renal colic

- classical presentation is of acute colicky pain radiating to the groin
- as the stone descends in the ureter, the pain may localise to the abdominal area overlying the stone & radiate to the groin
- as the stone approaches the ureterovesical junction, lower quadrant pain radiating to the tip of the urethra, urinary frequency & urgency & dysuria are characteristic

Investigations:

- 1. MSU - gross or microscopic haematuria occurs in approximately 90% of patients
- 2. imaging:
  - (i) CT - sensitivity of CT approaches 100% & when CT is negative it reveals an alternative diagnosis in 57% of patients
  - (ii) KUB - KUB should be performed when CT reveals the presence of stones or if CT is not available; 75-90% of urinary calculi are radioopaque
  - (iii) USS - specificity is greater than 90% but sensitivity is only 11-24%

Treatment:

- Urgent urological intervention is indicated for:
  - (i) obstructed infected upper urinary tract
  - (ii) impending renal deterioration
  - (iii) intractable pain or vomiting
  - (iv) anuria
  - (v) high grade obstruction of a solitary or transplanted kidney

- Infection proximal to a stone is suggested by fever, urinalysis showing pyuria & bacteruria & leucocytosis. Impaired GFR associated with obstruction inhibits entry of antibiotics into the collecting system & requires emergency decompression by means of either percutaneous nephrostomy or ureteral stenting; E. coli is the most common organism & antibiotics should cover this.

- KUB should be performed when CT reveals the presence of stones or if CT is not available; 75-90% of urinary calculi are radioopaque
- USS - specificity is greater than 90% but sensitivity is only 11-24%

- B. treat pain & nausea. Treatment for pain include:
  - ketorolac 30-60mg IV or IM loading dose then 15mg IV or IM every 6 hours
  - diclofenac 50mg PO 2-3Xs/day
  - morphine sulphate 0.1mg/kg IM or IV every 4 hours

- Peritoneal signs are absent
- Tenderness over the costovertebral angle or lower quadrant may be present

- Owing to the shared splanchnic innervation of the renal capsule & intestines, hydronephrosis may produce nausea & vomiting

- Indinavir stones

- D. uric acid stones - uric acid stones are unique in that they can be managed medically with urinary alkalinisation; solubility of uric acid increases above 6.5
- Rx 20mmol of potassium citrate 2-3Xs/day with reassessment to ensure urinary alkalinisation to pH 6.5-7.0
- Imaging can be repeated at one month to ensure that dissolution has occurred otherwise treatment should proceed as for a radioopaque stone

- E. metabolic evaluation & prophylaxis - renal deterioration is more likely from repeated episodes
- Options for metabolic evaluation include:
  - (i) stone composition analysis
  - (ii) 24hr urine collection for volume, calcium, oxalate, uric acid phosphate, sodium, citrate, creatinine & sulphate +/- cystine
  - (iii) serum calcium & uric acid
  - general advice includes restriction of animal protein & salt, drinking enough to produce 2L urine / day
  - Specific abnormalities should be treated