

## A Record of Intestinal protozoan infection from different hospitals of Karachi Pakistan

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### ABSTRACT

The prevalence of human Intestinal protozoan parasites with special reference to *Entamoeba histolytica* and *Giardia lamblia* was studied in different area of Karachi City. A total 234 cases were recorded from 7 different hospitals of Karachi during January to December 2011. The total patients of *Entamoeba histolytica* were 136 including 69 male with 50.73% and 67 female with 49.26%, while the total no of patients suffering from *Giardia lamblia* were 98 from which 51 were male with 52.04% and 47 were female with 47.95%.

**Key words:** Protozoan, Infection, Hospitals, *Entamoeba histolytica*, *Giardia lamblia*

### INTRODUCTION

Protozoan intestinal parasites are transmitted when anyone comes in contact with infected feces through contaminated soil, food or water. The most common protozoa are *Giardia* and *Entamoeba histolytica*. *Giardia lamblia* is a flagellated protozoan parasite that colonizes and reproduces in the small intestine, causing giardiasis as the trophozooid of *Giardia lamblia* attaches itself on to the convex surfaces of the epithelial cells of the intestine and cause disturbance of intestinal function, leading to malabsorption of fat due to which patient suffers persistent looseness of bowels, mild steatorrhea, harm by its toxic effect, traumatic and irritative effect.

Amoebiasis is also termed “amoebic dysentery” signifies a condition in which the infection is confined to the intestinal canal and is characterized by the passage of blood and mucus in the stool. Initially the infection is limited entirely to the large intestine but secondarily the parasite migrates to extra colonic areas such as liver, lungs and brain. *E. histolytica* is the third leading parasitic cause of death in humans after malaria and schistosomiasis (Sebastian,

2007). It is also a serious health threat in tropical and subtropical developing areas. (Ohnishi, 2004). The diseases caused by these intestinal protozoan parasites are known as giardiasis, amoebiasis and they are associated with diarrhea. Ashok et al., (1995), studied children’s stool sample from Islamabad hospital for intestinal parasites. Kaur et al., (2002) investigated intestinal parasites of children in Delhi. Waqar (2003) observed the intestinal infection in children of northern areas of Pakistan. Al-Hindi et al., (2005) found Protozoan infection in children of Gaza.

Benetton et al., (2005) conducted epidemiological study in Brazil. Chandrashekhar et al., (2005), studied intestinal parasitic prevalence in school children of Kaski, Nepal. Haque et al., (2006) observed *E. histolytica* in children. Karaman et al., (2006) recorded intestinal infection in municipal sanitary workers in Malatya. Al Harthi and Jamjoom (2007) studied infection due to *Entamoeba* in Makkah Al Mukarramah. Barnawi et al., (2007) detected *E. histolytica* in population of Jeddah city. Fotedar et al., (2007) observed *E. histolytica*, *E. dispar* and *E. moshkouskii* among the people of Sydney, Australia. Hamze et al., (2009) observed intestinal infection in north Lebanon. Sehgal et al., (2010)

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studied intestinal parasites in pregnant women and school children of Chandigarh, North India. Zahida (2010) recorded the distribution of *E. histolytica* among humans. Talat et al., 2012 studied Protozoan intestinal infection in Karachi, Pakistan.

### MATERIAL AND METHOD

The present study was carried out from January to December 2011. Information for the present investigation was collected from the pathological laboratories of seven different hospitals, selected from six towns of Karachi city, as Nazimabad town including 'Saifee Hospital', 'Khokrapar Malir' town including 'Sindh Govt. Hospital', 'Usman Memorial Hospital' from F. B Area, 'Ibne-sina Hospital' from Gulshan-e-Iqbal town, and 'Haleem Hospital' located in Sakhi Hasan North Nazimabad while 'Khizar Hospital' and 'The Hospital' situated in Shah Faisal Town.

