Ancylostoma doudenale larva dermal and pulmonar infestation in patient farmers .

Dr.Maher Ali al-Quraishi / Babylon University / College of science/Biology dept.

Summary

During the period from November 2005 to July 2006, **412** stool samples were examined from villagers whom engaged in the cultivation of lettuce crop. They were visitors to the dermatology and chest departments in Hilla hospital complaining of dermatitis, and **39** sputum samples also collected from the same model of lettuce farmers.

The total percentage of infection among the total farmers harvesting lettuce is 63.23%, 55.90% is the overall percentage of those suffering from skin manifestation due to the *A.duodenale* parasitic infection. While the total percentage of other infected farmers infected are not engaged in the same plant is 8.44%, 7.69% of them suffer from skin manifestation of the disease. The total percentage of patients without dermatitis was 5.55%. Sputum tests showed that the parasite larvae mentioned still infest a lot, especially rural people with overall incidence about 17.94% with *A.duodenale* and chest problems It considered as the main cause of the dermatitis and chest infections to those visiting these centers with misleading diagnosis.

Introduction :

Among the biggest problems facing the medical parasitology, is the problem of controlling and eliminating the spread of human worms, which became a problem of the age. Approximately 150 species of worms can infest and cause multiple diseases in children and adults leading to the affection of the economy in many of the countries of the world (Zangana & Fawzi, 1999). *A.duodenale* is one of the most prevalent worms, which spread between the 45 north and 30 southern hemispheres where more than half of the population lives in the globe. The latest statistics records that nearly 50% of population of those infected regions form a quarter of the population of the globe (Mapyaw & Xoa , 1985).The first recorded casualties in Iraq has been carried out by two scientists Denecke, 1954; Bailly, 1955.

Adult worms live in the intestines and feed on blood and tissue fluids, and the mucous membrane of the intestine. Infection usually occur as the result of larval penetration of the skin when the patient become in contact with fasces or contaminated materials, causing allergy and sensitivity leading to the appearance of maculo-papular rash with itching .In some cases the entry of bacteria causing serious skin complications. The presence of larvae in the lungs and bronchi leading to pneumonia or in extreme cases causing hemorrhage and anemia (Al-Hadithi and Habash, 1986). Many scientists and researchers worry about this parasite which causes damage as a result of infection therefore they conducted a lot of researches to record injuries. Iraq is one of the countries which have the nature and the atmosphere that helps the spread the *A.duodenale* worm (Soproonof, 1985). From 4973 examined patients in Basra the rate of infection was 3.4% (Rhadi, 1994). And from 345 examined in Muthanna the incidence was 0.9% (1988) and from 1820 examined in Erbil, Baghdad, Babylon the infection rate was 0.1%, 4.1%, 1.0%, respectively (Niazi *etal*.,1975). While the infection rate among 404 patients examined in the city of Mosul was 20.0% (Al-Hanoon& Hayatee, 1980). And 0.7% from 2680 examined in the city of Najaf (Al-Nahi& Alaa, 1998). Layne (2004) found that 2 per 1000 infected children by *A.duodenale* per year.

The incidence of infection somewhat unequal in Arab countries, e.g. in the city of Zafar in Oman there is high incidence among children in primary schools, where it is about 23.4% (Jassim, 1996). While the infection rate by this parasite is 0.4% among

other intestinal worms in the city of Riyadh in Saudi Arabia (Abdel-Hafez *et al*. 1987). The incidence of this worm is very high in Thailand (92.5%) if compared with the infections of the rest of other worms, the incidence of dwarfs worm (*H.nana*) is 5.5% and 0.7% for(Ascarisis) (Keittivuti *et al*.,1982). The injuries with hook worm still a big problem because it causes many diseases and infections in different parts of the body.

The objective of this study:

1- Knowledge of the infection incidence rate among the population of the villages of the city of Hilla.

2-Knowing the complications of these worms which gives abnormal presentation.

Materials and method

412 stool samples from suspected rural and urban citizens and **39** sputum samples from other patients whom complaining of hemoptesis and other respiratory tract symptoms are collected in the chest health center from Sreadeb, Alkhamessia, Almaemera and Alruffaite in Babylon governorate. By differentiation of the different samples into groups, the stool samples are examined in Kuffa medical institute laboratories while the other sputum samples are examined in the laboratories of chest health center in Hilla governorate by using the following techniques:

(1) Direct smear test: (stool test)

Drop of normal saline or distilled water placed in one side of a glass slide and about 1gm of stool was mixed with wood stick thoroughly and then covered with cover slide. Same procedure is repeated in the opposite side of the same slide after addition of iodine solution in order to stain the eggs if the former technique does not reveal any finding. After the examination of ready sample by light microscope, hook worm ovum were seen clearly surrounded by thin smooth shell with retraction of cleavage leaving a clear space.

