Acute Glomerulonephritis

- **Abrupt onset of obvious macroscopic hematuria**
- **Oliguria**
- **Sudden decrease in glomerular filtration rate →**
- **Proteinuria below nephrotic range (<3g/day)**
- **OEDEMA occuring as a result of sodium retention and not hypoalbuminaemia**

ITS ALMOST ALWAYS A POST-INFECTIOUS SITUATION!

Triggering Events:

- **POST-INFECTIOUS eg. post-streptococcal**
  - **Mainly in young children with a runny nose**
  - **Occurs ~2weeks after the initial infection**
  - **Mediated by immune-complex deposition AND by the accumulation of streptococcal antigens in the glomerular filtration membrane... which then attract all kinds of immune retribution, mainly in the shape of angry complement and macrophages.**

Creatinine: measure of GFR

released from skeletal muscle at a steady rate; high level is associated with large muscle mass and exercise
high creatinine better be found in a large well-muscled patient, not a frail 90 yr old woman.
THUS in a hypovolemic patient the GFR will drop and thus the serum creatinine will RISE
Normal creatinine = GFR must be OK

FILTRATION RATE: ~100 ml per minute;
= Carefully controlled!
Very steady between 90 and 200 systolic
only extremes of blood pressure influence the GFR.
INCREASED BP = reflex contraction of smooth muscle in afferent arteriole, thus reduced flow still means GFR maintained at the same level

Natural History

RESOLVES SPONTANEOUSLY! No cause for dismay

Strep infection;
1-2 weeks later: onset of oedema + hemoproteinuria
1-2 weeks of oedeme and hemoproteunuria with massively elevated creatinine and Na+
1-2 weeks of wild diuresis
1-2 weeks of continuing creatinine abnormalities, tapering off;
6 months of hematuria
X years of proteinuria (variable; persists for 10 years in 2% of patients)

Only 1 or 2% of post-strep GN patients progress to ESRF

Diagnostic Side-Dishes

BIOPSY** with immunofluorescence and electron microscopy is the **ONLY MEANS OF DIAGNOSIS...
and you may not want to biopsy the kidneys of that chubby 5 year old boy

Certain immunological changes take place in post-infectious GN, and these can be employed to point the way towards a diagnosis.

COMPLEMENT components, esp. C3 are depressed during the early course.
THESE SHOULD RETURN TO NORMAL 6-8 weeks after onset
IF THEY HAVE NOT: !! RED FLAG !! it may be lupus nephritis

STREP ANTIBODIES wont diagnose post-strep GN for you, but they will tell you if a strep infection has taken place recently.
...Look for antibodies to...
- **Streptolysin O** (be warned- only 66%of streptococci wield this weapon)
- **Streptokinase**
- **Hyalouronidase**
- **Nicotinamide Dinucleotidase**

MANAGEMENT IS SUPPORTIVE and consists of....

MANAGING FLUID OVERLOAD with diuretics
MANAGING HYPERTENSION which results from fluid overload with conventional agents