

# Haematuria

Narin M Suleyman

Nikhil Vasdev

## Abstract

Visible or non-visible haematuria could represent a range of urological or nephrological diseases, or bear no significance at all. The challenge for clinicians is to get the correct patients assessed rigorously so that life-altering or life-limiting disease is not missed. Up to date definitions and epidemiological data is discussed. This article provides a clear framework to help clinicians decide which patients have significant haematuria and which patients are suitable for urological referral. We discuss how to investigate such patients further (and provide an algorithm) including points not to forget when taking a history or conducting physical examinations. Explanations are provided as to why current management strategies exist and what the potential flaws are of each method, including the ubiquitous urine dipstick test, urine cytology, cystoscopy and the modern radiological techniques used in everyday clinical practice. We provide guidance on which patients should be referred for nephrological assessment and how to manage patients with negative investigations but ongoing significant haematuria.

**Keywords** Cancer; cystoscopy; dipstick; haematuria; nephrology; non-visible; visible

## Definition of haematuria

Haematuria is either visible or non-visible.<sup>1</sup> Visible haematuria (VH) requires consideration of other causes of discoloured urine, such as myoglobinuria, haemoglobinuria, beeturia and medications such as rifampicin or doxorubicin.<sup>1</sup> Non-visible haematuria is either symptomatic (s-NVH), with voiding lower urinary tract symptoms (LUTS), such as hesitancy, frequency, urgency and dysuria, or asymptomatic (a-NVH) and detected incidentally.<sup>1</sup>

## How common is haematuria?

As has been oft said ‘a little blood goes a long way’ and just 1 ml of blood can cause a litre of urine to become red. Under normal circumstances a healthy individual excretes up to a million red blood cells in their urine a day. Therefore, one to three red corpuscles per high power field of spun urine is considered unremarkable in the absence of any other significant abnormality. Population screening estimates that haematuria (NV and NVH) is prevalent in 2.5–20%, depending on subgroup<sup>2,3</sup> and accounts for up to 20% of all urological referrals.<sup>3</sup> Demographic factors do not appear to have a major influence on the prevalence of NVH,

with conflicting evidence on whether haematuria is more prevalent in women, or with increasing age.<sup>4</sup>

## History and physical examination of patients presenting with haematuria

The medical history can often give a strong indication as to the cause of haematuria. Figure 1 is a comprehensive list of points to consider when taking a focused history.<sup>4</sup> A detailed drug history is an important part of this, including over the counter and herbal medications.<sup>4</sup> The long list of drugs that can induce haematuria is a testament to this.<sup>4</sup> The physical examination should include inspection for irregular heart rhythm, petechiae, angiomas, hearing loss (Alport's syndrome), peripheral oedema and inspection of the external urethral opening.<sup>4</sup> Auscultation for cardiac murmurs and palpation for abdominal masses, lesions of the prostate and testicles should be conducted.<sup>4</sup>

## Dipstick testing for haematuria

The urine dipstick analysis for blood is confirmed via the chromogen indicator on the dipstick, orthotolidine, which is a peroxidase substrate. When haemoglobin, which contains peroxidase, comes in contact with orthotolidine, an oxidation reaction commences that results in the colour change to blue of the indicator.<sup>5</sup> It is important to be aware of the false positive results that can occur with a dipstick analysis with regards to NVH in order to prevent the ordering of unnecessary investigations. False positive results can occur due to the presence of oxidizing agents in the urine from exercise, dehydration, menstrual blood, povidone iodine and hypochlorite solutions such as bleach.<sup>5</sup> False negatives can occur due to the presence of reducing agents such as vitamin C, gentisic acid and poorly mixed urine.<sup>5</sup> In order to minimize the risk of inaccurate interpretation of urine dipsticks, electronic strip readers are used. Despite this, there is no substitution for urine microscopy performed in a regulated component laboratory.<sup>5</sup>

In the United Kingdom there are guidelines to determine the degree of positivity. With regards to dipstick versus microscopy diagnosis, the urine dipstick of a fresh voided urine sample containing no preservative is considered a sensitive means of detecting the presence of haematuria.<sup>5</sup> When patients are seen in outpatient clinics it is common for patients to carry urine into the clinic in a clean jar from home. This may result in an increase in a significant false-negative urine microscopy rate. Urine microscopy is more labour intensive and adds little to establishing the diagnosis of haematuria. Routine microscopy for confirmation of dipstick haematuria is not necessary.<sup>5</sup> When a urine result from a dipstick is reported as a ‘trace’ it is important to know the difference between a ‘trace’ versus ‘1+’. Whilst the sensitivity of urine dipsticks may vary from one manufacturer to another, significant haematuria is considered to be 1+ or greater. Trace haematuria should be considered negative.<sup>5</sup> In certain situations haemolysed versus non-haemolysed urine dipstick results are reported. It has been found that there is no distinction in significance between non-haemolysed and haemolysed dipstick-positive haematuria. 1+ positive for either should be considered of equal significance.<sup>5</sup>

**Narin M Suleyman** BSc MBBS MRCS is a Second Year Core Surgical Trainee in the Department of Urology, Lister Hospital, Stevenage, UK. Conflicts of interest: none declared.

