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Gastric aspirate culture using the microscopic observation drug susceptibility (MODS) technique is superior to other methods for bacteriological confirmation of tuberculosis in children

Bacteriological evidence of tuberculosis in children is difficult to obtain and is not found in the majority of clinically suspected cases. In this study, which was conducted in Peru, gastric aspirates, nasopharyngeal aspirates and stool samples were taken from 218 children with clinically suspected tuberculosis and nasopharyngeal aspirates and stool samples were taken from 238 low-risk controls. These were examined by the microscopic observation drug susceptibility (MODS) technique broth culture, culture on Lowenstein–Jensen medium and PCR to identify the most effective diagnostic techniques.

10% of cases had at least one positive culture, of which 90.9% were detected by MODS culture compared with only 59.1% by Lowenstein–Jensen culture. Isolation by MODS culture was on average 15 days faster and MODS cultures were spoiled by contamination less often. All culture-positive cases had at least one positive result from a gastric aspirate sample. The yield from adding a second gastric aspirate sample to the first was 37% higher. Nasopharyngeal aspirate samples were positive in 54% of culture-positive cases and addition of a second nasopharyngeal aspirate specimen increased the yield by 50%. Stool cultures were positive in only 18% of culture-positive cases. Gastric aspirate PCR identified only half of clinically high-risk culture-positive cases, and 6.6% of controls had at least one positive PCR result. None of these controls developed evidence of clinical tuberculosis during 1 year of follow-up. The rate of false positive PCR results in any individual specimen was 2%.

These data suggest that the technique most likely to provide bacteriological confirmation of pediatric tuberculosis is MODS culture of gastric aspirates.

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