

Incidence Rate of Pinworm (*Enterobius Vermicularis*) In Children Aged From 1 To 7 Years in El-Marj, Libya

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المخلص:

اشتملت هذه الدراسة على 253 عينة براز تم جمعها من الفئات العمرية ما بين 1 سنة الى 7 سنوات ,هذه الدراسة كانت محدودة في سنة 2018, جمعت هذه العينات من خمس مختبرات في مدينة المرج الليبية هي (مختبر الرازي للتشخيص والعلاج , مختبر مستشفى الريادة, مختبر ابن زهر, مختبر طبيبك ومختبر المجهر). ولقد اجريت هذه الدراسة لتحديد نسبة الاصابة بالديدان الدبوسية *E. vermicularis* وعلاقتها مع الجنس والعمر. من بين 253 عينة براز تم فحصها بالمجهر الروتيني تحصل الطفيل *E. Vermicularis* على أعلى نسبة (38.7%) في حين ان نسبة *E.histolytica* (36.4%) و (31.3%) اصابة بالجيارديا *G. lamblia* ، في المقابل سجلت أقل معدلات الاصابة لكل من طفيل *E.coli* وديدان الاسكارس *Ascaris*. خلال هذه الدراسة تم استنتاج انه لا توجد فروق معنوية بين معدل الاصابة بالديدان الدبوسية *E. vermicularis* بكلا من العمر والجنس وهذا ما خلصت له الدراسة.

Keywords: *Enterobius vermicularis*, children, laboratories, El marj-Libya



1. Introduction:

Enterobius vermicularis is known as worm pinworm and is one of the species of nematodes, a parasite of Enterobiasis, Oxyuris vermicularis. (Caldwell, 1982) spread around the world and is more common in temperate and tropical zones. It is estimated that about 200 million people are infected annually with this parasite especially in crowded institutions such as day care centers, schools, hospitals and orphanages (Gulnaz and Nizami, 2006) Invade laparotomy worm in the cecum, colon and migrate into the anus to lay eggs, causing serious infection medically though they may cause serious disruption, especially when children in rare cases when the invading worm tissue, infection by ingestion of eggs by contaminated hands or tomorrow Mature worms, usually in the terminal ileum or cecum where after fertilization, the female worm migrates to the perineum perianal where this air stimulates the worms lay eggs (Murata, 2002). Female presence causes severe itching in the rectal area and scratches around the affected area, a process repeated friction between hands and buttocks lead to adhesion of eggs in the fingers and endogenous infection called Autoinfection (Horn, 2002) human parasite that infected through direct contact with an infected person permitted by ingestion of contaminated food and water, and scarcely move white inhalation infection transfused in polluted air. Infection with this parasite usually shows no symptoms; however, the incidence of these worms' itchy anus long abdominal disorders (Kim and et al., 2003).

The most common injury prone persons are children living in crowded environments and not interested in hygiene. Adults are less common age groups of worm infection, With the exception of children infected with these worms sometimes, the incidence in adults produces granular ulcers at the anus and also often include female reproductive system, a worm inside the Appendix sometimes irritation may cause appendicitis. (Yildirim et al., 2005).

There are many medications that can help to eliminate the worm and the most common of these drugs (mebendazole) usually taken in one dose, or maybe in two weeks. the whole family must take such medicines, or you won't be an effective result. this for medicines only kill adult worms and therefore has to be caring for the hygiene is extremely important to get rid of this infection. You can apply Vaseline or anti-itching creams and ointments 2-3 times a day to reduce the itching caused by movement of the worm (Neva et al, 1994).



2. Material and methods:

This study was conducted in the Elmarj, Libya, which lies east of Benghazi about 94 km, and to the West of Albayda City 106 km, Elmarj one of the Libyan cities, characterized by a stunning rural vanguard. (<https://en.wikipedia.org/wiki/Marj>).

2.1. The collection of samples:

The study included 253 sample collected systematically age 1 to 7 years, these samples collected from "laboratories" Elmarj, quality and accuracy in the presentation of results, these laboratories including (Lab Ibn Zahr, Razi Lab "medical tests", Al-Riada lab, Al-Mejhr lab, and finally a Lab of Tabeok).

