Acute Glomerulonephritis

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Acute glomerulonephritis

Pathological lesion

- May be asymptomatic
- Acute nephritic syndrome (hematuria, edema and hypertension)
- Nephrotic syndrome
- Rapidly progressive renal failure

Post-infectious glomerulonephritis (PIGN)

- Most common cause of AGN in children
- Affects school going children

(4-14 years)

- Post streptococcal: classic example

Other infections

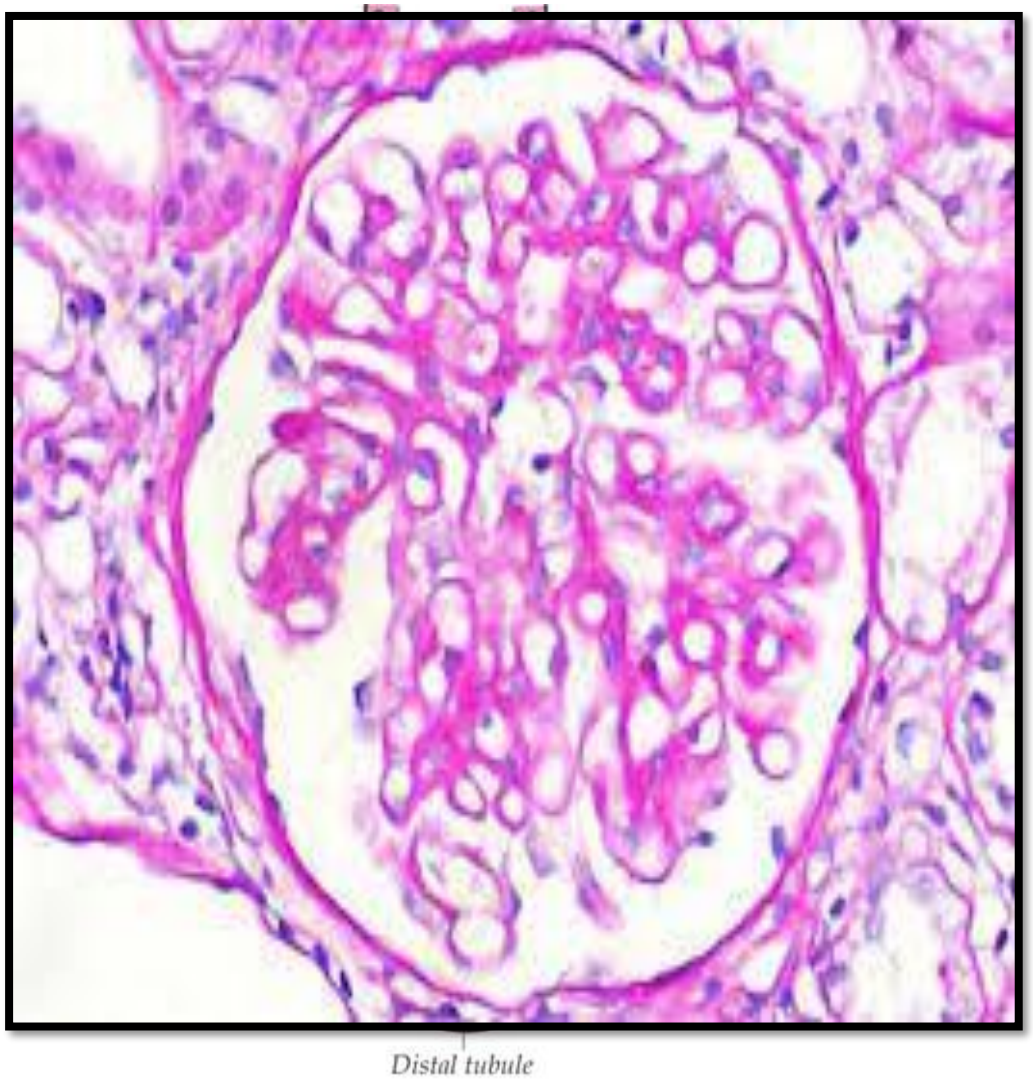
Viral- Coxsackie, Echovirus

