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Introduction

- Hematuria accounts for a significant proportion of urology workload
- Guidelines for investigation & management are unclear

Objectives

To evaluate the outcomes for visible hematuria (VH) versus non-visible hematuria (NVH) & update the guidelines. This is the largest study with the longest follow-up ever.

Patients and Method

2778 patients presenting with either VH (1804) or NVH (974) between 1999 – 2009 were prospectively investigated with upper tract imaging using ultrasound and/or intravenous urography, computerised tomography, urine cytology & cystoscopy.

Demographics, investigation results & clinical diagnoses were recorded in a Microsoft Access database. Presenting features & range of pathologies detected were fully analysed.

Subgroup analysis was performed for hematuria patients < 40 years of age and for recurrent VH.

October 2017: Final analysis was performed using electronic patient records.

Results

Demographics for NVH & VH - different

Demographics	NVH	VH
Number of patients	974	1804
Age range (mean)	15 - 100 (59.2)	13 - 110 (63.3)
Male: Female	504 : 470	1363 : 441
Smokers (M: F) (%)	393 (231:162) (41.5)	748 (615:133) (41.5)
FU range years (mean)	8.0 - 18.5 (14.9)	8.5 - 18.5 (13.7)

Outcomes for NVH & VH - *remarkably* different

Diagnosis	NVH	VH
No Pathology (%)	859 (88)	804 (44.56)
Benign Pathology (%)	68 (7)	605 (33.54)
Malignant Pathology (%)	47 (4.96)	395 (21.90)
Total	974	1804

NVH & VH < 40 outcomes - *significantly* different

Diagnosis	NVH	VH
No Pathology (%)	108 (98.2)	166 (87.4)
Benign Pathology (%)	2 (1.8)	17 (8.9)
Malignant Pathology (%)	0 (0)	7 (3.7)
Total	110	190

Benign pathology: calculi (renal/ureteric), cystitis / UTI, hydronephrosis (benign aetiology), renal cyst(s), urethral stricture/bladder neck stenosis, bladder stone.

Malignant pathology: bladder cancer, renal cancer, prostate cancer, metastatic disease.

Results

Incidence & Pathology - recurrent NVH

None of the re-investigated recurrent NVH was diagnosed with malignant pathology.

Incidence & Pathology - recurrent VH

Diagnosis	Number (%)
UTI / stone disease	17 (26.56)
LUTS	8 (12.50)
Prostate cancer (+ high PSA)	4 (6.26)
Urological cancer	7 (10.93)
No pathology	28 (43.75)
Total	64

Conclusions

- **NVH: Incidence of malignancy is low (5%). The majority cleared by initial investigations remained asymptomatic. None developed a new malignancy**
- **VH: Incidence of malignancy is high (22%). 50% of recurrence indicated pathology. Vigilance/repeat investigations are required.**
- **Age & type of hematuria should guide investigations**
- **Guidelines need updating**

References

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