**Nikhil Vasdev** ChM (Urol) FRCS (Urol) is a Consultant Urological Surgeon at the Lister Hospital, Stevenage, UK and Senior Clinical Lecturer, University of Hertfordshire. Conflicts of interest: none declared.

## Decision algorithm for the investigation and referral of haematuria

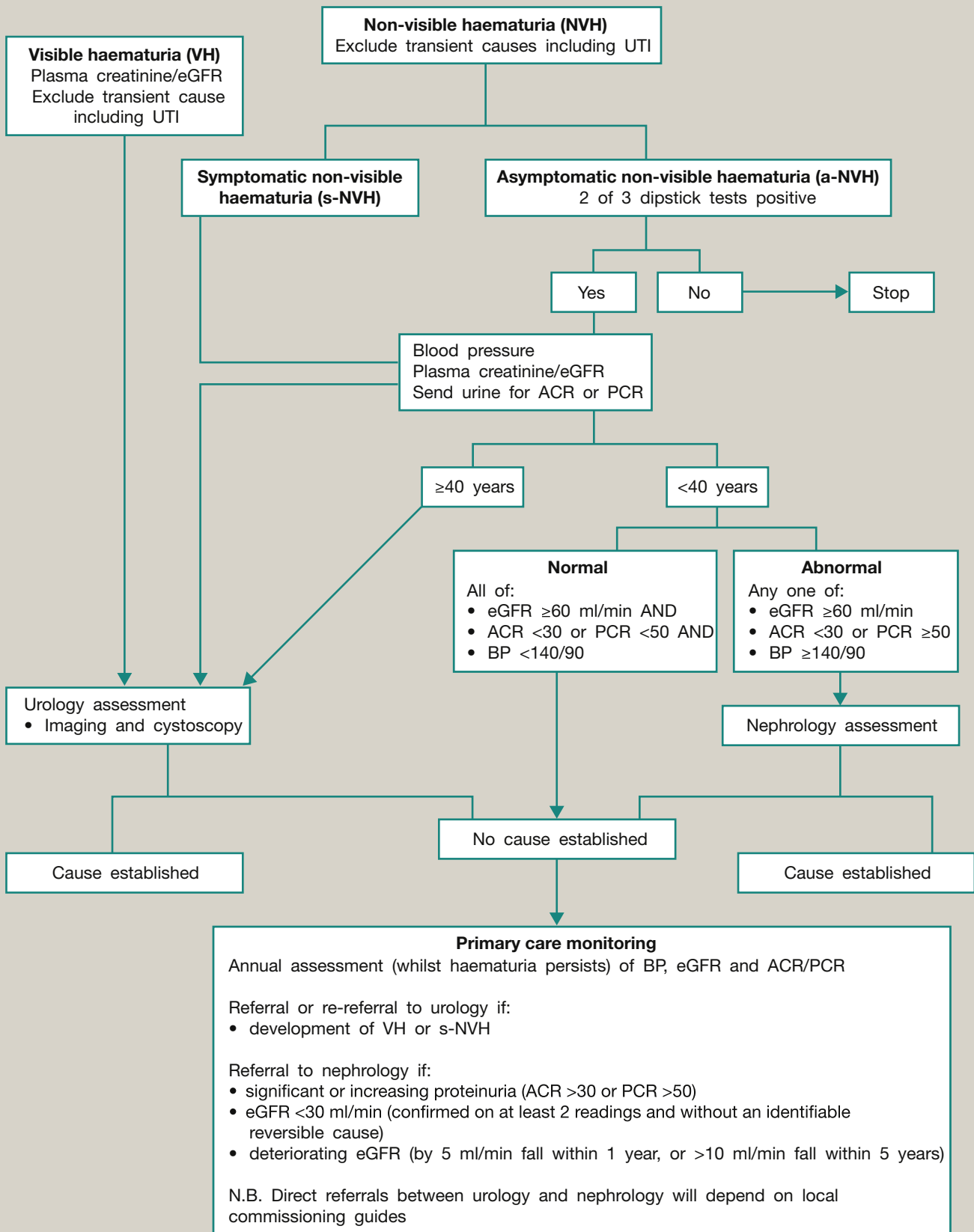


Figure 1

Download English Version:

<https://daneshyari.com/en/article/5684891>

Download Persian Version:

<https://daneshyari.com/article/5684891>

[Daneshyari.com](https://daneshyari.com)