EDITORIAL

No place for routine urine cytology in haematuria

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FOR MANY YEARS, THE SENDING OF URINE FOR CYTOLOGY WAS SEEN AS PART OF THE STANDARD work up for haematuria patients. Indeed, this investigation has remained in several national and international guidelines up to the present date.

The 2009 guidelines for management of non-visible haematuria in primary care, produced in a collaboration between the British Association of Urological Surgeons and the Renal Association, do not mention the role or otherwise of urine cytology, and so many GPs are still unsure if, or when, this test has a role.

Furthermore, urine cytology testing is expensive, with an estimated cost in the NHS of up to £92 per test. Therefore it is clearly important that cytology testing is only carried out where clinically indicated.

A study from a UK teaching hospital[1] looked at 2,778 patients, 1,867 men, with haematuria, seen between 1999 and 2007. Of these 1,804 had visible haematuria and 974 non-visible haematuria. All patients underwent standard haematuria clinic investigations including flexible cystoscopy, urine cytology and renal ultrasound. In addition, IVP or CT urogram was carried out in those patients with visible haematuria and no diagnosis after first-line tests. Patients with positive urine cytology as the only significant finding underwent further cystoscopy and either retrograde study or ureteroscopy under general anaesthetic.

In the group with visible haematuria, 382 (21.2%) were found to have a urological malignancy, most (87%) had a bladder tumour. Of those with non-visible haematuria, 45 (4.6%) had a urological malignancy, of which 93% were bladder tumours.

Cytology results were positive for malignant cells in only 124 (4.5%) patients, with a further 260 (9.4%) showing suspicious changes. Overall, 2,123, (76.4%) of samples were normal. The remainder either had no specimen sent or an inadequate sample for testing.

The sensitivity for diagnosing urothelial carcinoma was 45.4% (157/346) and the specificity 89.5% (1,934/2,161). The false-positive rate was 10.5% (227/2,161) and the false-negative rate 54.6% (189/346). The positive predictive value was 40.9% (157/384) and negative predictive value 89.5% (1,934/2,161).

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Of the patients with malignant cytology four had no diagnosis and of those with atypical/suspicious cytology 125 had no diagnosis. Of the 2,778 patients only two had a negative cystoscopy, ultrasound and IVP with positive cytology that was eventually diagnosed as urothelial carcinoma. Cystoscopy in the first patient showed inflammation of unknown cause which should have warranted biopsy. This was not carried out but positive cytology returned and the subsequent biopsies showed transitional cell carcinoma (TCC) with carcinoma in situ. The second patient was subsequently diagnosed with a ureteric TCC not seen at initial retrograde study.

The authors state that most TCCs are low- or intermediate-grade superficial tumours - more than 85% of the tumours were G1 or G2 in their study - and that urine cytology lacks sensitivity for these types of tumour.

For this cohort of patients, the cost of urine cytology was estimated at approximately £111,000. The study authors conclude that cytology testing is costly, adds little value to investigation of haematuria and should be omitted from guidelines for the initial assessment of haematuria.

In an accompanying editorial,[2] the author comments that the recently updated American Urological Association guidelines do not recommend the routine use of cytology in asymptomatic microhaematuria.

The study authors respond: ‘Our study stresses that routine urine cytology has no role in cases of microscopic haematuria. For frank haematuria, careful judgment should be made as to whether cytology adds to the clinical diagnosis, especially in high-risk cases, but it is not recommended routinely in all such cases.’

If there is no place for this test routinely in the context of a specialist haematuria clinic, I feel there appears to be little role for urine cytology as an investigation to be ordered from primary care.

REFERENCES
1 Mishriki SF, Aboumarzouk O, Vint R et al. Routine urine cytology has no role in haematuria investigations. *J Urol* 2013;189:1255-59
2 Mian BM. Editorial comment. Routine urine cytology has no role in haematuria investigations. *J Urol* 2013;189:1258-59