This study was limited to 2018. Various laboratories in the city uses different analysis types of professional ELISA for serum and blood analysis, while the optical microscope for analysis of feces to determine if the sample is infected. The lab technician in our existence we researchers, take a drop of the stool sample and put it in a test tube and then take a drop of iodine added to it and move it by glass rod, then put the mixture on the slide and put it under a microscope and 40 measure electrical find eggs or larvae of worms.

2.2. Data analysis:

Was the calculation of worm infection rate and its relationship with age and sex, using the SPSS program, so use the chi-square analysis. To verify a relationship between infection and data.

3. Results:

3.1. the incidence of intestinal parasites in children under the age of 7 years in the El-marj-Libya

In this study had a higher incidence of intestinal parasites of 253 *Enterobius vermicularis* was (38.7%), *Entamoeba histolytica* infection (36.4%), while incidence of intestinal *Giardia lamblia* (21.3%), the parasite *Entamoeba Coli* and the kind of worms (*Ascaris*) were less infection rate by 2.8% and 0.8% respectively.



Table (1) incidence of children under 7 years with intestinal parasites in the El-marj Libya

Intestinal parasite	Number of infected=253	Prevalence%
<i>E. vermicularis</i>	98	38.7
<i>E. histolytica</i>	92	36.4
<i>G. lamblia</i>	54	21.3
<i>E. coli</i>	7	2.8
<i>Ascaris</i>	2	0.8
Total	253	100.0

3.2. Worm infection rate *E. vermicularis* and its relation to the sex of the children:

Results of the samples in table (2) shows that of the 253 , males sample had a higher incidence than females, 139/53 (20.9%), while the incidence in females was 114/45 (17.8%) . There is no significant difference ($P>0.05$) in incidence with sex of children.

Gender	Number examined	Number of infected	Prevalence %	P-value
Male	139	53	20.9	P > 0.05
Female	114	45	17.8	
Total	253	98	38.7	

Table (2) the relationship between *E. vermicularis* worm infection and sex of children.

3.3. Incidence of *E. vermicularis* and its relation to the age of children:

The results showed that there is infection with worm at all ages but, lesser incidence in children the one-year (2.8%), where the highest proportion of (7.9%) were for two and three -year children. The study found that There was no significant difference ($P>0.05$) in *E. vermicularis* infection and age.

Table (3) Incidence of *E. vermicularis* in children in relation to age.

Age(years)	Number examined	Number infected	Prevalence %	P-value
1 year	17	7	2.8	P > 0.05
2 years	43	20	7.9	
3 years	48	20	7.9	
4 years	41	14	5.5	
5 years	33	12	4.7	
6 years	41	16	6.3	
7 years	30	9	3.6	
Total	253	98	38.7	

4. Discussion

Epidemiological reports from the Libyan cities to intestinal parasites infection still include a large population (Kassem et al., 2007). In this study of intestinal parasites were detected in patients complain of digestive symptoms in some laboratory area Elmarj-Libya. Some studies have found similar results more or less of intestinal parasitic infections in Libya (Bughrara et al., 1999) found around (31.9%) Children were infected with intestinal parasites in several hospitals in Benghazi. Also, some primary school children in Derna city (31%) (Sadaga and Kassem, 2007). There are also reports a higher rate of samples in schoolchildren in Tripoli (42%) (Ben Musa, 2007) and also children's Hospital Sirte (56%) (Kassem et al., 2007). In General, the observed rates of intestinal parasitic infections in Libya similar to those recorded in many other countries. In this study was the incidence of worm 22.9%, with results in Libya less than this study including study of intestinal parasites in an area where he found that Executive worm infection rate (7.5%) (Al-kilani et al., 2008). Pre-school children in daycare centers in Tripoli offered relatively high rates of worm (30%) (Burshan, 2004). There are no differences in infection rates between males and females in this study, because of constant exposure to the external environment and proximity to the worms ' eggs in different ways and This was confirmed in several studies. (Omar et al., 1995; Adams et al., 2005; and Noor Azian et al., 2007).



In the current study, the highest rate of infection at the age of two years old and there is no difference between other ages which are somewhat consistent with other studies, (Kang et al., 2006; Remm, 2006). When conducting any survey for worm, children are the target group, for the different behaviors and not take the necessary measures for prevention and hygiene in General without other adults. Finally, the worm prevalence rate was relatively high in the El-marj region, consequently, should publish educational and awareness programs among the population to reduce infection and no reinfection.