### RESULTS AND DISCUSSION

Human Intestinal Protozoan Parasites are more common in developing countries and cause high mortality rate of the world, usually transmitted when someone comes in contact with infected feces through contaminated soil, food and water. The most common protozoa are Giardia and Entamoeba. Children and elderly are more likely to get infection and weaken the immune system. Pregnant women may become more serious (Sehgal et al., 2010). Present research work was based on the collection of human intestinal protozoan parasites among the people of different regions of Karachi city reported from 7 different hospitals, including 'Saifee hospital', 'Sindh Govt. hospital', 'Usman Memorial hospital', 'Ibne-sina hospital', 'Haleem hospital', 'Khizar hospital' and 'The hospital', located in different areas such as Nazimabad, Khokrapar Malir, Fedral B. Area, Gulshan e Iqbal, North Nazimabad and Shah Faisal Town respectively, during January to December 2011.

Total 234 patients including male and female of all age were found positive for protozoan intestinal

infection due to *Entamoeba histolytica* and *Giardia lamblia*.

Amoebiasis due to *Entamoeba histolytica* was found in highest intensity rates i.e. total 136 cases including 69 with 50.73% male and 67 with 49.26% female while Giardiasis caused by *Giardia lamblia* observed in 98 patients showing 51 male with 52.04% and 47 females with 47.95% in overall summarized record (Table: 3) The overall combined infection cases of both *Giardia* and *Entamoeba* were recorded in highest incidence in 'Saifee Hospital' i.e. 70 patients having 29.9 % infection including 30 males with 42.85% and 40 female with 57.14% (Table:3) intensity of infection on second number found in 'Usman Memorial Hospital' i.e. 49 patients with 20.94% including 27 male with 55.10% and 22 females with 44.89% while the lowest intensity found in 'Haleem hospital' i.e. 15 patients with 6.41% including 10 males with 66.6 % and 05 females with 33.33%, The remaining hospitals as 'Sindh Govt. Hospital' showed 45 patients with 19.23 %, 'Ibne sina hospital' having 22 patients with 9.40%, 'Khizar hospital' have 17 patients with 7.26% and 'The Hospital' found 16 patients with 6.83% (Table:3).

The incidence of protozoan intestinal infection was found most common in the area of Nazimabad than on 2nd no in F.B. Area and on 3rd no Khokrapar Malir while the lowest incidence found in North Nazimabad. Distribution of both the protozoan parasites showed high percentage in males than females except in 'Saifee Hospital' and 'The Hospital' (Table 1 and 2) It was verified by the results of Klein (2000 a and b), that prevalence of *E. histolytica* is higher in males than females because males are more susceptible than females and generally exhibit reduced immune responses and increased intensity of infection compared to females. Shakya et al., (2006) evaluated that male had slightly higher infection i.e. 43.8% than females which was 40.4%. Ozyurt et al., (2007) found 76% in males and 33 % in females. Talat (2012) reported 52.6% in males and 47.40 % in females. Intestinal infections are worldwide and have the greatest single worldwide cause of illness and disease. Intestinal parasitic

infection constitute a global health burden causing clinical morbidity in 450 million people (Sehgal, et al. 2010)

To minimize the risk for getting intestinal parasites must adopted the sanitary laws and hygiene, use of boil water for drinking, thorough wash green vegetables and fruits before eating, and also wash hands properly before eating meal, always eat fresh and well cooked food. Avoid simple carbohydrates, such as these found in refined foods, fruits, juices, dairy products and all sugars, except honey. Eat more raw garlic, pumpkin seeds, pomegranates, beets and carrots, all of which have been used traditionally to

kill parasites, researchers found that a mixture of honey and papaya seeds cleared stools of parasites in 23 out of 30 subjects. Drink a lot of water to help flush out system. Eat more fiber, which may help get rid of worms, and keep restore tract healthy. Digestive enzymes will help restore intestinal tract to its normal state, which makes it inhospitable to parasites. Papain is an enzyme from the papaya plant that may help kill worms when taken 30 minutes before or after meals. Vitamin C and zinc supports the immune system. Uses of herbs are generally a safe way to strengthen and tone the body's systems. (Carr and Frei., 1999)

