Clinical Pathologic Correlations

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Lecture:
Clinical Pathologic Correlations: Case Studies
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Disclosures:
I have no actual or potential conflict of interest in relation to this program/presentation.

Objectives: Three clinical pediatric nephrology cases and corresponding pathology didactic will be presented. Rare, unusual or interesting presentations of patients and diagnostic differential diagnoses will be emphasized. The moderator will present objective data, discuss rationale for work-up, and correlate data with the differential diagnoses. Each case will be closed with the identification of the patient’s diagnosis and evidence based discussion of the diagnosis in terms of the epidemiologic, diagnostic, and therapeutic details of the disease process. Audience participation will be expected.
2019 CPC Case #1

A child with abnormal renal function and recurrent fever
History of Present Illness:

- A 14 year old White Latin female
- Presenting with abnormal renal function, recurrent fever and abdominal pain, and unexplained weight loss.
  - 8 months ago, patient went with her family on a 7 day cruise trip to the East Caribbean.
  - 7 months ago: fever, sore throat. Dx Streptococcal infection; Rx Augmentin x 2 courses for persistent symptoms
  - 5 months ago: fever, anorexia, 10 pounds weight loss, abdominal pain, and anemia; admitted to a hospital; Dx acute pyelonephritis. She was treated with Ciprofloxacin for 14 days.
  - 4 months ago: same symptoms as 1 month ago; admitted to another hospital; Dx recurrent pyelonephritis. RUS identified bilateral scars / chronic pyelonephritis; Rx Meropenem for 14 days
History of Present Illness (cont):
– 1 month ago: same symptoms as 4 months ago; admitted to the same hospital; Rx Meropenem for another 14 days. She was seen by ped GI. Endoscopy was suspicious for ascariasis and she was treated with mebendazole.

Past Medical and Surgical History:
   Born full term, growth hormone deficiency Dx at 4yo’ obesity.

Family History:
   GH deficiency (father, 2 sisters), asthma (sister), hypothyroidism (mom)

Medications: GH, Iron sulfate
**Review of Systems:**
+ weight loss, fatigue, fever, abdominal pain
  no rash, no joint pain,
  no dysuria, no gross hematuria

**Physical Examination**
- Wt 56 kg (50th tile), Ht 150 cm (5%)
- T 37°C BP 93/59 mmHg, P 86/min
- Short stature, no edema,
- Heart, Lungs: normal
- Soft abdomen, not tender,
- No hepatomegaly, lymphadenopathy,
- No rash, no signs of arthritis

**Prior Evaluation:**
- RUS/DMSA: Bilateral renal scars
- VCUG: Normal bladder, no VUR
- MR entreography: Acute diffusely inflammed renal parenchyma

**Laboratory Tests:**

**4 years ago:**
- serum creatinine 0.59 mg/dL

**4 months ago:**
- serum creatinine 0.89 mg/dL

UA: SpGr 1.015 protein 1+, 0-5 WBC; 0-2 RBC
Urine C/S: *Klebsiella spp* 50-100000 CFU/mL
WBC 10.2 Hgb 10.4 Plt 312; N66 L20 M11 E2
Blood culture, stool culture - negative
Stool Ova and parasite - negative
ESR 55 CRP 2.0 ANA/ANCA - negative,
 Quantiferon gold, Toxoplasma, CMV, HIV, Lyme, Bartonella serologies - negative
Celiac panel, IBD expanded panel - negative
Lymphocytes subset, Immunoglobulin - normal
Fecal calprotectin 297 ug/g

**Current:**
- BUN 14 Cr 1.19 Alb 4 Normal LFT
Urinalysis: Spgr 1.012 no protein, blood,
LE +, 5 WBCs/hpf, no RBC, no eosinophil
Urine protein/creatinine 0.23 mg/mg creat
Upper & Lower GI Endoscopy:
- Antrum: multiple ulcerations
- Colon and Rectum:
  - chronic active colitis with inflammation and crypt abscess formation throughout
  - no granuloma

Capsule Endoscopy:
- possible round worms c/w *Ascaris lumbricodes* in the jejunum;
- Rx Albendazole for 3 days
Problem List:

1. Acute on chronic kidney injury
   - intermittent pyuria, no proteinuria, no hematuria
   - abnormal renal imaging C/W inflammation VS. scar

2. Recurrent fever

3. Significant weight loss, GI symptoms

4. Ascaris infestation

5. Iron deficiency anemia
2019 CPC Case #2
A child with hematuria and proteinuria
2019 CPC Case #2: A child with hematuria and proteinuria

