Methods A total of 33 blood specimens collected from 16 patients presenting with a syphilitic ulcer were analysed. The specimens were tested employing: Rapid Plasma Reagin; Treponema pallidum Particle Agglutination (TPPA); recomLine Treponema IgM (Mikrogen Diagnostik); recomWell Treponema IgM (Mikrogen Diagnostik); Anti-Treponema pallidum ELISA -IgM (Euroimmun). Ulcer specimens were tested by qPCR. A specimen was considered positive for anti-Tp IgM when both TPPA and IgM, obtained with any of the assays, were positive.

Specimens containing antibodies against Epstein Barr Virus, Leptospira sp, Borrelia sp, Plasmodium sp, Herpes Simplex Virus 1 and 2 and specimens from pregnant women were tested with the three IgM assays to determine cross-reactivity.

Results Anti-Tp IgM was found in 22/33 specimens. The recomLine assay detected 17/22 (77%), the recomWell 15/22 (68%) and the Euroimmun 14/22 (64%) positive specimens. None of the three assays provided false positive results. Borderline results were obtained with the recomLine (N = 6) and the recomWell (N = 2) assay. Considering the borderline results as positive, the detection rate increased to 95% for the recomLine and to 72% for the recomWell. However, two and one false positive result was then obtained with the recomLine and recomWell assay, respectively. Tp DNA was detected in 13/16 (81%) ulcer specimens. The Euroimmun assay cross reacted with malaria antibodies in one sample.

Conclusions None of the three assays showed to be highly sensitive. Surprisingly, the highest sensitivity was obtained with the recomLine assay. The sensitivity improved by defining the borderline results as positive but decreased the specificity.

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