(2) Simple stains methods:

Sputum taken from the patients placed over the slide, examined directly under light microscope to visualize the larvae. In certain circumstances it is very difficult to see it, so simple stain method is used as an alternative. For this purpose a sputum sample placed on the slide and fixed by burner lamp then a drop of sefranine or crystal violet is placed over the sputum. After one to two minutes interval the slide washed with taped water smoothly, then examined under light microscope to visualize the larva in the positive sample clearly.

In most instances, it is very clear to see the hookworm ovum with thin smooth shell and there is retraction of cleavage leaving a clear space. This will give an excellent and positive result.

The biostatical work carried out by using chi-square, to identify the least significant differences at $p>0.05$ %.(Al-Rawi, 1989).

Result and discussion:

During the period extending from November 2005 to July 2006 **204** stool samples were collected from villages farmers whom cultivate lettuce cropping and **154** samples from other rural whom seeding other plants and **54** stool samples from other patients visiting the dermatological department in Hilla hospital from different ages and gender. **39** Sputum samples also collected from the first group. Our attentions are focused on this group whom attending the hospital complains from sever itching, hypersensitiraty with signs of dermatological inflammation in the same sites with or without cough. Samples differentiated as shown in tables 1,2,3,4.

This study proved that there is an epidemic of *A.duodenale* infection in Babylon governorate due to the use of human and animals waste as manure during

implantation and seeding of the lettuce plant. From data collected as shown in table 1, *A.doudenale* is still widely distributed parasite and seems to be a health hazard in that regions . The total incidence of infection in rural citizens is 63.23% and this seems to be high if compared with the result documented by (AL-Quraishi, 2002) in Hilla city and its adjacent villages.

The total incidence for other rural practicing other plants was less (8.44%) as shown in table 3 .(5.55%) is the percentage of infection collected from patients visiting the dermatology center in general Hilla hospital without dermatitis as shown in table 4 . This seem to be normal result because the use of the human and animal wasts for seeding and other agricultheral purposes although it seems to be high if compared with the result documented by (Al-Quraishi 2002).

Most of patients visits the dermatology department are complaining of sever itching ,skin lesions extend from simple maculo-papular rash to sever infections in the lower extremities associated with cough. This is the major complain leading them to visit the dermatological dept. and chest center for help with misunderstanding their problem leading to misdiagnosis with other dermatological diseases like contact dermatitis , pediculosis , skin infection or acute bronchitis , without any change in their heath. The incidence of infection was decreased 5 month after treatment with suitable therapy and the use of other techniques other than human and animal manure in addition to encourage population not to defecate or urinate in rivers or near plants. This was normal habits in the mentioned regions. Cough stop, skin lesions healed and there was a decline in symptoms in most patients infected by this parasite .Our study reveled that the incidence of infection by this parasite is the primary cause. As shown in table 1, the percentage of the total sufferers with dermatitis lesions was 55.90% among lettuce farmers. While it was 7.69% among other farmers (table 3) and the incidence was Zero among the visitors of the dermatology dept.. Sputum samples were collected from the same patient illustrated in table 1 to discover the main cause of cough in those patients. The samples gives the finding shown in (table 2) with incidence rate 17.94%.

Table 1 Illustrated the villagers who practicing lettuce agriculture with dermatitis.

Age	No	Patients positive stool test	% of sufferer	P.with posit. stool and dermatitis	% of sufferers
6-12	**34**	**7**	**20-58**	**5**	**71.42**
12-18	**73**	**51**	**69.86**	**32**	**62.74**
18and above	**97**	**68**	**71.13**	**34**	**49.27**
TOTAL	**204**	**127**	**63.23**	**71**	**55.90**

Table 2 Illustrating infected lettuce group patients with different ages in rural area with dermatitis and positive sputum test.

Age	No	Patient positive stool test	%of sufferer	Patients with anemia and hemoptesis.	Patients with positive sputum test	%of sufferer
6-12	**34**	**7**	**20.58**	**4**	**2**	**50**
12-18	**73**	**51**	**69.86**	**22**	**4**	**18.18**

18 and above	**97**	**68**	**71.13**	**13**	**1**	**7.69**
Total	**204**	**127**	**63.23**	**39**	**7**	**17.94**

Table 3 Illustrated the villagers that practicing other agriculture with dermatitis.

Age	No	Patients with positive stool	% of sufferer	P.with +ve. stool and Allergy.	% of sufferer
6-12	**27**	**1**	**3.70**	**/**	**/**
12-18	**59**	**4**	**6.77**	**/**	**/**
18and above	**68**	**7**	**10.29**	**1**	**14.28**
TOTAL	**154**	**13**	**8.44**	**1**	**7.69**

Table 4 Illustrated the total patients attending dermatology department without dermatitis.

Age	No	Patients with positive stool	% of sufferer	P.with pos. stool and allergy	% of sufferers
8-12	**13**	**/**	**/**	**/**	**/**
12-18	**22**	**2**	**9.09**	**/**	**/**
18and above	**19**	**1**	**5.26**	**/**	**/**
TOTAL	**54**	**3**	**5.55**	**/**	**/**

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