

Haematuria Clinic – A Preliminary Audit and Considerations for a One-Stop Assessment Centre

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ABSTRACT

Aim: To audit and study the practicality of an integrated Haematuria Clinic as a one-stop assessment centre for the investigations of patients presenting with haematuria.

Methods: A weekly clinic was organised to facilitate consultation, intravenous urogram and flexible cystoscopy for patients with haematuria. A protocol was set up and data on symptoms, types of haematuria, results of the investigations and outcomes were collected.

Results: About half of all the patients seen in this clinic were found to harbour urological lesions; of which urolithiasis (20.4%) and urological malignancies (14.2%) were the most common lesions identified. Transitional cell carcinoma of the bladder was the most common malignancy diagnosed (8%). Significantly, 2 of 9 (22.2%) bladder cancers were found on cystoscopy and missed on the cystogram phase of the intravenous urogram. Ten urological lesions would have been missed if cystoscopies were not performed. Conversely, in 14 patients, cystoscopy could be avoided because their intravenous urograms identified lesions sufficiently to allow for definitive treatment.

Conclusions: The need and types of investigation for patients with haematuria are evolving. We recommend intravenous urogram and flexible cystoscopy as the standard investigations and caution against ignoring microscopic haematuria. These assessments can be organised into an integrated clinic improving deliverance of clinical care; which may result in better patient compliance for investigations and earlier detection and treatment of urological lesions presenting as haematuria.

Keywords: stone, cancer, gross, investigations, microscopic, urology

INTRODUCTION

Haematuria has a prevalence of 0.1% – 2.6% in population studies⁽¹⁻³⁾. The causes are varied and it can present in any age group. When it occurs in the paediatric age group, glomerular diseases have to be considered. In sexually active females, cystitis is the most common cause. In the elderly, haematuria is a sinister symptom and urological malignancies have to be excluded. Patients with gross haematuria may harbour urological malignancies in 14.7% – 21.8% of cases^(4,5). Even among those with microscopic

haematuria, urological malignancies have been reported to occur in 2% – 11% of cases^(6,7). To streamline the investigations, a Haematuria Clinic was set-up so that consultation, intravenous urogram (IVU) and flexible cystoscopy could be performed in one visit.

METHODS AND MATERIALS

The Haematuria Clinic was set up in Tan Tock Seng Hospital in April 1995. This clinic is a patient-centered one-stop facility. Patients can be booked into this clinic for consultation in the morning, have the IVU done in late morning and flexible cystoscopy done in the afternoon. Instructions for bowel preparation are faxed to the referring doctor when an appointment is sought.

The patient is sent for IVU after consultation in the morning and the films reviewed by the urologist together with the radiologist. The need for flexible cystoscopy would then be determined. If an obvious urological lesion was found, the patient would be admitted for definitive treatment. Patients who are seen outside the Haematuria Clinic can also have their IVU and flexible cystoscopy done by the Haematuria Clinic.

Between April 1995 and February 1997, 113 patients were reviewed. A protocol was set-up and data collected on all patients. In our protocol, microscopic haematuria is defined as > 5 red blood cells per high power field of urine in males, and > 8 in females. The type of haematuria, symptoms, IVU findings, cystoscopic findings and subsequent management were recorded.

RESULTS

The mean age of the study group was 58 (range 22 to 88). There were 85 males and 27 females. Eighty-four patients presented with gross haematuria and 29 had microscopic haematuria diagnosed on urine FEME.