### History of Present Illness:
- The patient is an 8 year old African American male with sickle cell trait
- Presenting with sore throat, hematuria
- 5 days ago he had fever, cough, sore throat
- 2 days ago his urine was dark, constantly, +/- burning during urination
- 1 day of swollen face, skin peeling of hands and feet

### Birth History:
Full term delivery

### Medical History:
Sickle cell trait

### Family History:
None

### Social History:
Lives with parents and 2 brothers

### Medications:
Acetaminophen

### Review of Symptoms:
+ cough, dry skin, no rash, no joint pain
Physical examination:
Wt 25%, Ht 25%, BMI 50%
T 37°C, P 62, Sat 100%
BP 118/83 mmHg (95%tile: 112/73 mmHg)

Well nourished, facial edema
+ Palatal petechiae, no oral ulcer
Enlarged Submandibular /cervical nodes
Heart, Lungs, Abdomen: normal
Skin: desquamation of palm

Imaging:
CXR: Normal
RUS: Echogenic kidneys, normal size

Laboratory Tests:
• CBC: WBC 8 Hgb 9.6 Hct 29% Plt 372
  N 51% L 30% Mo 13% Eo 5%; Retic 1.2%
• Urine Spgr 1.023, pH 6.6 protein 3+ blood +
  RBC 132/hpf, WBC 5/hpf
• urine protein/cr 6.5 mg/mg
• Alb 3.2 Normal LFT
• Sickle cell screening: positive
• ↑ ESR, CRP
• ASO 1750; TSC +
• C3 8 (90-180 mg/dL)
• C4 29 (10-40 mg/dL)
• ANA 160, DS DNA <1
• Negative hepatitis profile
Problem List:

1. Acute nephrotic-nephritis feature
   - hematuria, proteinuria, hypertension, edema
   - normal renal function
2. Acute streptococcal infection
3. Lymphadenopathy
4. Anemia, low MCV
5. History sickle cell trait
2019 CPC Case #3
A child with proteinuria and hypertension
History of Present Illness:
The patient is a 16 year old white male
- Found incidentally with elevated blood pressure in PCP office 3 months ago
- Admitted at outside hospital: proteinuria (4+), serum creatinine 1.28 mg/dL (high) and renal US showed bilateral medullary echogenicity
  - Retrospectively he had a sore throat and took Amoxycillin for 2 days then stopped
- He was started on Amlodipine, and Atenolol was added to control BP
- He remained without any symptoms

Birth/Medical and Surgical History:
Born full term; Appendectomy; Allergic rhinitis, Hypertension; No history of UTI

Family History:
Mother has fatty liver, prediabetic, Father and 2 sisters are healthy
No family history of kidney disease

Medications: Amlodipine 5 mg BID, Atenolol, 25 mg daily, Montelukast 10 mg daily
Review of Systems:
No dysuria, no hematuria, no UTI
No back pain, abdominal pain
no fever, headache, rash nor joint pain,

Physical Examination
• Wt 61 kg (50%tile), Ht.164 cm (10%)
• T 37C; BP 131/75 mmHg; P 65/min
• Short stature, bifid uvula, no edema
• Baggy of upper and lower eyelids
• Heart, Lungs, Abdomen - normal
• No rash, no signs of arthritis

RUS:
Normal size kidneys;
Increased echogenicity both kidneys and extensive nephrocalcinosis bilaterally.

Laboratory Tests:
BUN 17 mg/dL Cr Cr 1.28 g/dL
Ca 9.9 mg/dL, Alb 4.3 g/dL
Uric acid 6.5 mg/dL, Normal lipid profile
Cystatin C 1.73 g/dL
eGFR 52 mL/min/1.73m2 by CKiD equation
Normal CBC: Hgb 14.4 g% WBC 5.5 Plt 337
Urine : Spgr 1.012 pH 7 protein 4+, no blood
Urine protein/creatinine: 7.9 mg/mg cr
Urine microalbumin/creatinine: 5634 mg/g cr
Urine study: No hypercalciuria
ASO 121 , TSC negative;
Hepatitis profile (A, B, C) and HIV - negative
ANA, ANCA, complements study - normal
Problem List:

1. Chronic kidney disease
   - CKD stage 3
   - nephrotic range proteinuria
   - normal serum albumin, lipid
   - hypertension

2. History of ? Strep throat infection 4 months ago