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Establishment of a PCR based technique for diagnosis of Trichomoniasis in patients attending the sexually transmitted disease and Acquired Immune Deficiency Syndrome control programme in Kandy

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Trichomoniasis is a sexually transmitted disease (STD) in humans. It is caused by a motile pathogenic protozoan, *Trichomonas vaginalis*. This disease is the most common non-viral STD, with an annual incidence of 187 million cases world-wide. Clinical diagnosis of trichomoniasis is not reliable due to nonspecific clinical presentations. Therefore, confirmation of suspected clinical cases by laboratory tests is essential. The diagnosis is usually based on microscopic observation of motile protozoan on wet mount. The sensitivity of this method is low. The sensitivity of polymerase chain reaction (PCR) in the diagnosis of trichomoniasis (97%) is much higher than microscopic examination. However, PCR has not been used as a diagnostic tool in Sri Lanka thus far. Therefore, the present study was carried out to establish a PCR based method to diagnose trichomoniasis in Sri Lanka.

Female patients (age between 15 and 50 years) attending the sexually transmitted disease and acquired immune deficiency syndrome (STD/AIDS) control programme in Kandy were included in the study. Patients' demographic data and clinical status were obtained. Three vaginal swabs were obtained from the posterior fornix of each patient using a sterile Cusco's speculum. Two vaginal swabs were used for wet mount and permanent staining. Other vaginal swab was used to isolate genomic DNA. PCRs were performed using two primer sets, one targeting the internal transcribed spacer (ITS) -1/5.8S/ITS-2 genomic region of the genus *Trichomonas* and second targeting *T. vaginalis* ribosomal DNA (rDNA).

Hundred and fifty one patients were studied during the period from May 2015 to November 2015. Out of these, Majority of patients (87/151) were aged between 15 to 35 years. 97 patients were clinically symptomatic. 19 patients were commercial sex workers. Of 151 samples, three were positive for trichomoniasis by direct smears. All samples were subjected to PCR using the genus and species specific primers. 8 samples were positive for both primer sets confirming the etiological diagnosis as *T. vaginalis*. Interestingly, five cases which were negative for microscopic examination were detected by PCR.

The findings of the study suggest that PCR can be used to diagnose clinically suspected trichomoniasis patients in STD clinics in Sri Lanka.