Chapter 10

HAEMATURIA

Defined as more than 10 erythrocytes per cu mm of urine. 3.4% children have some haematuria in 1 out of 4 specimens.

Monosymptomatic haematuria due to glomerular disease is linked with selective glomerular proteinuria whereas haematuria of urinary tract origin is accompanied by complete pattern of serum proteins.

It is important to make sure that discoloration of urine is due to blood and is not pigmentary due to ingestion of beet root, carotene or excretion of alcaptone, urate, tyrosine, haemoglobin, drugs or dyes.

It is also desirable to exclude local hemorrhage due to meatal ulceration or foreign body damaging distal urethra in males and menstruation in females.

CAUSES

1. Urinary tract infection: Bacteriuria and pyuria are usually present. Frequency and dysuria coexist.
2. Nephritic syndrome: There is lysis of red cells (smokey urine). Cellular casts and leucocytes in urine. Oliguria is common. May be transient as in streptococcal nephritis and anaphylactoid nephritis or continuing in membranoproliferative glomerulonephritis and Gutherie syndrome.
3. Nephrotic syndrome: About 20% of all nephrotic syndrome may present with erythrocyturia which is gross in 10%. Red cells are usually intact as compared to lysis which occurs in acute nephritis.
4. Schistosomiasis.
5. Trauma, accidental or deliberate as in battered baby syndrome or on percutaneous renal biopsy.
6. Neoplasia: nephroblastoma or rhabdomyosarcoma of bladder.
7. Tuberculosis: haematuria occurs with sterile pyuria.
8. Bleeding disorders: coagulation and platelet diseases.
9. Drugs: streptomycin, cyclophosphamide and cytotoxics.
10. Benign recurrent haematuria: First described by Scheidmandel in 1913 as renal epistaxis. Biopsy shows focal segmental proliferation accompanied

by basement membrane deposits. On immunofluroscent study C3, IgA, IgG granular mesangial deposits are seen. Prognosis is good in most children. Existence of familial nephritis should be excluded. Audiogram may help to exclude Alport syndrome.

11. Renal vein thrombosis.
12. Developmental disorders such as polycystic kidney.
13. Hydronephrosis.
14. Renal calculus.
15. Physical stress.
16. Response to viral infection.
17. Berger disease: There is accumulation of IgA, IgG and C3 in mesangial region. Infection is causal. There are recurrent episodes of haematuria following mild upper respiratory infections.

POSTURAL PROTEINURIA

Proteinuria is absent or slight or within normal limits in lying position but becomes greater in upright position.

It occurs in 2-5% of normal adolescents and disappears as they grow older.

Number of other causes of proteinuria such as resolving nephrotic syndrome may show aggravation of proteinuria by assumption of vertical posture ie have postural component.

Mechanism:

1. Increased penetration of plasma proteins through glomerular capillary wall.
2. Reduced reabsorption of proteins by renal tubules when upright posture is assumed.

Alterations in blood vessel tone or venous pressure produced by standing contributes to loss of proteins through tubules.

Diagnosis is by exclusion of other causes of proteinuria. If there is no demonstrable abnormality such as haematuria, elevation of ASO titre, hypertension, constant proteinuria in horizontal position then parents should be reassured.

Urinary tract infections should be excluded in all patients.

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