**Table 1:** Over all patients infected with *Entamoeba histolytica* diagnosed from seven different hospitals of Karachi City during January to December 2011.

| Months | Saifee Hospital |        | Sindh Govt. Hospital |        | Usman Memorial Hospital |        | Ibne-sina Hospital |        | Haleem Hospital |        | Khizar Hospital |        | The Hospital |        |
|--------|-----------------|--------|----------------------|--------|-------------------------|--------|--------------------|--------|-----------------|--------|-----------------|--------|--------------|--------|
|        | Male            | Female | Male                 | Female | Male                    | Female | Male               | Female | Male            | Female | Male            | Female | Male         | Female |
| Jan    | 0               | 2      | 2                    | 0      | 1                       | 0      | 2                  | 2      | 0               | 0      | 0               | 0      | 1            | 0      |
| Feb    | 1               | 2      | 2                    | 3      | 0                       | 0      | 0                  | 1      | 0               | 0      | 0               | 1      | 0            | 0      |
| Mar    | 0               | 1      | 3                    | 0      | 0                       | 0      | 1                  | 1      | 0               | 0      | 0               | 0      | 0            | 1      |
| April  | 1               | 3      | 1                    | 2      | 0                       | 0      | 0                  | 1      | 0               | 0      | 1               | 0      | 1            | 0      |
| May    | 2               | 1      | 1                    | 0      | 2                       | 5      | 0                  | 0      | 1               | 0      | 0               | 1      | 0            | 0      |
| June   | 3               | 1      | 0                    | 0      | 0                       | 2      | 2                  | 0      | 0               | 0      | 2               | 0      | 0            | 1      |
| July   | 1               | 2      | 2                    | 1      | 0                       | 0      | 1                  | 0      | 1               | 0      | 1               | 1      | 0            | 0      |
| Aug    | 1               | 2      | 2                    | 1      | 4                       | 1      | 1                  | 0      | 1               | 0      | 0               | 0      | 1            | 0      |
| Sept   | 1               | 2      | 0                    | 0      | 3                       | 1      | 1                  | 1      | 1               | 3      | 1               | 2      | 1            | 2      |
| Oct    | 0               | 1      | 1                    | 1      | 1                       | 1      | 0                  | 2      | 1               | 1      | 0               | 0      | 0            | 1      |
| Nov    | 1               | 1      | 4                    | 0      | 1                       | 2      | 0                  | 0      | 1               | 0      | 1               | 1      | 0            | 1      |
| Dec    | 2               | 1      | 0                    | 0      | 1                       | 2      | 0                  | 0      | 0               | 0      | 1               | 0      | 0            | 2      |

**Table 2:** Over all patients infected with *Giardia lamblia* diagnosed from seven different hospitals of Karachi City during January to December 2011.