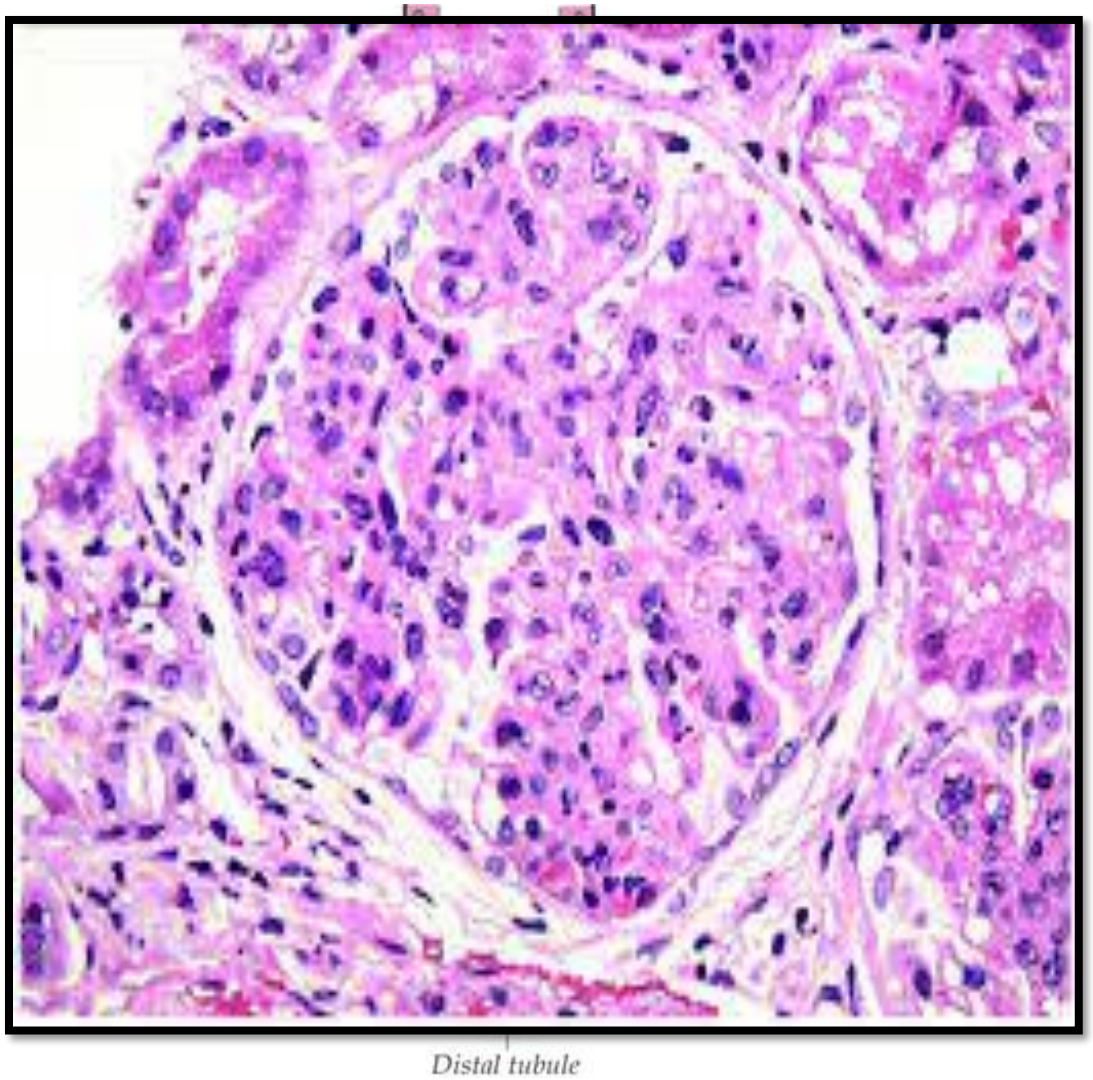
Bacterial- Staphylococcal, Mycoplasma

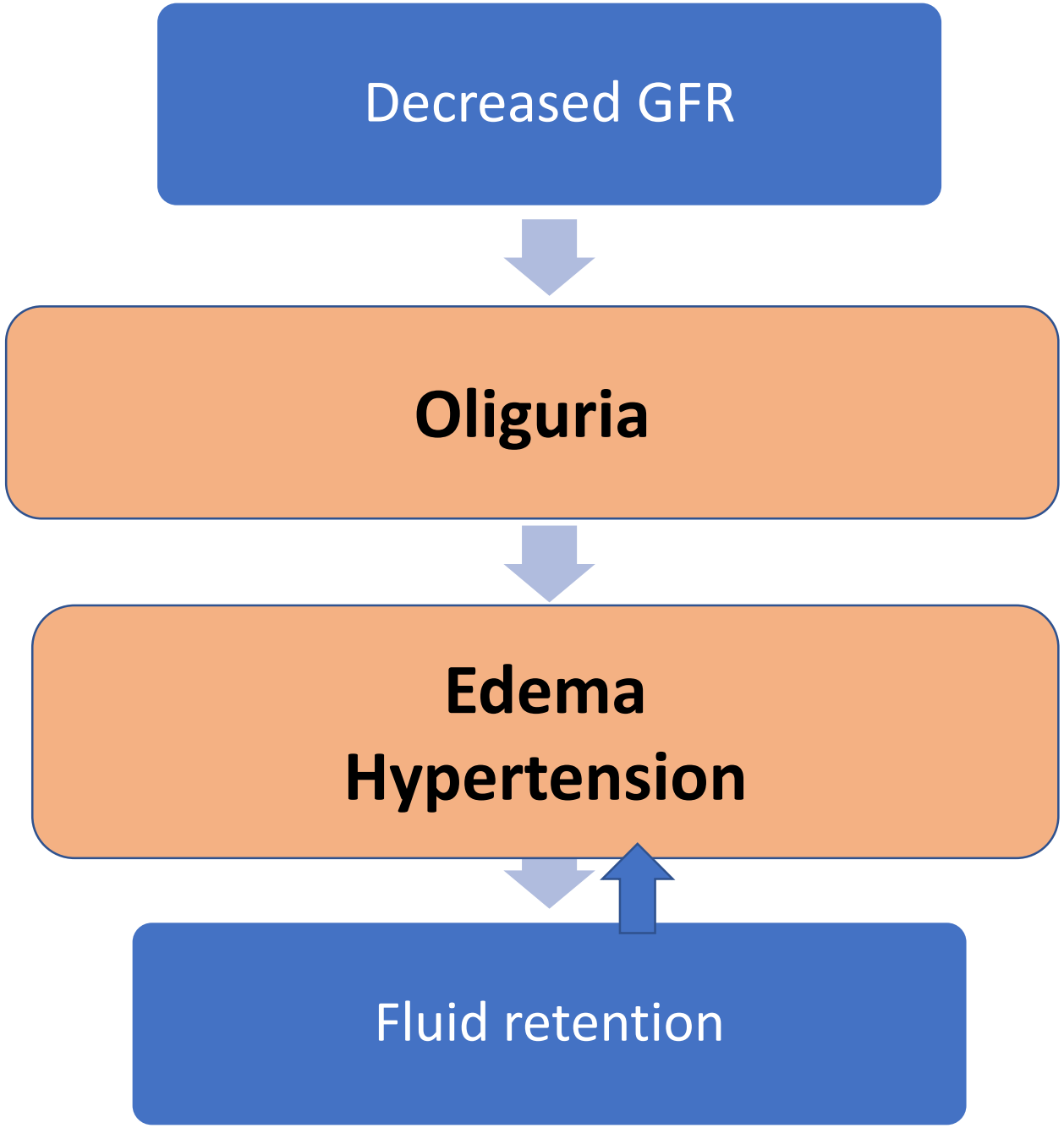
Parasites- Plasmodium malariae

Plasmodium falciparum

Pathophysiology

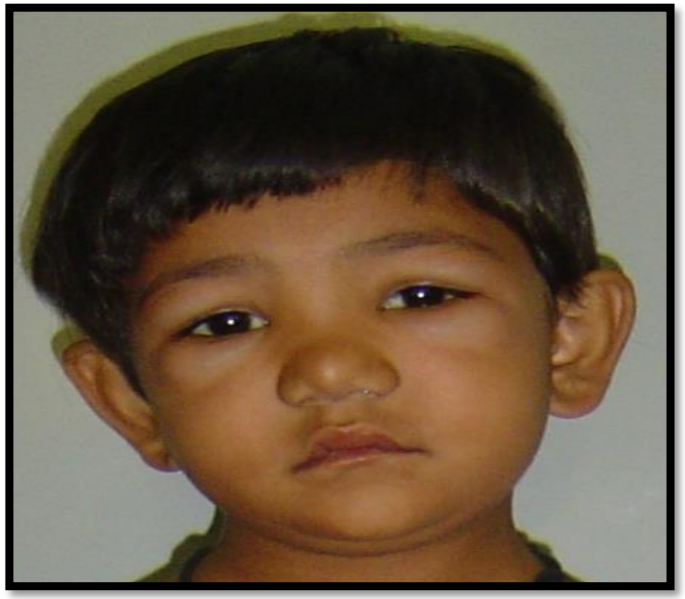





Decreased GFR
Oliguria
Edema
Hypertension
