

Recovery of *Schistosoma haematobium* ovum from *Labeo rohita*: first report from Pakistan

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ABSTRACT. Schistosomiasis, also known as bilharzia, is a parasitic disease caused by trematodes from the genus *Schistosoma* that can infect humans and animals. *S. mansoni*, *S. japonicum*, and *S. mekongi* all causes intestinal schistosomiasis except *S. haematobium* that causes urinary schistosomiasis. It is only specie which effects urinary system, it can affect liver, heart, lungs also but very rarely. *Schistosoma haematobium* is endemic to over 50 countries in Africa and the Middle East and Western Asia and may be fatal in HIV positive people. A number of reports from the African countries like Nigeria have been reported. A few cases are reported ⁹but in Pakistan it has never been reported before in native people. It is first time reported in Pakistan in the intestine of Rahu (*Labeo rohita*). The purpose of this study is to elaborate the approach of zoonotic agent by various other routes including the commonly available fish.

INTRODUCTION

Schistosomiasis, also known as bilharzia, is a parasitic disease caused by trematodes from the genus *Schistosoma* that can infect humans and animals (Soulsby, 2006). *Schistosoma mansoni*, *Schistosoma japonicum*, and *Schistosoma mekongi* all causes intestinal schistosomiasis except *Schistosoma haematobium* that causes urinary schistosomiasis. It is only species which effect urinary system, it can affect liver, heart, lungs but very rarely mainly it effects on urinary system cause urinary tract diseases. *Schistosoma haematobium* is endemic to over 50 countries in Africa and the Middle East and Western Asia (WHO, 1993). A number of reports from the African countries like Nigeria have been reported (Kabir *et al.*, 2009, Ayudun, 1988 and Adewunmi, 1991) but in Pakistan it has never been reported before. It is first time

reported in Pakistan in the intestine of Rahu (*Labeo rohita*). A case report in 2001 was presented in Kidney center Karachi but the origin of the patient was from Nigeria (Khalid & Mehmood, 2001).

MATERIALS & METHODS

For the recovery of the *Schistosoma haematobium* ova/egg the fecal material was scraped from the Intestinal walls with the help of glass slide and shifted into a small Petri dish. 0.5 gm sample was diluted by 2 ml Zn SO₄ Flootation solution in the Petri dish. The whole diluted fecal sample was shifted slowly and carefully by a small glass pipette (20 µl) into Sahli's Hemoglobin container (2 ml capacity). Hemoglobin container was fixed in ESR stand for 30 minutes so that all the ova/eggs of Nematodes could float at the upper surface of the solution. One or two drops

of diluted sample were taken after completion of floatation process on glass slide with the help of glass pipette and covered by cover slip (Ayaz *et al.*, 2014) and examined under the binocular microscope at first 10x and then at 40x. Ova/eggs of the parasite were observed and found Ova of *Schistosoma haematobium* as described by Solusby (2006). During the entire process the precautions were adopted that; the entire fecal sample should be diluted by the Floatation Solution, the Hemoglobin container having the diluted fecal sample should be fixed straight in ESR stand for the floatation and during taking the drops of diluted fecal sample from hemoglobin container, care should be taken for the spoilage of liquid due to small in quantity.

RESULTS

This micro-flotation method could be beneficial for the recovery of *Schistosoma haematobium* ovum. Number of various methods has been employed for the recovery of eggs (Theresa *et al.*, 2001) from urine that contained numerous ova/eggs but for single egg recovery and isolation remained a tedious and difficult job. This method could be adjunct to solve the problem for the recovery of single ovum/egg from meager amount of infected material (Fig. 1).

DISCUSSION

The presence of *Schistosoma haematobium* ovum in *Labeo rohita* might be due to presence of contamination in water which may infect fishes or snails or any other free swimming animals. Their origin might be from Middle East or North America to Karachi harbor. The World Health Organization (WHO) considers it a significant public health problem in much of Africa. *Schistosoma haematobium* infections continue to be a significant public health problem in much of Africa and the Middle East, second only to malaria among parasitic diseases. According to WHO (World Health Organization) about 200,000 deaths per year due to schistosomiasis in Sub Saharan Africa has been reported and 240 million people required preventative treatment in 2012 and 29.96 million people treated in 2012 (WHO, 2014). In May 2012, the 65th World Health Assembly (WHA) once again highlighted that the major challenges (WHO, 2014). In world schistosomiasis has increased from 74 to 78 countries for presence of disease but over 50 countries are endemic for it (WHO, 1993 and WHO, 2013) and 200 million effected people are present worldwide. Blood in urine is first sign after infection which is haematuria, abdominal pain, sometime obstruction of urinary bladder due to presence of eggs; mostly patients feel difficulty in excretion



Figure 1. Recovered egg from Fish

of urine and facing pain during urination (Kabir *et al.*, 2009; Kabiru *et al.*, 2013). Free swimming animals are intermediate host usually snail from genus *Bulinus* is important intermediate host while human is definite host of it. In infected person they multiply their egg, these pass out with urine in the water and hatch into larvae (miracidia) which enters into snail and emerges as cercariae and contaminate the water also. When human comes in contact (by swimming, washing or drinking etc.) with such contaminated water it enters in body skin and passes through lungs and liver and reaches to urinary system where start multiplying/ laying egg. If human directly eat such infected snails or any other infected free swimming animals like fish the infection is confirmed after prepatent period.

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