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Study of Pinworm infection in children At Al-kut city

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Abstract:

The present work took place in Wasit Governorate, Iraq, and involved 60 stool samples (40 boy and 20 girl) from children suspected of parasitic infections between January and June 2021. When examined with direct moist iodine stain and Lugol's, 30 samples (50%) of 60 patients were positive, and 16 samples (26.6%) of 60 patients have been positive when examined with Scotch tape from Enterobius vermicularis. According to the work, the incidence rate in rural places has been higher compared to it in the urban areas, with a rate of 32 (53.33%) in rural areas and 28 in urban areas (46.66%).

Keywords: Pinworm, Scotch tape, Lugol's iodine

Introduction

Enterobius vermicularis can be defined as a parasitic nematode known as a pinworm or threadworm which result in enterobiasis. Pinworm transmission occurs when an infected individual comes into direct contact with an uninfected person (ALkinany and Rahi 2020). There are numerous economic issues affecting both female and male health all over the world (jex et al., 2011). The helminthes infestation Enterobius vermicularis (thread worm) is very common and can be found all over the world. It is approximated that over 40 million cases occur in USA yearly. Making it the major worm infection in America. As a result, anyone can contract Enterobius vermicularis, but schoolchildren aged 5 to 12 years old are the most commonly infected. Thread worm infections affect people of all the socioeconomic classes; none-the-less, human to human transmission is desired by close living conditions. It is very common for diseases to be passed down through the family. (AAMJ, 2011). The organism, Oxyuyris

vermiculais, was initially recognized on the continents by Kallinnaeus in 1758, and it is typically limited to humans, though associated species might infect the animal (Song et al., 2003). They are about 2-13 mm long and resemble wriggling thread white cotton. They are common in children, yet they might spread to the entire family. The rectum is where the pin worm lives. Children in nurseries, schools, and at home spread eggs stuck to their fingers or beneath their nails. They are swallowed easily by the mouth and might be transferred through sharing underwear or bath towels, among other methods, contact anything they contaminate within the home, like doorknobs, underwear, bed linen, toilet seats, baths shared toys, and food (Prodigy, 2004).

Material and methods

Sample Collection

The samples have been collected from children with ages between (1-16) from the two genders, the work has been carried out at Al-Karamah Teaching Hospital, Al-Zahraa Teaching Hospital and samples have been acquired from primary schools in the center of Al-Kut city. These samples were collected through sterile plastic vessels with importance given on collecting exit samples in morning, while an adhesive tape approach has been utilized for collecting diagnose worms and pinworm eggs. A data questionnaire was presented for patients which contains the date of collection, age, gender, also a question regarding the existence of a few disease's symptoms like the presence of anal itching throughout night, abdominal pain, loss of appetite, the existence of infections in the urinary tract, loss of weight or the presence of any other symptom.

Samples Analysis

Microscopic Examination

One drop of normal saline has been added, also a small amount of stool (about 100 mg) was spread on a glass slide in a 1-15 cm area, then covered with a cover slip, while a magnification of 40X was used to examine the samples (ALkinany and Rahi 2020).

Scotch tape method

E.vermicularis might be detected using "scotch cellophane tape" technique, which is used on anal region of children infected with pinworm and allows the ova to adhere to the cellophane tape (ALkinany and Rahi 2020).

Results:

These results showed that 30 samples (50%) out of 60 patients were positive when examined by direct wet and lugol's iodine stain, The results showed that 16 samples (26.6%) out of 60 patients were positive when examined by Scotch tape, Where the percentage was in urban areas 28 (46.6%), and the rate in rural areas 32 (53.3%).

Discussion:

In the presented work, it was discovered that one out of every three people had pinworms. The research found that the infection's percentage in rural areas is higher compared to in urban areas, which is consistent with previous findings (El-Masry et al., 2010; Park et al., 2005). This study is in line with another work carried out in Wasit Province (Al-Jaf, 2018), which found a positive rate (40.4%). This work contradicts the findings of (Russul et al., 2018), who found 39 samples with positive stool (78%) out of 50 stool samples, with 11 negative samples (22%).

E. vermicularis isolates from various nations differ from the tree, and these isolates have been deposited in NCBI-GenBank. The current findings were fairly identical to the ones indicated via Ozcelik et al., (2009), who found that the percentage of E. vermicularis infection in Turkish orphanages has been as high as 80%. (Ozcelik et al., 2009). Rahi, (2010) indicated that the rate of pinworm infection in Wasit province primary schools has been 65.3%; Al – Qadhi et al., (2011) reported that the rate of disease E. vermicularis infection in Baghdad orphanages was 84.3%. Hussein (2015) indicated that the disease's percent in Najaf province (83.9%).

Patients with the highest infection (58.33%) lived in rural areas, whereas those with the lowest infection (41.66%) lived in urban areas. Rahi, (2010) in Wasit province, and Kadir and Amin, (2011) in Sulimania, Iraq, both came up with similar results. People who live in rural areas are more likely to be infected than those who live in urban areas (Herrstrom et al., 2001). In areas in which the infection rates were high, the difference in infection rates could be due to the crowding index as well as the instructional levels of individuals, poorly maintained areas and poor sanitary disposal (Kader and Amin, 2011).