5. References:

1. Adams, V.J.; Markus, M.B.; Adams, J.F.; Jordan, E.; Curtis, B.; Dhansay, M.A.; Obihara, C.C. and Fincham, J.E. (2005). Paradoxical helminthiasis and giardiasis in Cape Town, South Africa: epidemiology and control. *Afr. Health Sci.*, 5:276-280.
2. Al-Kilani, M.K.; Dahesh, S.M.; El Taweel, H.A.:(2008). Intestinal parasitosis in Nalout popularity, western Libya. *J Egypt Soc Parasitol.*;38:255-64.
3. Ben Musa, N.A. (2007). Intestinal parasites in school aged children and the first case report on amoebiasis in urinary bladder in Tripoli, Libya. *J. Egypt. Soc. Parasitol.*, 37:775-784.
4. Bughrara, S. L.; Ali, M. Y.; Khan, A. H.; El-Sharkasi, N. and El-Refi, H. (1999). Incidence of cryptosporidium infection in patients with diarrhea. *Rev. di Parasitol.*, 60:169-172.
5. Burshan, N. M. K. (2004). Parasitic infections and their impact on growth of preschool children in Tripoli, Libya. Dr. PH Thesis HIPH, Alexandria university.
6. Caldwell, J.P. (1982). Pinworm (*Enterobius vermicularis*) Canadian Family Physician 28: 306-309.
7. Gulnaz, C. and Nizami, D. (2006). The relation between *Enterobius vermicularis* infection and enuresis 40- 149-151, Turkey. *European Journal of General Medicine.*
8. Horne, P. D. (2002). First evidence of enterobiasis in ancient Egypt. *Journal of Parasitology.* 1021-1019.
9. Kang, S.; Jeon, H. K.; Eom, K.S.; Park, J. (2006). Egg positive rate of *Enterobius vermicularis* among preschool children in Cheongju, Chungcheongbuk-do Korea. *Korean J Parasitol.*, 44:247-9.



10. Kassem, H. H.; Zaed, H. A. and Sadaga, G. A. (2007). Intestinal parasitic infection among children and neonates admitted to Ibn-Sina hospital. *J. Egypt. Soc. Parasitol.*, 37: 371-380.
11. Kim, B.J., Lee, B.Y., Chung, H.k., L.Y.S, Lee K. H., Chung, H.J. and Ock, M.S. (2003). Egg positive rate of *Enterobius vermicularis* of primary school children in Geoge Islom. *Korean Journal of Parasitology* 41(1), 75-77.
12. Murata, K.E. (2002). Fatal infection with human pinworm (*Enterobius vermicularis*) in captive chimpanzee. *Journal of Medical Primatology* 31104108.
13. Neva, F.A.; Brown, H.W. and Lange, (1994): *Basic clinical parasitology*. 6th ed. Norwalk, Conn.: Appleton.
14. Noor Azian, M. Y., San, Y. M., Gan, C. C., Yusri, M. Y., Nurulsyamzawaty, Y., Zuhaizam, A. H., Maslawaty, M. N., Norparina, I., & Vythilingam, I. (2007). Prevalence of intestinal protozoa in an aborigine community in Pahang, Malaysia. *Tropical biomedicine*, 24(1), 55–62.
15. Omar, M. S., Mahfouz, A. A., & Abdel Moneim, M. (1995). The relationship of water sources and other determinants to prevalence of intestinal protozoal infections in a rural community of Saudi Arabia. *Journal of community health*, 20(5), 433–440.
16. Remm, M. (2006). Distribution of enterobiasis among nursery school children in SE Estonia and of other helminthiases in Estonia. *Parasitol Res.*36-99:729.
17. Sadaga, G.A. and Kassem, H. H. (2007). Prevalence of intestinal parasites among primary school children in Derna district, Libya. *J. Egypt. Soc. Parasitol.*37:205-214.
18. Yildirim, S.; Nursal. T. Z.; Tarim, A.; Kayaselcuk, F.; Noyan, T. (2005). A rare cause of acute appendicitis: parasitic infection. *Scand J Infect Dis*; 37: 757-9.