| Months | Saifee Hospital |        | Sindh Govt. Hospital |        | Usman Memorial Hospital |        | Ibne-sina hospital |        | Haleem hospital |        | Khizar Hospital |        | The Hospital |        |
|--------|-----------------|--------|----------------------|--------|-------------------------|--------|--------------------|--------|-----------------|--------|-----------------|--------|--------------|--------|
|        | Male            | Female | Male                 | Female | Male                    | Female | Male               | Female | Male            | Female | Male            | Female | Male         | Female |
| Jan    | 1               | 3      | 0                    | 1      | 1                       | 2      | 0                  | 1      | 0               | 0      | 0               | 1      | 1            | 0      |
| Feb    | 0               | 2      | 1                    | 1      | 0                       | 0      | 1                  | 0      | 0               | 0      | 0               | 0      | 0            | 0      |
| Mar    | 1               | 2      | 2                    | 0      | 0                       | 0      | 0                  | 0      | 1               | 0      | 0               | 0      | 0            | 0      |
| April  | 2               | 0      | 1                    | 2      | 0                       | 0      | 1                  | 0      | 0               | 0      | 1               | 0      | 1            | 0      |
| May    | 1               | 3      | 0                    | 1      | 2                       | 1      | 0                  | 0      | 1               | 0      | 0               | 0      | 0            | 0      |
| June   | 2               | 3      | 1                    | 1      | 0                       | 1      | 0                  | 1      | 0               | 0      | 0               | 1      | 0            | 1      |
| July   | 2               | 2      | 1                    | 1      | 3                       | 0      | 0                  | 0      | 1               | 0      | 0               | 0      | 0            | 0      |
| Aug    | 2               | 2      | 0                    | 0      | 2                       | 0      | 0                  | 0      | 0               | 0      | 0               | 0      | 0            | 0      |
| Sept   | 2               | 2      | 2                    | 1      | 0                       | 0      | 1                  | 0      | 0               | 0      | 1               | 0      | 0            | 0      |
| Oct    | 1               | 2      | 0                    | 2      | 2                       | 0      | 0                  | 0      | 0               | 1      | 0               | 0      | 0            | 0      |
| Nov    | 2               | 0      | 0                    | 0      | 3                       | 1      | 0                  | 1      | 1               | 0      | 0               | 0      | 1            | 0      |
| Dec    | 1               | 0      | 0                    | 1      | 1                       | 3      | 0                  | 0      | 0               | 0      | 0               | 0      | 0            | 0      |

**Table 3:** Overall summarized record of the patients of *Giardia lamblia* and *Entamoeba histolytica* collected from seven different hospitals of Karachi during January to December 2011.

| Hospitals Names         | Observed Cases    |              |                      |              | Total Positive Infective Cases |              |                |
|-------------------------|-------------------|--------------|----------------------|--------------|--------------------------------|--------------|----------------|
|                         | <i>G. Lamblia</i> |              | <i>E histolytica</i> |              | Male                           | Female       | Total Patients |
|                         | Male              | Female       | Male                 | Female       |                                |              |                |
| Saifee Hospital         | 17<br>44.73%      | 21<br>55.26% | 13<br>40.6%          | 19<br>59.37% | 30<br>42.85%                   | 40<br>57.14% | 70<br>29.9%    |
| Sindh Govt. Hospital    | 08<br>42.10%      | 11<br>57.89% | 18<br>69.23%         | 08<br>30.7%  | 26<br>57.7%                    | 19<br>42.22% | 45<br>19.23%   |
| Usman Memorial Hospital | 14<br>63.63%      | 08<br>36.36% | 13<br>48.14%         | 14<br>51.85% | 27<br>55.10%                   | 22<br>44.89% | 49<br>20.94%   |
| Ibne-sina Hospital      | 03<br>50%         | 03<br>50%    | 08<br>50%            | 08<br>50%    | 11<br>50%                      | 11<br>50%    | 22<br>9.40%    |
| Haleem Hospital         | 04<br>80%         | 01<br>20%    | 06<br>60%            | 04<br>40%    | 10<br>66.66%                   | 05<br>33.33% | 15<br>6.41%    |
| Khizar Hospital         | 02<br>50%         | 02<br>50%    | 07<br>53.84%         | 06<br>46.15% | 09<br>52.94%                   | 08<br>47.05% | 17<br>7.26%    |
| The Hospital            | 03<br>75%         | 01<br>25%    | 04<br>33.33%         | 08<br>66.66% | 07<br>43.75%                   | 09<br>56.25% | 16<br>6.83%    |
| GRAND TOTAL             | 51<br>52.04%      | 47<br>47.95% | 69<br>50.73          | 67<br>49.26% | 120<br>51.28                   | 114<br>48.71 | 234<br>100%    |

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