

Abnormal urine is detected by a specific pad of DOAC Dipstick near patient test strip

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Background & Objective

A recently developed near patient test strip DOAC Dipstick has shown high sensitivity and specificity for detection of the presence of direct oral thrombin and factor Xa inhibitors in urine and provides qualitative test results after 10 minutes. Its reliability, however, is limited in patients with dark-coloured urine, which may occur in kidney failure, hemoglobin- or urobilinogenuria.

To highlight the impact of a specific pad for identification of dark-coloured urine on the DOAC Dipstick test based on a case example.

Methods

Presentation of a case report.

Results

Case

An 81-year old male was enrolled in an ongoing cohort study on adult patients with chronic DOAC intake at the Emergency Department at the Vienna General Hospital. The patient was treated with rivaroxaban 20mg qd for prevention of stroke due to von-valvular atrial fibrillation. He was diagnosed with acute pre-renal kidney injury due to febrile diarrhea (plasma creatinine 5mg/dl, BUN 130mg/dl). After obtaining informed consent, a 10ml urine sample was collected and the DOAC Dipstick test was performed. Test results are shown in figure 1. While the test was interpreted to be negative for the presence of rivaroxaban (pad#3) and normal creatinine (pad#1) in urine, pad#2 that is designed for identification of abnormal urine colour, turned yellow confirming, that abnormal urine colour precludes a reliable interpretation of the test result for the presence of DOACs and of creatinine.

Conclusion

Appropriate caution must be taken to the test pad#2 designed for the detection of abnormal urine colour of DOAC Dipstick near patient test strip in patients with dark-coloured urine to avoid false test results and misinterpretation of the other test pads. The pad for urine colour does not contain reagents and an abnormal colour can immediately be identified by naked eye and further evaluation of the other pads of DOAC Dipstick is not necessary.

