Importance of Differentiation of Entamoeba Histolytica from Entamoeba Dispar

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Amoebiasis, caused by the protozoan parasite Entamoeba Histolytica has a world wide distribution. Entamoeba was recently reclassified as two species. Entamoeba histolytica, the commonest agent of invasive amoebiasis and Entamoeba dispar, a non-invasive commensal classified on the basis of biochemical, immunological and genetic evidence[1]. E. dispar was described by E mile Brumpt in 1925 but dismissed as a synonym of E. histolytica. Later on in 1920 evidence indicated that previous finding may be correct and E. dispar is now accepted as a distinct species. The invasive form usually penetrate the mucosa resulting in massive destruction of host tissue and cause hemorrhagic colitis and extraintestinal abscess whereas the non-invasive form passively inhabits the cavities of the lower intestine as commensal[2]. E. dispar has never been seen in an isolate from a patient with invasive disease but in rare cases pathogenic E. histolytica was observed from asymptomatic cases[3]. Signs of dys ntery are more common in patients diagnosed with disease caused by species of E. Histolytica[4]. Current diagnosis of E. histolytica infection involves the direct microscopic identification of the parasite, a technique that is insensitive and cannot distinguish E. histolytica from E. dispar[5]. E. histolytica and E. dispar are morphologically identical but can be differentiated by various methods. Monoclonal antibodies are used to distinguish between E. histolytica and E. dispar. The common antigenic epitope of E. histolytica are on 150 KDA surface molecule and that mAb can distinguish between E. histolytica and E. dispar[6]. mAbs against galactose and Nacetylgalactoseamine inhibitable adherence lectin to E. histolytica could be used to distinguish E. dispar from E. histolytica[7]. Isoenzyme analysis was also used to distinguish pathogenic from non-pathogenic species of Entamoeba[8].

The reliability of PCR for the diagnosis of E. histolytica infection has been shown in several studies[9,10]. Development of a simple and reliable method to distinguish E. histolytica from E. dispar by using DNA for diagnosis would be of utmost importance[11]. PCR has become an integral part of a sensitive and specific diagnostic strategy[12,13]. PCR was also compared with isoenzyme analysis and the Tech Lab E. histolytica specific antigen
detection test. PCR was based on amplification of small subunit ribosomal RNA gene of E. histolytica and E. dispar followed by restrictive digest analysis of the PCR product. PCR was 87% (46/53) and antigen detection 85% (45/53) sensitive. Mixed infection with E. histolytica and E. dispar were detected by PCR in 14% (12/88)[14]. PCR reaction was used to detect arnoebiasis in 804 individuals using formalin fixed stools. Twenty-one stools (2.6 1%) contained E. dispar and 3 (0.373%) stools contained E. histolytica. Mixed infection of E. dispar with other parasites was also observed. Co-infection of E. histolytica with E. dispar was not observed[15].

Specific DNA sequences have subsequently been identified and used as probes for the detection of pathogenic and non-pathogenic species[16].

Antigen detection test for E. histolytica and E. dispar is more sensitive and specific than microscopy and is more reliable and rapid than zymoderne analysis for the differentiation of E. histolytica and E. dispar[4].

All three techniques for specific identification of E. histolytica showed excellent correlation. Tech Lab E. histolytica antigen detection test was both rapid and technically simple[14].

Amoebiasis can be prevented and controlled by measures like improving water supply, excreta disposal and food safety, health education and general social and economic development.
As amoebiasis is common in our population it is advisable that proper identification is done for both the pathogenic and non pathogenic amoeba so that treatment is only given if pathogenic E. histolytica is identified and indiscriminate use of drug is avoided which will lead to resistance to various drugs.

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