Urological lesions were identified in 48 (42.3%) patients. The following were diagnosed: 23 (20.4%) urolithiasis, 16 (14.2%) urological malignancies, 3 (2.7%) urethral strictures, 2 (1.8%) cystitis, 2 (1.8%) urethritis, 1 (0.9%) renal cyst and 1 (0.9%) BPH (Table I). Thirty-nine of these 48 patients presented with gross haematuria. Hence 46.4% (39 of 84) of patients with gross haematuria were found to harbour urological lesions. Conversely, 31% (9 of 29) patients

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Table 1 – Urological lesions identified

Urolithiasis		23	(20.4%)
ureteric	10		
renal	8		
bladder	4		
ureteric and renal	1		
Urological malignancy		16	(14.2%)
TCC bladder	9		
RCC	6		
TCC upper tract	1		
Urethral lesions		5	(4.4%)
strictures	3		
urethritis	2		
Cystitis	2		
Renal cyst	1		
BPH	1		

with microscopic haematuria had significant urological lesions.

Of the 23 patients with urolithiasis, 10 had ureteric stones, 8 had renal stones (one with bilateral staghorn stones), 4 had bladder stones and 1 had both ureteric and renal stones.

Sixteen patients were diagnosed to have urological malignancies. The mean age of these patients was 66, which is 8 years more than the mean age of the study cohort. There were 6 (5.4%) renal cell carcinoma, 1 (0.9%) transitional cell carcinoma of the kidney and 9 (8%) transitional cell carcinoma of the bladder. Two of the 9 (22.2%) bladder carcinomas were missed on intravenous urogram and diagnosed on flexible cystoscopy.

There were 40 abnormal IVUs reported. Fourteen of the IVUs showed obvious lesions and the patients were admitted for definitive treatment, without undergoing flexible cystoscopy. The abnormalities included bladder stones (4), bladder tumours (7) and upper tract tumours (3). Conversely, 10 lesions (2 bladder cancers, 3 urethral strictures, 2 cystitis, 2 urethritis and 1 BPH) were identified solely by cystoscopy.

DISCUSSION

Haematuria, whether gross or microscopic, especially in the elderly, should not be dismissed without thorough investigations. In this study, nearly half of the patients who presented with haematuria had urological lesions. While the majority of the lesions were benign, 1 in 6 patients with haematuria might harbour a urological malignancy, of which bladder cancers are the most common.

Which patients with haematuria should be investigated? Some doctors would investigate all patients regardless of their age or sex^(8,9). Others are more selective and would recommend investigations for those above 40, and only those with haematuria that cannot be attributed to any cause if they are below 40^(3,6). Some placed less significance on asymptomatic microscopic haematuria^(1,10) while others caution against ignoring microscopic haematuria even if it is an isolated finding^(6,11). Should we over-investigate or

risk under-diagnosing? The question is as much economic as medical. We are unable to answer the question in this paper. The decision rests with the attending physician and the patient. As a guide, it may be prudent to err on the side of over-investigating rather than under-diagnosing.

The reluctance to investigate a patient with haematuria may be due to the types of investigations recommended. Is IVU mandatory or an ultrasound of the upper tract with KUB sufficient? Flexible cystoscopy, which is an office procedure, has made cystoscopic examination more acceptable to patients and welcome in hospitals with over-stretched inpatient facilities. Together with ultrasound, which is also an office investigation, and KUB, the patient can be investigated with minimum preparation and on the same visit. This is attractive for patients with little time to spare. It has been proposed as an alternative to IVU⁽¹²⁾; but it must be accepted that small, non-obstructing upper tract tumours and radiolucent ureteric stones may be missed on this diagnostic protocol. Intravenous urogram, on the other hand, can demonstrate subtle mucosal abnormalities associated with early upper urinary tract tumours and is a sensitive detector of obstructing or non-obstructing ureteric calculi, which may not be seen on plain films. Intravenous urogram is still regarded as the best imaging modality for the upper urinary tract⁽¹³⁾. Furthermore, diagnosis of bladder cancer at cystoscopy will necessitate intravenous urogram to exclude synchronous transitional cell tumours in the upper tract; and ultrasound is known to be a poor imaging technique for ureteric lesions or exclusion of small renal tumours. Hence, in our Haematuria Clinic, our protocol is IVU with or without cystoscopy.