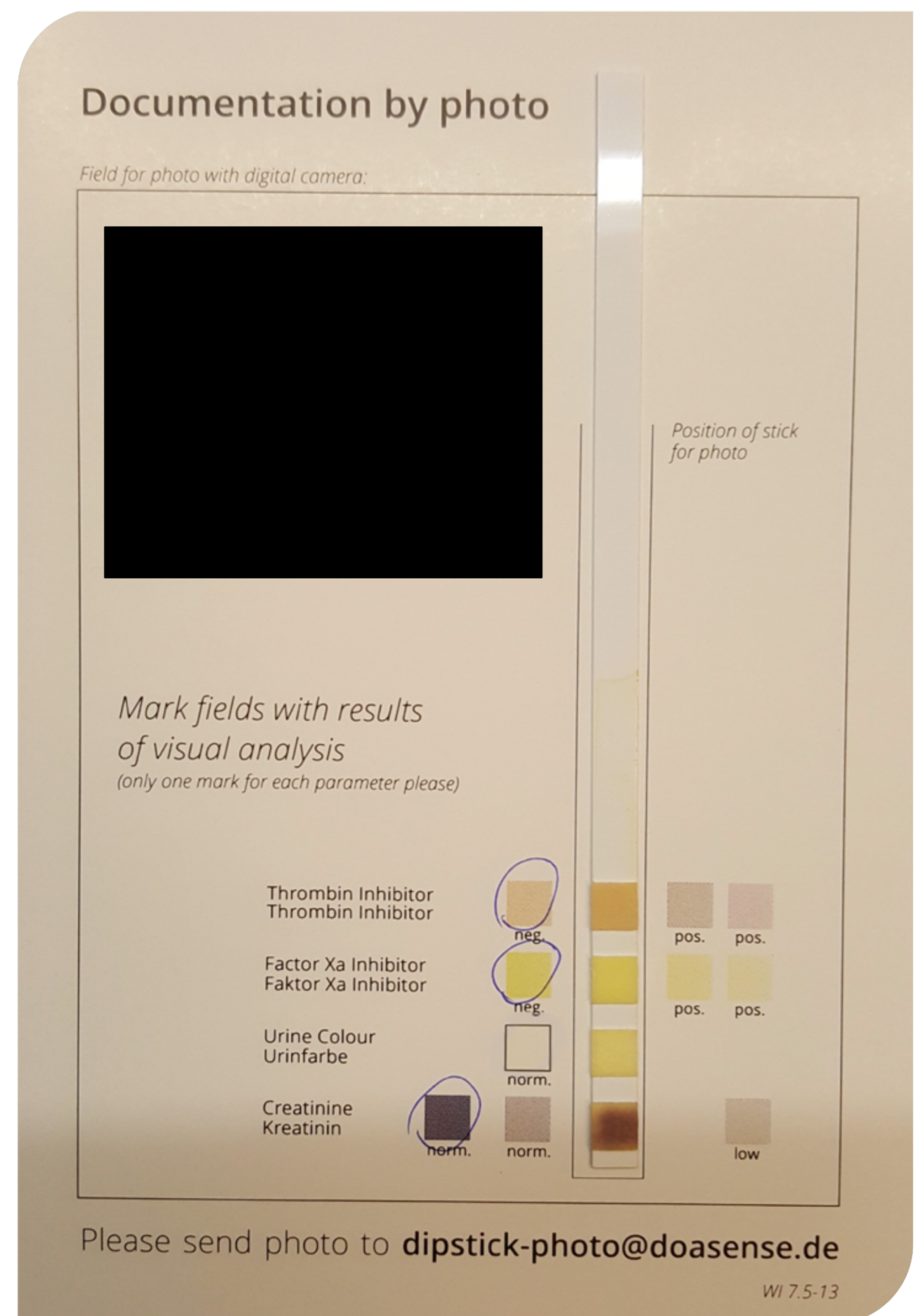


Figure 1: The DOAC Dipstick test allows to identify the presence or absence of direct oral factor IIa inhibitors (pad #4), factor Xa inhibitors (pad #3), urine colour (pad #2) and creatinine (pad #1) by means of colour changes based on a chemical reaction. Test results are ready after 10 minutes and obtained by visual colour identification. The figure shows an abnormal urine colour and consequently abnormal colours of the other test pads, which may be interpreted as negative or normal (see circles)

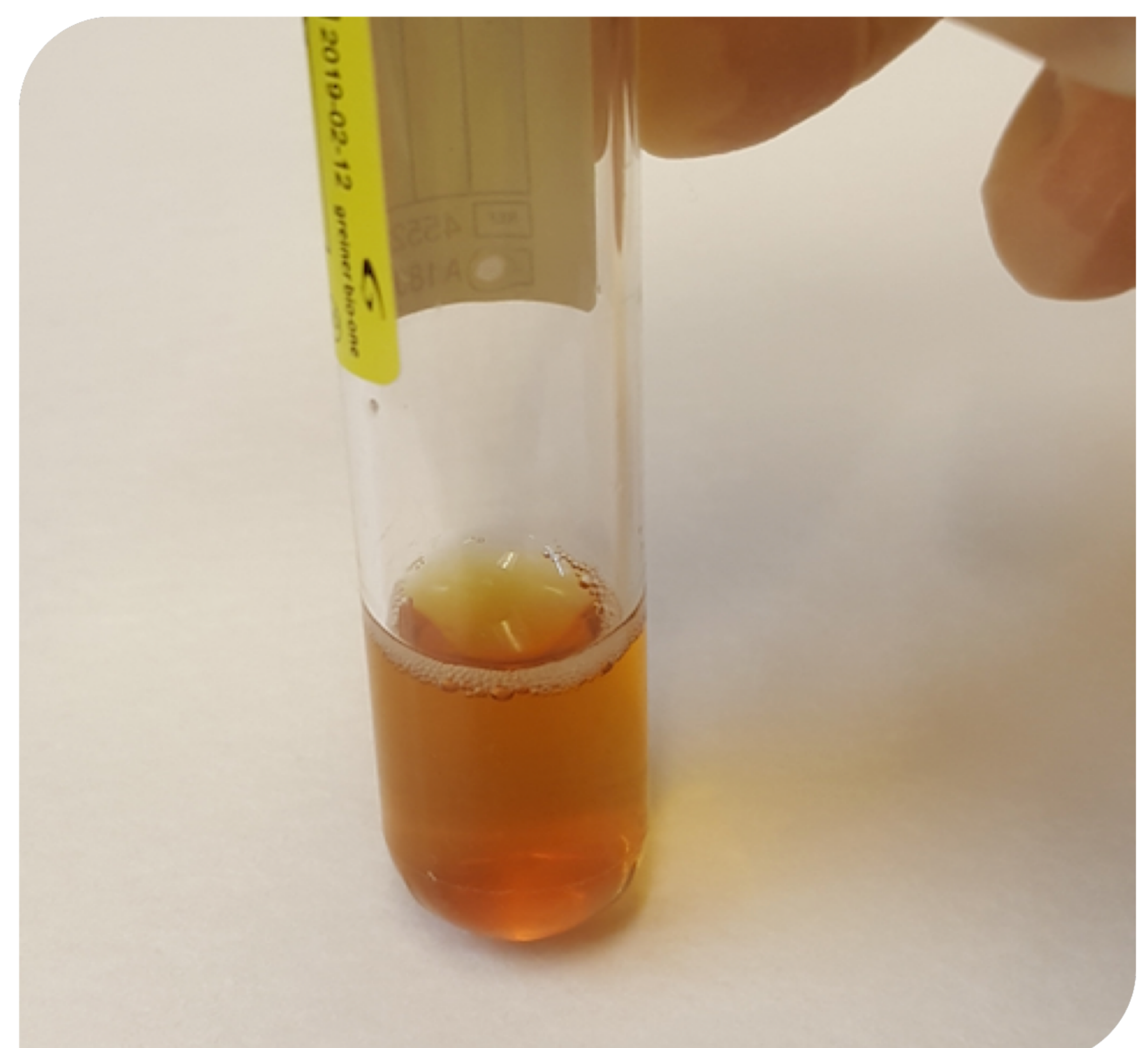


Figure 2: Abnormal urine colour