Fluid retention

Clinical presentation

- Typical age: 4-14 years
- Gross hematuria
- Edema
- Hypertension



Investigations

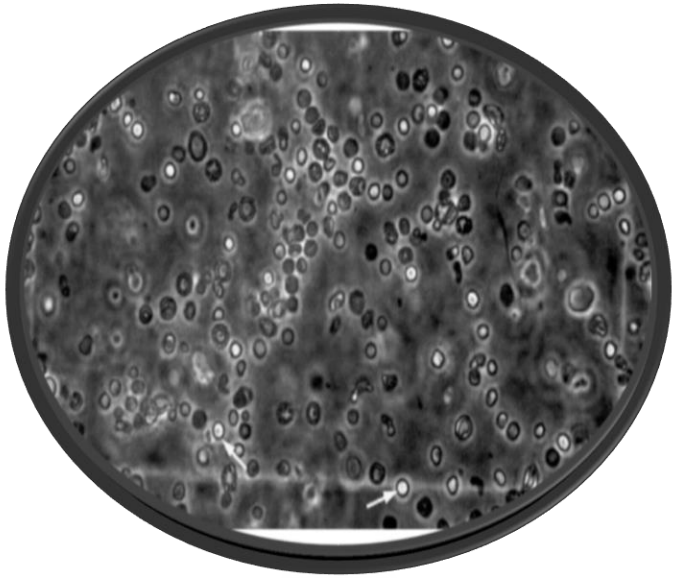
- **Urinanalysis**

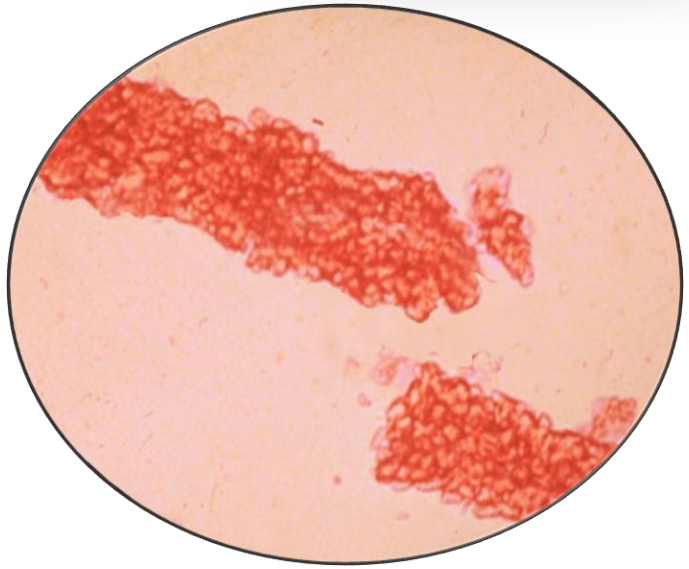
Albumin: 1+ to 2+ WBCs 8-10/hpf (Rarely 3+/4+)

