Closing the Brief Case: A 6-Year-Old with Fever, Abdominal Pain, and Recent Travel to Sierra Leone

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ANSWERS TO SELF-ASSESSMENT QUESTIONS

1. What is not a possible cause of a false-negative result for P. falciparum on a malaria RDT?
   a. Low parasite density
   b. High concentrations of rheumatoid factor
   c. Deletion of pfhrp2/3 genes
   d. Prozone effect

   Answer: b. Rheumatoid factor is known to cause false-positive results, not false-negative results.

2. The prozone effect can occur as the result of which of the following?
   a. Excess detection and capture molecules in the assay
   b. Excess antigen present in the patient sample
   c. Misinterpretation of the assay results
   d. Use of tests other than HRP2 for the detection of P. falciparum

   Answer: b. The prozone effect is the result of excess antigen—in this case HRP2—which saturates the detection antibodies, preventing signal generation.

3. What additional testing can be done if a false-negative HRP2 result due to pfhrp2/3 deletions is suspected in a particular patient?
   a. PCR to confirm P. falciparum infection
   b. PCR to identify pfhrp2 and/or pfhrp3 deletion
   c. Switch to an RDT that uses a non-HRP2 method of detection
   d. All of the above

   Answer: d. PCR can be used both to confirm the presence of P. falciparum as well as to identify deletions in pfhrp2 and/or pfhrp3. Though they are generally less sensitive than HRP2-based RDTs, tests that detect other P. falciparum-specific antigens or pan-malaria antigens can be used to identify infection in countries where the pfhrp2/3 deletions have a prevalence of ≳5%.