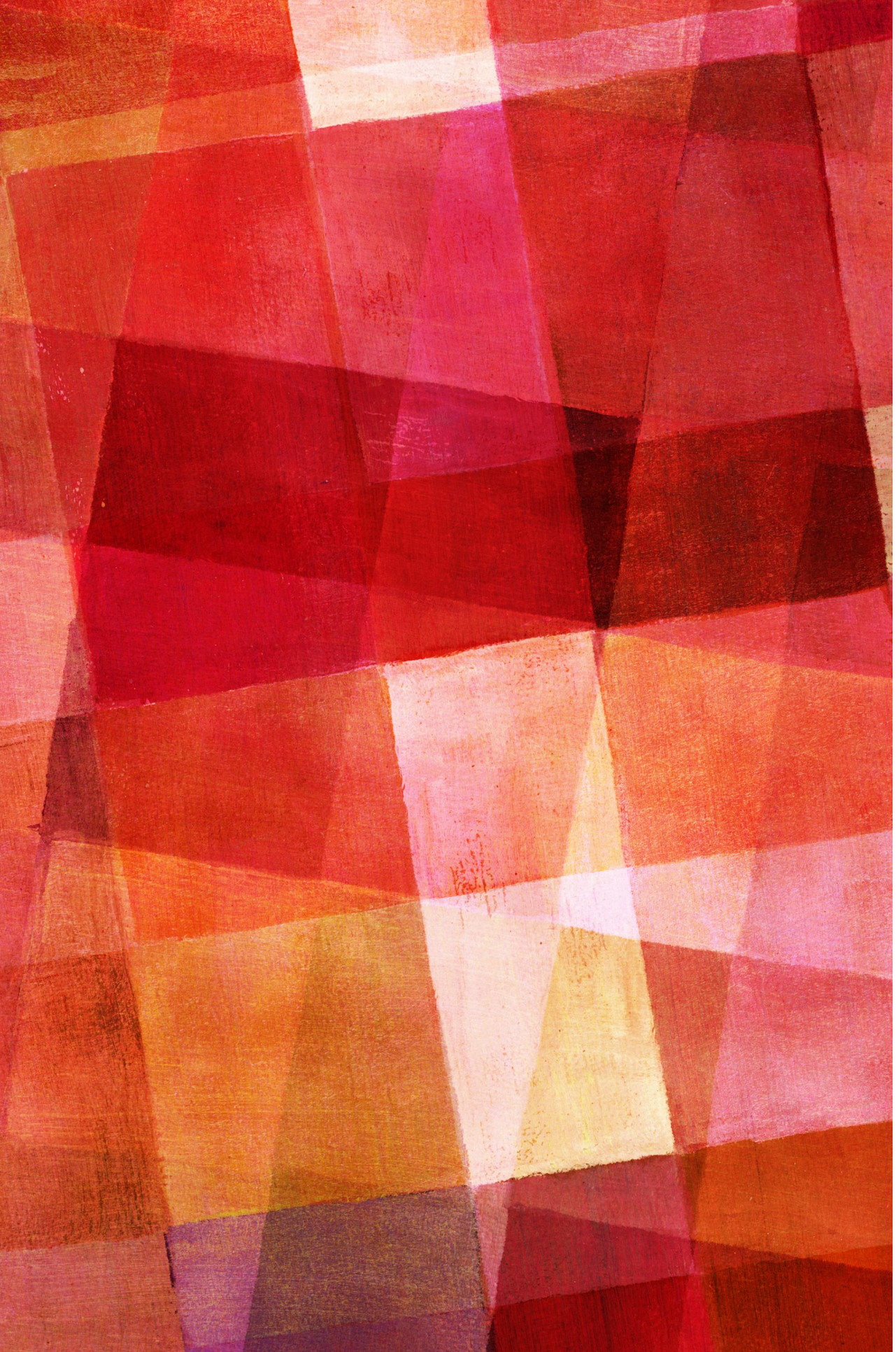
HAEMATURIA

Philip James



OBJECTIVES

- Terminology (NVH vs VH)
- Initial investigations (and when to refer)
- Causes/ Risk factors/ Important points in the history
- Management in Hospital

TERMINOLOGY

- VISIBLE HAEMATURIA (VH)
  - Otherwise referred to as “macroscopic haematuria” or “gross haematuria”
  - Pink/ Red
  - Other (rare) causes of discoloured urine:
    - Myoglobinuria, Beeturia, Drug discolouration (rifampicin/ doxorubicin), Acute GN (“cola-coloured”)

TERMINOLOGY

- NON-VISIBLE HAEMATURIA (NVH)
  - Otherwise referred to as “dipstick positive haematuria” or “microscopic haematuria”
  - Can be further sub-divided:
    - SYMPTOMATIC (s-NVH) inc. urgency/ frequency/ dysuria
    - ASYMPTOMATIC (a-NVH) e.g. incidental detection on admission



URINE DIPSTICK

- Relies on the alteration of a chromogen (orthotolidine) by the peroxidase activity of haemoglobin
  - Colour change is compared to known standards
  - Electronic strip readers eradicate user error
- Urine dip is a sensitive test, and does not require microscopy for confirmation
- Trace haematuria should be considered NEGATIVE

WHAT IS SIGNIFICANT HAEMATURIA?

