

Diagnosis of pin worm at primary schools of Wasit province

Abdulsadah Abdulabbas Rahi - Wasit Uni./ College of Science

تشخيص الدودة الدبوسية في المدارس الابتدائية في محافظة واسط

عبدالساده عبدالعباس راهي - جامعة واسط / كلية العلوم

الخلاصة :-

تم فحص ٣٠٠ طفل في المدارس الابتدائية في محافظة واسط للتحري عن طفيلي الدودة الدبوسية باستخدام تقنية الشريط اللاصق. فحصت جميع العينات في الحال ماعدا القليل من الحالات. أوضحت النتائج ان عدد الحالات الموجبة كانت بين الذكور ١١٦ حالة وبنسبة ٥٩.١ % وبين الأنثى ٨٠ حالة وبنسبة ٤٠.٩ %. أثبتت نتائج التحليل الأحصائي بأنه لا توجد فروقات معنوية في معدل الإصابة على اساس الجنس. أشارت نتائج الدراسة بأن أعلى الأصابات كانت في الأعمار بين ٦-٩ سنة، وفي المناطق الريفية أكثر مما في الحضرية .

Abstract

Three hundred children were examined for detecting of Enterobius vermicularis (pinworm) at primary schools in Wasit province. The cellulose adhesive (Scotch) tape method was employed . All were examined once except for few cases. The incidence among 300 patients was 65.3 % ; that of 116 patients was males (59.1 %) and 80 patients was females (40.9%). There was no difference in infection rate with regard to sex. The peak age of infection was the 6 to 9 year old group. According to the districts , the study appeared a higher incidence in rural areas than urban. This is statistically significant.

Introduction :-

Enterobiasis infection is the most common type of roundworm infection in Iraq. Roundworms are parasites that use the body as a host to stay alive and reproductive. Inside the body, the pinworm's microscopic eggs hatch and grow into adults, measuring up to 13 millimeters, or about half an inch. The worms mature in the intestine and then travel through the digestive system to lay eggs in the anal area .

Many pinworm infections cause no symptoms or cause only mild digestive problems. But if a person was infected with hundreds of worms , more serious symptoms and complications can occur. The good news is that pinworm infections can be treated effectively with medications (Harswick *et al.*, 2006).

Aetiological agent :-

Enterobius vermicularis , commonly known as pinworm, is one of the most common nematode parasites in human, affecting as many as 42 million people in the United States alone(Mahmoud, 2000). Worldwide , an estimated 200 million people are infected. Enterobiasis is the most common among children ages 5 -14 years and can be spread with particular efficiency in institutionalized patients and in the day care setting (Schnell *et al.*, 1992).

Enterobius vermicularis remains confined to the lumen of the gastrointestinal tract and, therefore, is not an invasive pathogen , but mechanical blockage of a portion of the appendix by adult worms may lead to ischemia and secondary appendicitis with perforation (Mondou and Gnepp, 1999). In this patient, abdominal pain and an elevated white blood cell count with neutrophilia prompted appendec-tomy with subsequent histologic evidence supporting a diagnosis of acute appendicitis associated with *E. vermicularis* infection. Adult worms in the lumen of the appendix have also been seen incidentally at autopsy in patients with no prior clinical signs or symptoms and no histologic evidence of acute appendicitis. Appendicitis due to *E.vermicularis* appears to be an uncommon event with an incidence less than 2% in some pediatric studies (Arca *et al.*, 2004) .

Life cycle :-

The life cycle of *E. vermicularis* is relatively uncomplicated. Adult pinworms live freely in the lumen of the large bowel and rectum where they mate. Female worms can produce as many as 10,000 fertilized, unembryonated eggs. At night , the female worms migrate through the anus and deposit their eggs on the perianal skin. The eggs embryonate and become infective shortly after deposition. The eggs of *E. vermicularis* are oval and flattened on one side. They measure approximately $55 \times 25 \mu\text{m}$ (Sun *et al.*, 1997).

Methods :-

Three hundred specimens were collected as soon as possible after patient arise. Pat the perianal area with sticky side of cellophane tape (Scotch tape), attach to a glass slide, and the slide was examined under high power field microscopy (Olympus CH2).

The most satisfactory means of diagnosing pin worm infection by the recovery of eggs or female worms from the perianal region. Only 5% to 10% of infected persons have demonstrable eggs in their stools. If feces is submitted for examination, only the surface should be sampled. Enterobiasis often is present in multiple family members; therefore, it is recommended that all members of the family be tested. Female worms or eggs of them was demonstrated on the tape by microscopic examination. The proportion of positive specimens correlate with severity of disease. Eggs, if present, may be immature, embryonated (with viable or dead larvae).

Results and Discussion:-

A study was undertaken to determine if age, gender and district could make a difference to the rates of enterobiasis infection. A total of 300 children (196 positive and 104 negative) from 8 primary schools in eight districts of Wasit Province, Iraq, were examined between December 2004 and April 2005.

Table(1) shows that higher infection was among children between (6-9) years old than children (10-12) years. These results with agreement of results were recorded by (Arca *et al.*, 2004).

Table (1) Distribution of Enterobiasis according to the age groups

Age groups	+Ve cases	-Ve cases	Total
(6-9)years	106	64	170
(10-12)years	90	40	130
Total	196	104	300

Table (2) shows the distribution of positive cases according to the age and gender groups, and the male was predominance. There was no difference in infection rate with regard to sex. The peak age of infection was the 6- to 9-year-old group (Burkhart and Burkhart, 2005).

Table (2) Distribution of positive cases in relation to age and gender groups

Age groups	+ve cases	+ve cases/ Male	+ve cases/ Female
(6-9)years	106(54%)	60(30.5%)	50(25.4%)
(10-12)years	90(46%)	56(28.6%)	30(15.5%)
Total +Ve cases	196(100%)	116(59.1%)	80(40.9%)

The results in table (3) appeared that the infection was the highest among peoples who lived in rural areas than urban areas (Harswick *et al.*, 2006).

Table (3) Distribution of positive cases in relation to the age and district

Age groups	+ve cases of Rural area	+ve cases of Urban area
(6-9)years	74(37.75%)	48(24.5%)
(10-12)years	40 (20.4%)	34(17.3%)
Total +Ve cases	114(58.16%)	82(41.84%)

The study showed a decrease in infections among children who lived in city. This decrease was significant in comparison to the decrease shown among children who aged between (10-12) years old (Burkhart and Burkhart, 2005). The study therefore showed that hygiene high risk individuals played a key role in the prevention of **enterobiasis** while there were increase in infections among children who lived in rural areas. Also the infection in male was higher than female (Kucik *et al.*, 2004).

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