There is a suggestion that the sensitivity of ultrasound in detecting bladder tumours may eliminate the need for cystoscopy in the evaluation of haematuria⁽¹⁴⁾. The results are still tentative and at present, cystoscopy remains the gold standard for bladder cancer detection^(13,15).

How should a patient with persistent haematuria be followed-up after the exclusion of urological lesions with the usual investigations? In those with microscopic haematuria, fresh urine for phase-contrast study may suggest glomerular disease if dysmorphic red blood cells are seen. If isomorphic cells are noted, extra-glomerular lesion needs to be excluded. In the elderly patient, we would suggest ureteroscopy to exclude ureteric lesions, which may be missed on the intravenous urogram. If no urological lesions can be identified, the need for and the type of follow-up assessments are not established. Long-term routine follow-up of asymptomatic micro-haematuria gives little yields for subsequent diagnosis of significant urological lesions and have been largely abandoned for selective follow-up when symptoms developed⁽¹⁶⁾. However, for gross haematuria, after the exclusion of haematological causes, the information on follow-up is not clear. We would suggest closer follow-up with serial radiological assessments and cystoscopy during the episodes of gross haematuria.

The advantages of a one-stop Haematuria Clinic are recognised^(9,17,18). It reduces the anxiety of patients waiting for investigations and eliminates delays in treatment (the main area of delay has been identified as hospital delay⁽¹⁹⁾). The concept has evolved from 'preclinic investigations' to 'haematuria diagnostic service' to 'open access haematuria clinic' which we have adopted. In an open access clinic, referral is by telephone and all investigations are performed in one visit. Such open accesses encourage immediate referral, early investigations and acceptance by the patient for further evaluations. Such a concept of an integrated clinic is neither new nor is it unique to haematuria. There has been other such clinics eg. diabetic clinic, voice clinic, allergy clinic. However, their numbers have remained small. Such integrated clinics, when run in parallel with a general specialist clinic, does not incur extra cost and yet offers many advantages. We can expect greater demand for such integrated clinics from healthcare service receivers.

We advocate a patient-based protocol rather than a symptom-based protocol for integrated clinics. In our protocol, the patient was reviewed by a urologist during the initial contact. The need for investigations was only determined after the consultation. And the urologist was involved in each step of the process. This reduced service wastage, which has been suggested as a likely disadvantage⁽¹⁸⁾, and provided a personal touch. Symptom-based protocols put the patients through a diagnostic protocol based on symptoms. The contact with a doctor is at the end of the process. While this reduces the utilisation of specialist's services, it increases the probability of unnecessary investigations and costs. In cases of haematuria, what constitutes appropriate diagnostic protocol varies among patients (age group, sex, sexual behaviour, symptoms) and, as discussed above, the modalities of investigations remain a matter of debate^(17,20).

Advances in medical technologies have allowed for many procedures and investigations to be office-based. Ultrasound and flexible endoscopies can be performed in the clinic. They are affordable and are widely available in single-practice clinics. Counters can perform urine microscopic examination without the need for laboratory technicians. Kits are also available for assay without the need for laboratory facilities. These advances will provide impetus for evolution of the "one-stop centre" concept to a "one-stop clinic" concept. However, before these newer modalities of investigations are embraced wholeheartedly, we must be certain of their reliability as alternatives to the established methods. A case in point would be the reliance on ultrasound assessments to replace IVU and cystoscopy in the investigations for haematuria as discussed above. While it is attractive and will vastly improve our providence of urological service, more studies are needed before it can be accepted as alternative investigations. The trend to provide more efficient services, however, will be more pressing and we, the clinicians must take the lead.

CONCLUSION

Haematuria, especially in the elderly must be thoroughly investigated. The incidence of urological lesions is significant and urological malignancy must be excluded. An open access haematuria clinic can encourage immediate referral, early investigations and patients' acceptance of further evaluations. We recommend intravenous urogram first, followed by flexible cystoscopy if necessary for the evaluation of haematuric patients.

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