

Normal glomerular capillary

Capillary with proteinuria

Urine

Proteinuria



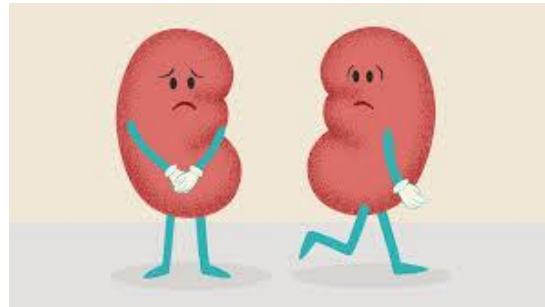
Proteinuria

- ▶ May signify underlying pathology
- ▶ May be normal in febrile illness
- ▶ Usually requires further investigation
- ▶ Can be presenting feature or may be found incidentally



Differential Diagnoses

- ▶ Normal orthostatic response
- ▶ Fever
- ▶ UTI
- ▶ Nephrotic syndrome
- ▶ Renal pathology- glomerulonephritis / renal failure / renal leak



Heavy proteinuria

- ▶ 3 or 4+ on dipstick
- ▶ Likely to be significant
- ▶ UTI
- ▶ Nephrotic syndrome
- ▶ Renal failure
- ▶ Nephritis

Nephrotic Syndrome

- ▶ Heavy proteinuria, oedema, hypoalbuminaemia
- ▶ Periorbital oedema, ascites, hypertension
- ▶ Associated with significant morbidity
- ▶ 1st presentation often admitted



Nephrotic Syndrome – outpatient Management

- ▶ Most children will respond to steroids
- ▶ Follow up in clinic until relapse free for 1 year and off medication for 2 yrs
- ▶ Outpatient monitoring:
 - ▶ Proteinuria
 - ▶ Steroid side effects / growth
 - ▶ Family monitoring & education
- ▶ When to consider second agent:
 - ▶ 3+ relapses / yr
 - ▶ Steroid dependence
 - ▶ Significant steroid side effects



Atypical Nephrotic – When to refer to tertiary nephrology

- ▶ No response to high dose steroids after 4 weeks – rapid referral
- ▶ Renal impairment / failure
- ▶ Suspicion of systemic disease – HSP, SLE
- ▶ Frequent relapses on one additional medication
- ▶ Steroid dependence not managed with additional medication



Proteinuria - History and Examination

Dysuria, fever

Family history

History of haematuria

BP and signs of fluid overload

Rest of urine dip

Oedema, ascites or rashes

Workup

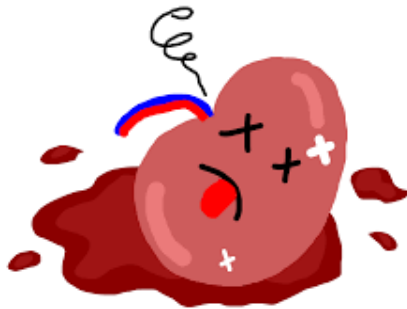
- ▶ Urgent review if possible nephrotic syndrome
- ▶ If features of UTI treat
- ▶ If <3+ and child is well then repeat urine dip 3 x over 2/52 with 1st morning urine dipped
- ▶ IF <3+ and child was febrile repeat on 1st morning urine when child well.
- ▶ Further quantification can be done with Urine protein:creatinine ratio or urine:albumin creatinine ratio

Persistent Proteinuria

- ▶ Should be seen in clinic
- ▶ Significant proportion with have underlying renal pathology
- ▶ Investigations
 - ▶ Renal uss
 - ▶ UE, LFT, C3/4, immunoglobulins, ASOT
 - ▶ BP
 - ▶ Protein quantification
 - ▶ Consider renal biopsy

Summary

- ▶ Proteinuria is a relatively common finding in children
- ▶ May be normal and resolve spontaneously
- ▶ May be a feature of significant acute or chronic underlying pathology



Nephrology – further resources

- ▶ BAPN
- ▶ <https://ukkidney.org/bapn/homepage> - lots of advice on paediatric nephrology conditions, patient advice leaflets
- ▶ BAPN – advice on Covid vaccination for renal patients and their families

Thank You

