermicularis</i> 0,9%

Compared to studies in other continents, our situation is intermediate between Europe where the prevalence of intestinal parasites was low (9.2% in Italy) and the tropics where it is often greater than 50% [6]. This is particularly the case in sub-Saharan Africa from 36 to 40% and Asia 64.5% [7, 8, 9].

Polyparasitism frequency is low to those observed in other works in Kenitra Morocco and Settat [4,10]. This can be explained by the category of our patients are adults who adhere certainly better compliance with the rules of hygiene compared to children.

Prophylaxis is the best way to fight against intestinal parasites. It should focus on controlling several parameters that reflect a low level of hygiene and thus predispose to infection with intestinal parasites. These parameters include factors promiscuity in the family home, the quality of housing, waste disposal or fecal hygiene.

CONCLUSION

We note that the prevalence of intestinal parasites is low. It is similarly true in relation to the level of high enough hygiene and regular inspection enjoyed the military category of patients. Control of parasitic scourge can only be achieved by repeated and coupled with sanitation deworming, environmental sanitation and health education.

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