Numerous RBCs, dysmorphic RBCs

RBC casts: 3-4/ hpf

- Deranged RFTs
- Low C3 and normal C4

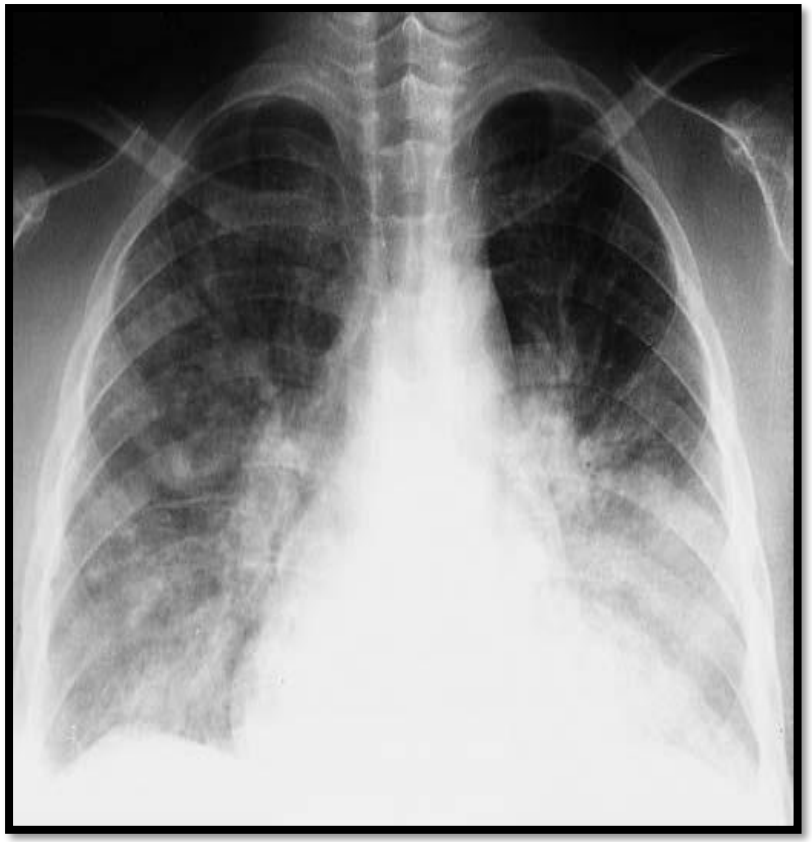




Unusual presentations

Pulmonary edema (LVF)

- Cough, breathlessness, bilateral wheeze
- ***Hypertension,*** elevated JVP, tender hepatomegaly
- **CXR:** bilateral soft alveolar infiltrates, cardiomegaly