- Transient causes need to be excluded:
  - UTI + haematuria is not uncommon - check for resolution after treatment. (REMEMBER- UTI can be the first presentation of significant pathology)
  - Exercise induced haematuria/ myoglobinuria (rare)
    - Menstruation
- VH/ NVH should NOT be attributed to anti-coagulant/ anti-platelet therapy

WHAT IS SIGNIFICANT HAEMATURIA?

- Any single episode of VH
- Any single episode of s-NVH (in the absence of UTI/ transient causes)
- Persistent a-NVH (in the absence of UTI/ transient causes): 2 out of 3 dipsticks positive

- PLEASE NOTE that there is a difference between what is SIGNIFICANT, and what is on the 2WW REFERRAL CRITERIA:
  - >45 w/VH, VH despite Rx for UTI, >60 w/NVH + dysuria

INITIAL INVESTIGATIONS

- MSU (to exclude UTI)
- Plasma creatinine/eGFR
- Urine protein:creatinine ratio
- Blood pressure

- These investigations help to differentiate UROLOGICAL vs NEPHROLOGICAL causes of haematuria

REFER TO UROLOGY IF…..

- Any VH
- Any symptomatic NVH
- Asymptomatic NVH > 40 years old

- Nephrology may be more appropriate if:
  - Worsening eGFR (but get imaging)
  - CKD Stage 4/5
  - Proteinuria
  - Haematuria + hypertension if < 40 years old



HAEMATURIA IS COMMON

- In healthy US soldiers undergoing annual medical over 12 years:
  - 40% had 1 x NVH
  - 15% had at least 2 x NVH
- 5% of young adults (10% if >50 yo)
- Haematuria and risk of uro cancer
  - NVH 5-10%
  - VH 20-25%

HAEMATURIA AND UROLOGICAL CANCER

	ALL H	NVH	VH
BLADDER	12%	5%	13%
RENAL	0.7%	0.4%	1%
PROSTATE	0.4%	0.2%	0.6%
BENIGN	27%	26%	29%
NO CAUSE	61%	68%	56%

CAUSES OF HAEMATURIA BASED ON ANATOMICAL LOCATION

LOCATION	CAUSE
RENAL	Ca, Trauma, Nephrological, Stones, Infective (TB/ pyelo)
URETERIC	Ca, Stone, Trauma, Infective (TB)
BLADDER	Ca, Stone, Trauma, Infective (Bacterial, TB, Schisto)
PROSTATE	Ca, BPH, Prev. TURP, Infective (prostatitis)
URETHRA	Infective (urethritis), Urethral Ca
PENILE	Ca, Stricture, Trauma (inc. catheterisation)

CAUSES OF HAEMATURIA; A SUMMARY

- UROLOGICAL vs NEPHROLOGICAL
- BENIGN vs MALIGNANT
- Categorise based on location:
  - Renal, Ureteric, Bladder, Prostate, Urethra



CASE SCENARIO

- 83 year old man
- Called to A+E, blood in urine

- What do you do?
- What are the important features in the history?
- What investigations do you require?

CASE SCENARIO

- HISTORY
  - VH vs NVH
  - Duration/ Episodic
  - Dysuria/ LUTS/ UTI
  - Pain, inability to pass urine
- RISK FACTORS/ PMH
  - Smoking (former 2x RR, current 4x RR of bladder cancer) (20-30% RCC linked to smoking)
  - Age
  - Anticoagulation
  - Occupational carcinogens (7% bladder cancer attributable to exposure)
  - Dialysis (4x RR RCC)
  - UROLOGICAL Hx: Prev. TURP, Prev. Bladder cancer, Prev. pelvic DXT

CASE SCENARIO

- EXAMINATION
  - Abdo: Loin mass, Palpable bladder
  - Lymph nodes
  - External genitalia: Varicocele/ visible cause of bleeding
  - DRE
  - General (i.e. PERFORMANCE STATUS)

CASE SCENARIO



CASE SCENARIO

- INVESTIGATIONS:
  - MSU/ MC+S
  - Bloods (FBC/ U+E/ Coag)
  - Upper tract imaging (USS vs CT Urogram)
  - Flexible cystoscopy



