

**Prevalence of *Hymenolepis nana* in children in
Baghdad- Al-Resafa**

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Summary

From March to November 2004 a total of 634 stool samples from the children coming to the hospitals, cure centers and randomly from the children of kindergarten and primary schools. General stool examination and precipitation methods were performed on each specimen, the infection rate of *Hymenolpes nana* 1.8% among children for both Gender(male and female) for different ages that had been recorded the highest rate for (4- 6)year is 2.94% and the lowest rate for (9-12)year is 1.4%. Seasonal variation were discussed, that August was recorded the highest rate 5.8%.

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تأريخ التسليم 6/5/2007

تأريخ القبول 3/6/2009

الخلاصة

جمع 634 عينة براز من الاطفال الوافدين الى المستشفيات والمراكز الصحية المنتشرة في قاطع الرصافة من بغداد فضلا عن رياض الاطفال والمدارس الابتدائية ابتداء من شهر اذار ولغاية نهاية شهر تشرين الاول 2004 . فحصت العينات مجهريا بطرقتي الفحص المباشر وطريقة التركيز للبحث عن بيوض ديدان الشريطية القزمية وقد اظهرت الدراسة نسبة اصابة 1,8 % لكلا الجنسين (الذكور واناث) وباعمار مختلفة وسجلت اعلى النسب للاعمار (4-6) سنة سنة وبلغت 2,94% وادناها للاعمار (9-12) سنة 1,4% اما انتشار الاصابة خلال اشهر السنة فكان شهر اب متوقفا حيث سجلت نسبة اصابة بلغت 5,8% مقارنة بالاشهر المشمولة بالدراسة .

Introduction

Hymenolepis nana is the cestode that most commonly infects humans, especially school- aged children.

Hymenolepiasis most frequently occurs in worm dry regions of the developing world, where exposure to human feces results in hand -to — mouth infection is acquired through ingestion of eggs in contamination food or water; directly from fecally contaminated fingers (autoinfection). Direct person- to-person spread of *H.nanct* may occur.(1)

Human become infected with *H.nana* when they ingest infective eggs, most commonly by direct

fecal-oral exposure. The eggs pass into the ileum and hatch in the intestine liberating oncospheres that enter mucosal villi and develop into cysticeroids, there rupture into lumen and grow into adult tape worm.(2)

Mature adult worms, measuring 35-45 mm in length and comprising 150-200 proglottids result within about 3 weeks. Self-mating between adjacent proglottids generates hundreds of eggs, some of which penetrate intestinal villi and some of which pass into the feces. Occasionally, rodents may ingest the eggs in feces and serve as incidental hosts and reservoirs for spread of infection. Although infection is usually asymptomatic, autoinfection (which is common) or intense exposure may result in asymptomatic infection caused by a heavy parasite burden.(2) In Iraq, many investigations have been done along these lines and dealt with the prevalence of Hymenolepiasis in children (3,4,5,6 and?) Kadhim(3) recorded the infection with *H.nana* 5.4% in three regions in Baghdad (Al-Mansour, Al-Shulla, Al-Yasfia). Al-Hamdani (4) examined 544 stool samples for all ages from five towns around Baghdad city (Al-Rashdia, Al-Madaien, Al-Taje, Abo-Graib and Al-Fahama) and found that the prevalence of *H. nana* was 10%. Abraham (5) examined 723 stool samples from children at primary schools at Baghdad, Al-Resafa and recorded that infection with *H.nana* was 2.3%. Jaafar (6) examined 600 stool samples from primary school children in Al-Dura at Baghdad city, and found that infection ratio with *H.nana* was 11%. Arif(7) examined 230 stool samples from two orphan homes in Baghdad and found that infection ratio with *H.nana* was 5.7% .