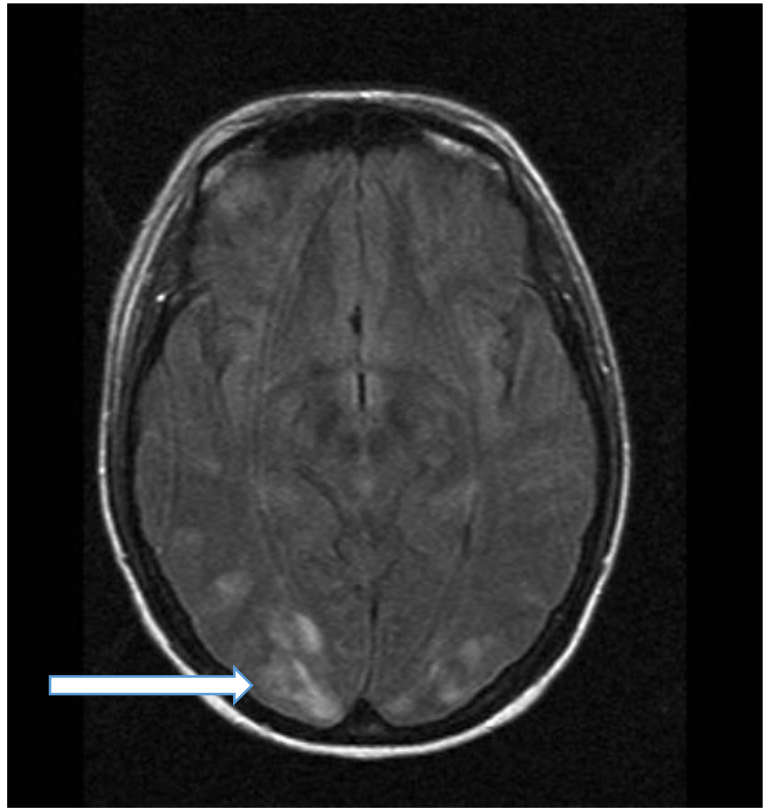


Unusual presentations

Hypertensive encephalopathy

- Altered sensorium, seizures, headache, visual complaints
- Hypertension

MRI: Posterior reversible leucoencephalopathy



May need serial examination of urine after presentation

Management

Supportive

- *Admit the child*

- *Monitor:*

➢Weight

➢HR, RR, BP, JVP, intake- output

➢Hepatomegaly, crackles

➢S creatinine and S potassium levels

- *Management of fluid overload/ hypertension*

➢No IV fluids

➢Oral intake restricted: 400 ml/ m2 + previous day's urine output

➢Salt restriction

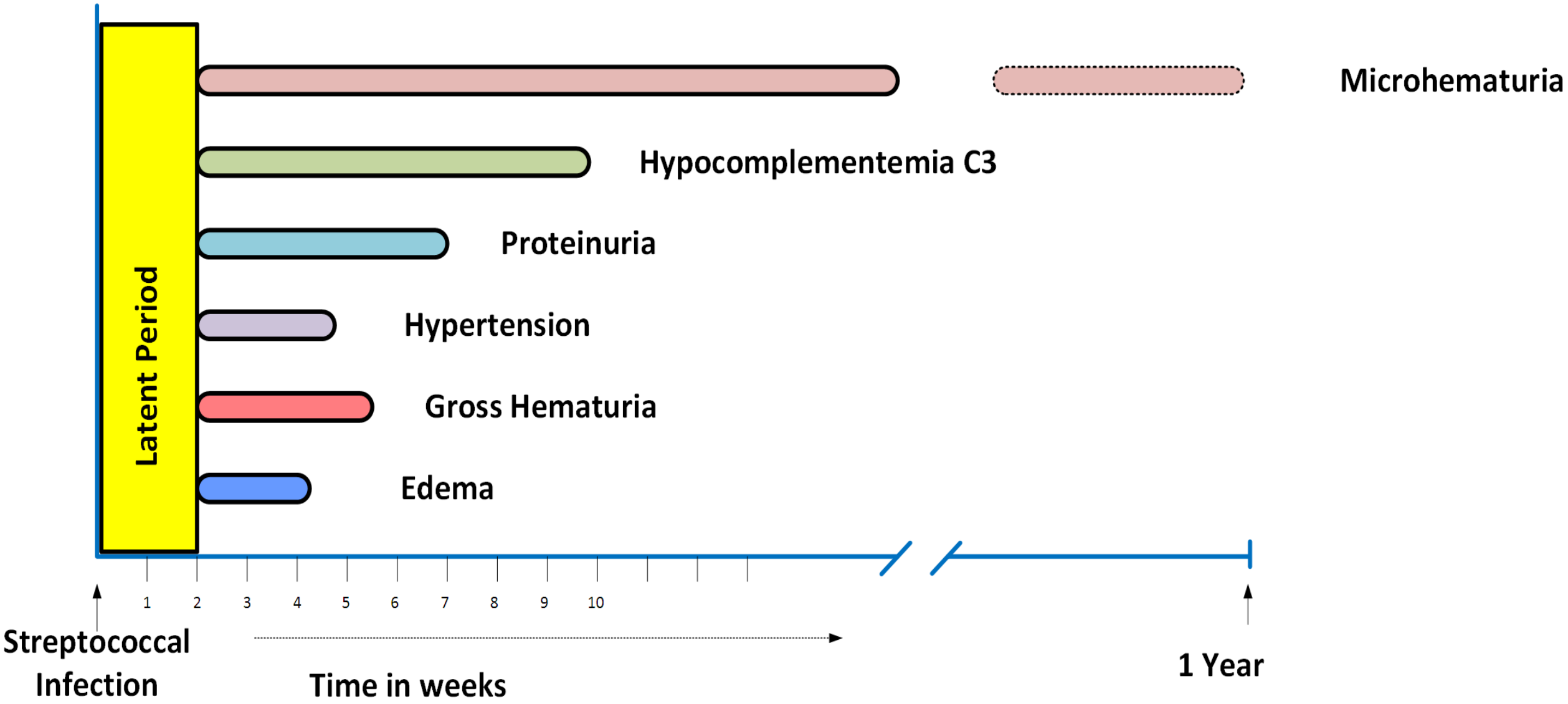
➢Diuretics: Furosemide IV: 1-2 mg/kg/dose BD