This work provides an extremely sensitive and precise explanation for the molecular detection approach, genetically describing the pinworms collected from children in various Wasit Province

regions. E. vermicularis isolates have been differentiated using molecular analyses that revealed no variations in the examined genes (Ulrike *et al*., 2011).

This work revealed the pinworms' spread in Wasit province, indicating the existence of bad habits in infected children like not washing hands prior to and following eating, when the toilet is finished, the lack of nails, sucking fingers, and a lack of personal hygiene.

Conclusion:

Pinworm can be defined as a parasite that is found all over the world. One of the most effective approaches for detecting pinworm infection is PCR test. It is critical to educate children and parents about the importance of personal hygiene, as well as to plan a comprehensive field work for implementing prevention programs to control pinworm spread and infection.

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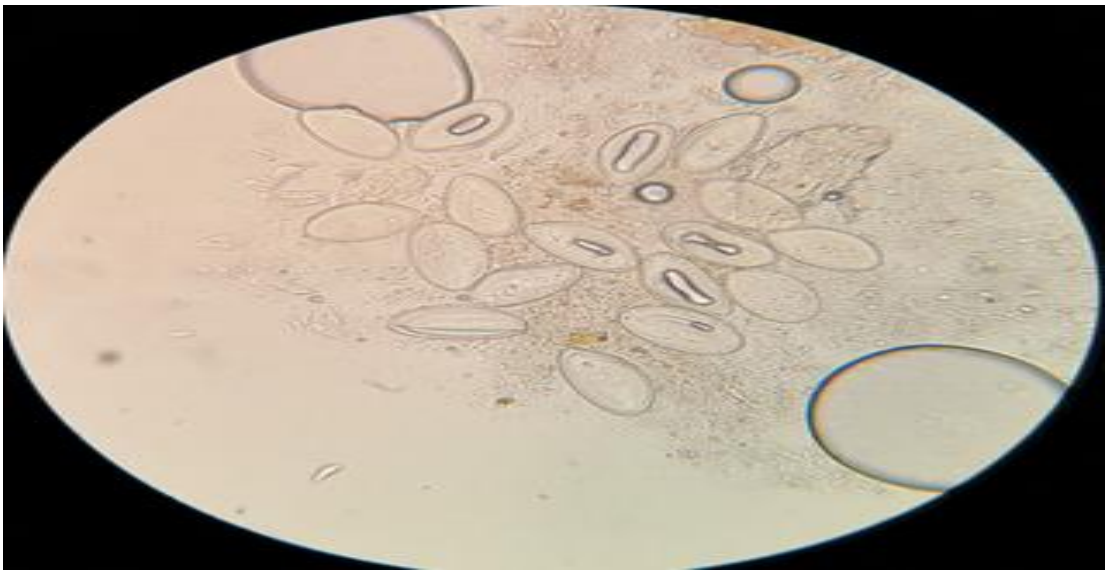
Table (1): A- A Comparison of pin worm based on the examination type. **B-** Comparison between Urban and Rural.

A- Comparison of pin worm according to type of examination

	Direct & Iodine	Scotch
+Ve	30	16
- Ve	30	44
Total	60	60

B- Comparison between Urban and Rural

Gander	Residence		**Total** (%)
	Rural	Urban	
Male	18	12	30 (50%)
Female	14	16	30 (50%)
Total (%)	32 (53.3%)	28 (46.6%)	60 (100%)



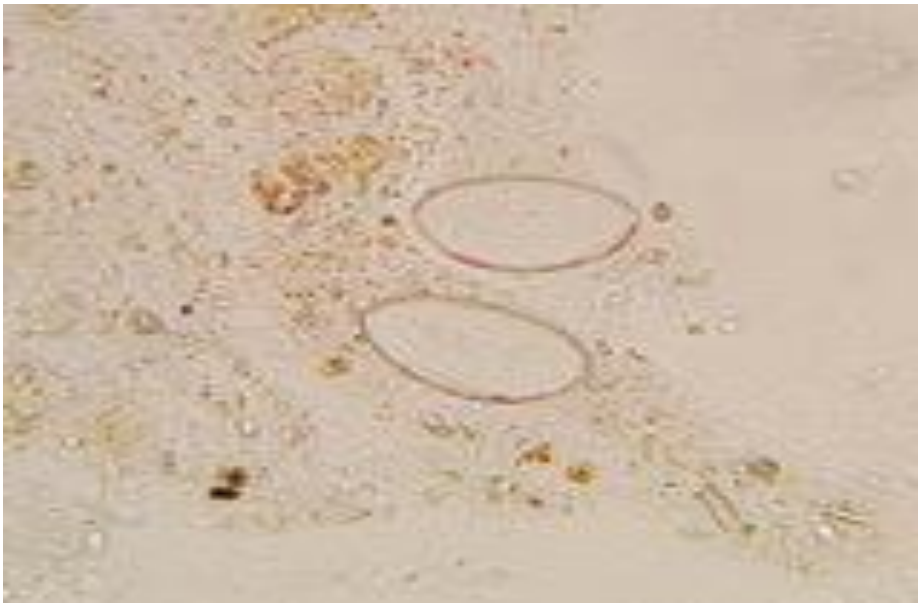


Figure: (1) direct smear of egg (40X), *E. vermicularis* positive in microscopically examination.