

BACKGROUND-AIM

Malaria is an infectious disease caused by *Plasmodium spp*, which includes 6 different species: *P. falciparum*, *P. vivax*, *P. malariae*, *P. ovale*, *P. knowlesi* and *P. simium*. In our country, malaria is frequently diagnosed in returning travellers from epidemic countries. Accurate diagnosis must be performed urgently to start early treatment.

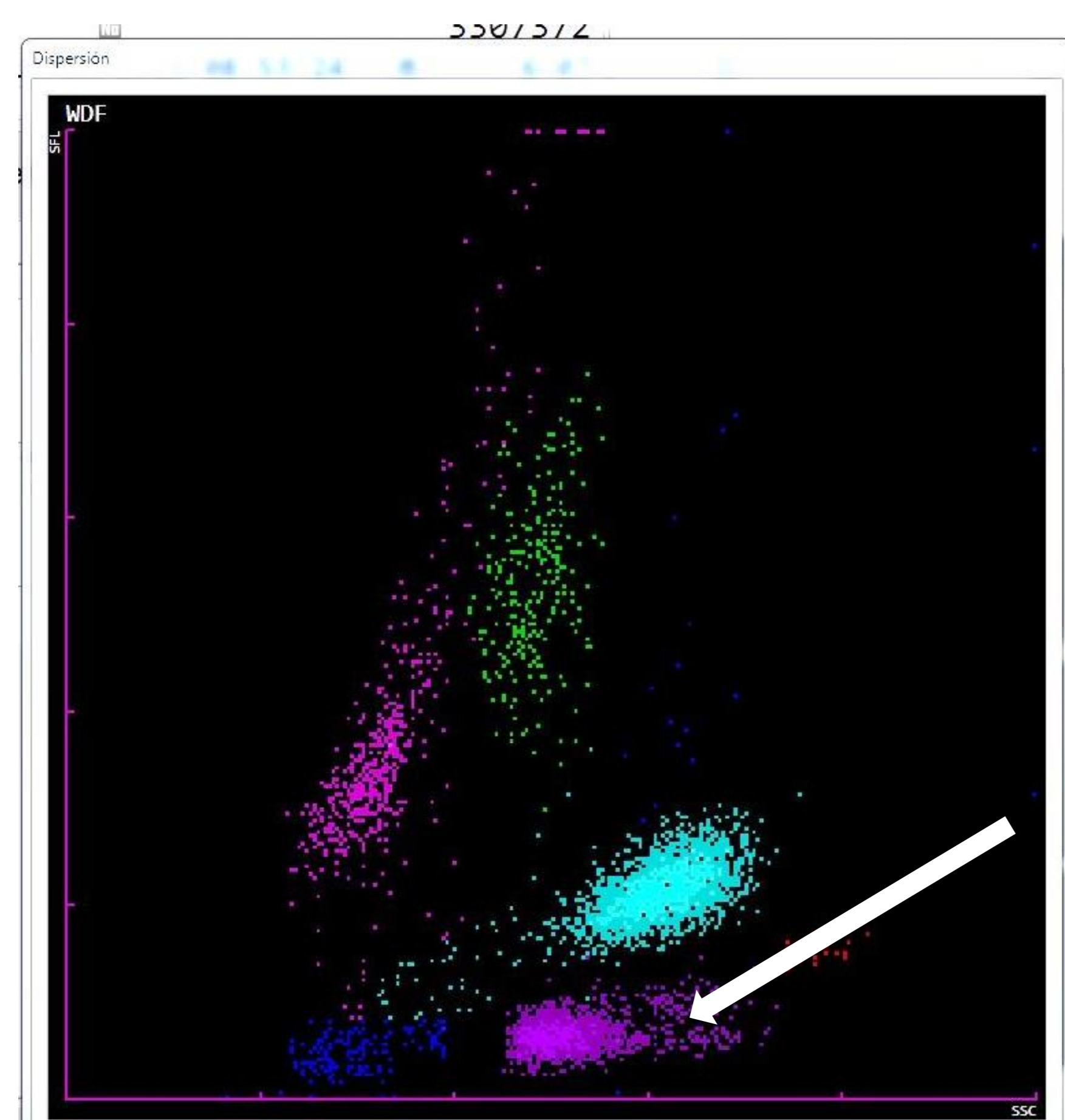
CASE REPORT

A 59-year-old male presented to emergency department with fever. He was diagnosed with malaria in Africa 4 months ago and was treated until the infection was resolved. Due to his history and clinical symptoms, a blood analysis and malaria rapid diagnostic test (RDT) was performed (SD BIOLINE Malaria Ag P.f/Pan test®, Alere). Complete blood count (CBC), haemostasis and biochemistry parameters did not show abnormalities. Only C-reactive protein was increased (96 mg/L, normal range [NR]: <3). RDT malaria was negative and parasites weren't seen in the smear review. The patient was discharged with the diagnosis of urinary infection under antibiotic therapy.

Two days later, the patient returned to the hospital with 38.7°C. CBC revealed thrombocytopenia (107x10⁹/L, NR=140-400), a significant platelet reduction from two days before (190x10⁹/L). RDT malaria was negative again. Nevertheless, the automated haematological XN1000® analyzer (Sysmex, Kobe, Japan) reported "pRBC" flag and the scattergram showed a cluster area which suggested red blood cells (RBC) inclusions. Smear examination revealed different intraerythrocytic parasite stages corresponding to *Plasmodium malariae*.

CONCLUSION

Plasmodium falciparum is the most prevalent Plasmodium specie diagnosed in our population whereas *Plasmodium malariae* is very rare. RDT are immunochromatographic assays, which are a quick alternative for diagnosis in blood samples. The main antigens detected with our kit include pan-malarial antigens and protein specific antigens for *P. falciparum*. For this reason, the sensivity tends to be lower for *P. vivax*, *P. malariae*, *P. ovale* and *P. knowlesi*. New advances in haematimetric technology can help us to suspect malaria infection. "pRBC" flag detects false white blood cell counts caused by intraerythrocytic parasites.



WDF scattergram (pRBC cluster in purple) and pRBC-flag