➢If HT not controlled: calcium channel blockers

➢*Potassium restriction*

➢Role of Antibiotics ?

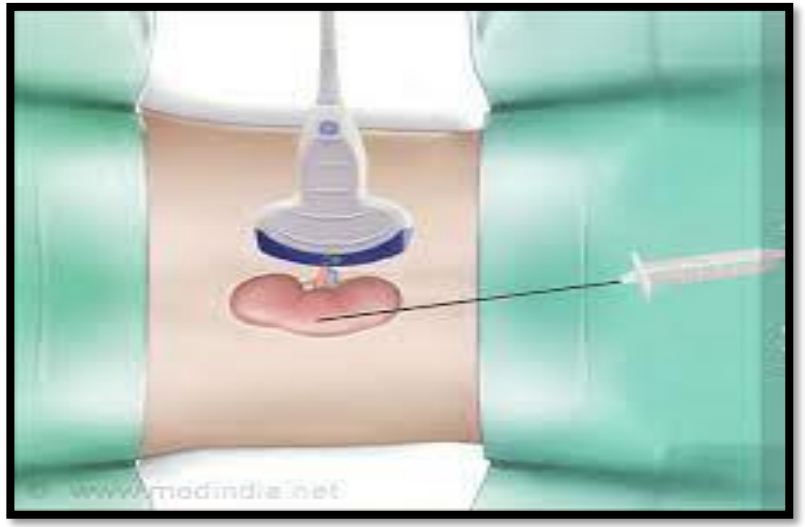
Time course in PSGN



Indications for a biopsy

- Age < 2 years
- Systemic features (Rash, arthritis, serositis)
- Normal complement levels
- Worsening renal functions
- Gross hematuria > 2 weeks
- Persistent azotemia >4 weeks
- Low complement > 12 weeks
- Microscopic hematuria > 1 year

Think beyond PIGN



When to think of RPGN?

Symptoms & signs similar to PIGN however

- Persistent oliguria, progressive worsening of renal function (>50% decline in GFR)

  over days to weeks

- Renal biopsy: > 50% glomerular crescents
- May be idiopathic/ secondary to an underlying glomerular disease

  e.g. IgA nephropathy, SLE

- When suspected, early biopsy, serological invetigations & aggressive immunosuppressive therapy may prevent progression to end stage disease

Take home messages

- Record blood pressure in all sick children
- Avoid use of intravenous fluids
- Diuretics are the drug of choice for hypertension in PIGN
- Avoid ACE inhibitors
- Always document normal C3 after 6-8 weeks

Thank You