Material and Methods

A total of 634 stool samples were collected from the hospitals, cure centers and randomly from the children of kindergarten and primary schools of (1-12) years old and two genders (319 males and 315 females). A single stool sample was collected in special plastic cups, each was labeled with child's name and number were distributed with instruction to bring a morning stool specimen on the following day. Stool

Examination was performed by two methods : Direct smear method was achieved for microscopic examination, and this is done by preparing two clean dry microscope slides, one the a drop of normal saline and the other with a drop of iodine solution, using clean fine wood stick, the fecal specimen was touched in different sites of the sample, then mixed thoroughly with each drop of normal saline and iodine solution on the prepared two slides. Each slide was covered by cover-slip. Precipitation method: Flotation method by saturated salts solution,(8) .

Results

The infection rate of *Hymenolepis nana* 1.8% among children for 634 stool samples, table (1), As regard to sex distribution 7 male 1.1% while 5 female 0.8% , table (2). As regard to age distribution (4-6) year appear the highest infection rate 2.97% table(3). As regard to seasonal variation, August appear the highest infection rate 5.8%table (4).The infection peak at spring 3.42%table(5).

Table (1): Prevalence of *Hymenolepis nana* among the children from March to November 2004.

Examined number	Infected Number	%
634	12	1.8

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Table (2): Prevalence of *Hymenolepis nana* distributed as Gender.

Examined number	Infected Number ♂	%	Infected Number ♀	%
634	7	1.1	5	0.8

Table (3): Prevalence of *Hymenolepis nana* distributed as

ages	Examined number	infected number ofc?	Infected number of 9	%
(1-3)year	97	0	0	
(4-6)year	168	3	2	2.97
(7-9)year	163	2	2	2.4
(9-12)year	206	2	1	1-4 ____

Table (4): Prevalence of *H.nana* distributed as months of year.

months	Number of samples	Number of infected	Infected number Ofrj	Infected number of\$	%
March	14	0	0	0	0
April	50	2	1	1	4%
May	82	3	2	1	3.7%
June	80	0	0	0	0
July	70	1	1	0	1.4%
August	86	5	3	2	5.8%
September	87	1	0	1	1.14%
October	80	0	0	0	0
November	85	0	0	0	0

Table (5): Prevalence of *H.nana* distributed as seasonal variation.

Season	Examined number	Infected number	%
Spring Summer	146 236	5 6	3.42 2.54
Autumn	252	1	0.39

Discussion

In this investigation, the total rate of infection with *H.nana* (1.8%) is very low in Baghdad Al- Resafa as comparative with Wisarn (9) that 3,2% in Babylon province and Jassim (i 0) that 8% in Kirkuk city .That mean there is improvement in personal hygiene and environmental sanitation in Baghdad more than other provinces. From the 634 stool samples include: infected of males 7(1.1%) more than infected of females 5(0.8%), that similarly to Al-Jeboori and Shafiq (11) and Jassim (10) that result from playing males outside the house more than females.

Causes: Rarely, infection can result from ingestion of foodstuffs contaminated with insects. However, infection generally follows hand to-mouth exposure to feces (fecal-oral) in situations in which personal hygiene and or sanitary disposal of human sewage is inadequate.

Age: Infection can occur in persons of any age; however, because of increased likelihood of exposure to human feces, school-aged children have the highest risk of hymenolepiasis. Its uncommon among adult .In this study highly significant differences were founded in the rate of infection between ages,(4-6) year was recorded the highest rate 2.97% that due to low personal hygiene and they depend for themselves to use the bath.

Seasons: There are highly significant differences were founded in the rate of infection between months, Spring was recorded the highest rate 3.42% of infection, that mean the parasite was active in worm weather than cold weather. Distributed of infection as months of year appeared that August recorded the highest rate 5.8% of infection that may be the study region (Al - Resafa)was suffered from lack of tap water especially at Summer, so the people used water pump that raised the pollution of tap water, on the other hand increased in the numbers of rats and mice in Summer which playing role in the infection as a reservoir factors.

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