CT UROGRAM VS USS

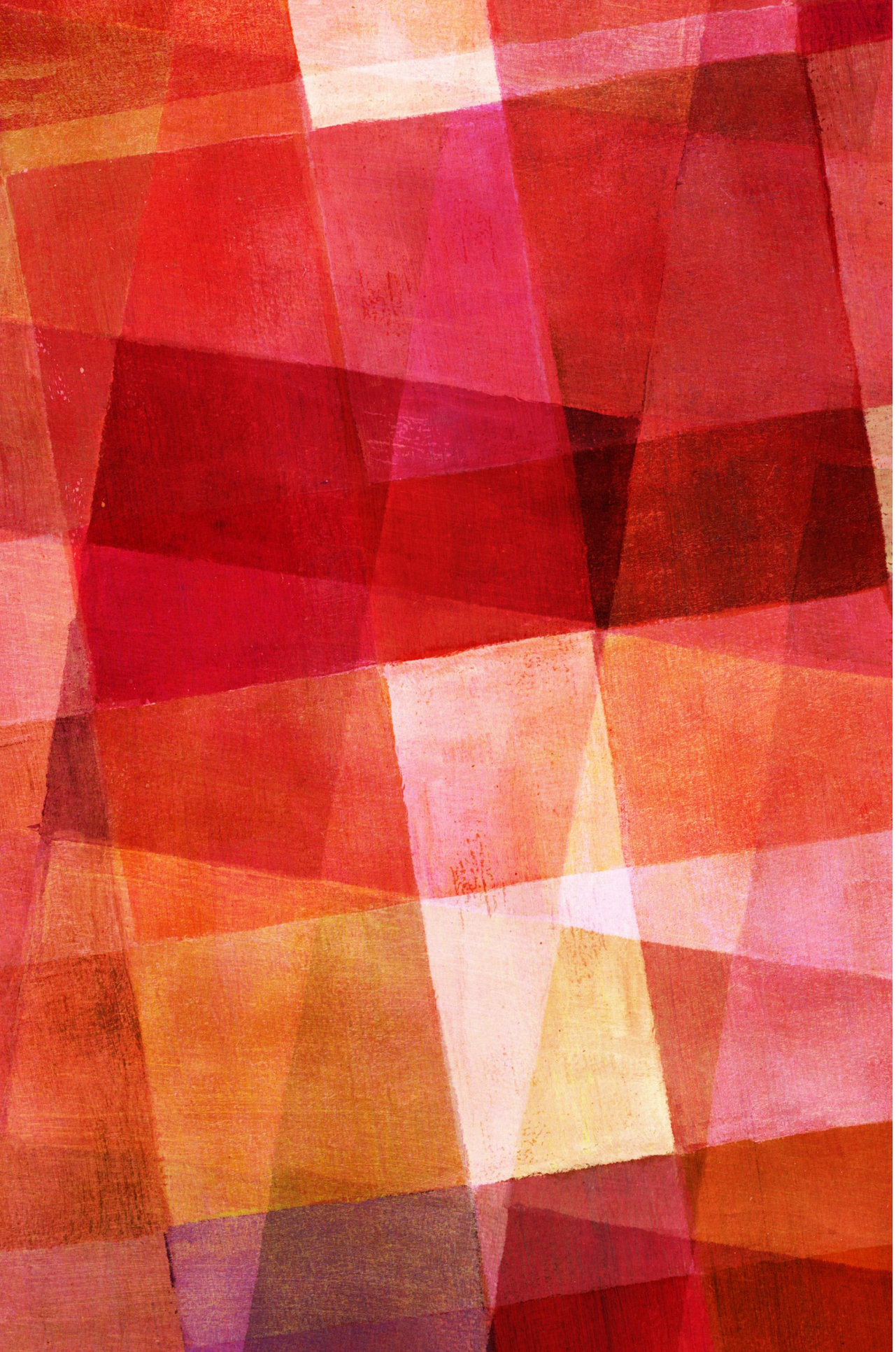
- Khadra et al (2000)
  - 1930 patients
  - 4 cases of UUT malignancy would have been missed if only US or IVU had been used to image upper tracts
  - CT-U has replaced this approach in modern investigation.

- Remember: if requesting a CT for investigation of haematuria you MUST include an excretory phase



FLEXIBLE CYSTOSCOPY

- More commonly performed as an outpatient
- Uses white light, therefore difficult to visualise anything in the presence of blood/ active bleeding
- If CT-U shows evidence of bladder cancer (i.e. filling defect), then we would proceed directly to GA TURBT



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ANY QUESTIONS?

