個案報告-ARF

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學生：吳苡璉
報告日期：2009.12.17

基本資料

- **Name：Han ××**
- **Age：83**
- **Gender：Male**
- **Medical disease:**

Hypertension 20 years without medicaine；
HD 15 years without medicaine;
DM 15 years；
Asthma 60~70years;
Parkinson’s disease 2 years;

入院過程

- 2009.7.9 Midnight
- **abdominal pain and nausea with vomitting for three days**→華陽hospital
- Dx：Metabolic acidosis,acute renal failure with hyperkalemia and anemia r/o UGI bleeding
- Drug：Jusomin,Tagament,Cefmetazole and primperan
- 檢查-renal sonography showed
  1)Parenchymal renal disease.
  2)Right renal stone.(about 1cm)
  3)Kidney size:right-9.9cm,left-9.7cm.

入院過程

- 2009.7.9 15:00因家屬意願轉至雙和醫院治療
- GCS:E4V5M6 clear but weakness,
- acutely ill-looking
- 身上管路:外院帶來的Foley、H/L
- Vital sign:

  B.P.：132/65mmHg　P.R：92次/分

  RR：32次/分　　B.T.：35.8°C

2009. 7. 9檢驗值-血液

- WBC 22.2 10^3/ul1 (4.8-10.8 10^3/ul) Infection sourses?
- RBC 3.05 10^6/ul3. (4.7-6.10 10^6/ul3)
- HGB 10.4 g/dl (14.0-18.0 g/dl)
- HCT 32.6% (42.0-52.0 %) anemia
- MCV 106.9% (80.0-99.0 %)
- MCH 34.3 pg (27.0-34.0 pg)
- MCHC 32.1 g/dl (31.0-37.0 g/dl)
- PLT 190×10^3/ul (130-400 ×10^3/ul)
- %NEUT 79.0 → (40.0-74.0) Infection sourses?
- %LYM 14.0 (19.0-48.0)
- %MONO 7.0 (3.4-9.0)
- %EOS 0.0 (0.0-7.0)
- %BASO 0.0 (0.0-1.5)

2009.7.9檢驗值-生化

BUN	63.0mg/dl	7.0~20.0	mg/d
Creatinine	8.16 mg/dl	0.60-1.30	mg/dl
GOT	34 IU/L	5-30	IU/L
GPT	28 IU/L	5-35	IU/L
Bilirubin T	0.7 mg/dl	0.0-1.2	mg/dl
Na	143 mmol/L	135-148	mmol/
K	6.5 mmol/L	3.6-5.2	mmol/
Glucose	178 mg/dl	80-140	mg/dl
Troponin-I	0.020 ng/ml	0.000-0.500	ng/ml
CKMB	6.1 IU/L	2.0-14.0	IU/L
CPK	80 U/L	38-397	U/L

Renal function

Liver function

應是Acute renal failure所導致

2009.7.9檢驗值-生化

Albumin	3.4 g/dl	3.4-5.0
Protein T	5.7 g/dl	6.4-8.2
Uric acid	8.2 mg/dl	2.6-7.2
Cholesterol	137 mg/dl	0-200
TG	166 mg/dl	30-150
LDH	240 IU/L	100-190
ALK-P	59 IU/L	50-136
r-GT	17 U/L	5-70
P	6.8 mg/dl	2.5-4.9
Ca	7.4 mg/dl	8.4-10.2

2009.7.9檢驗值-gas

- Blood gas
- PH 6.746
- PCO2 12.6
- PO2 169.5
- tHb 10.9
- O2Hb 96.9
- sO2 97.8%
- COHB 0.40%
- MetHb 0.50
- HCO3 1.7 mmol/L
- ABEc -32.5
- VBG

- 7.340-7.450
- 32.0-45.0
- 75.0-100.0

Metabolic acidosis

2009.7.9檢驗值-urine

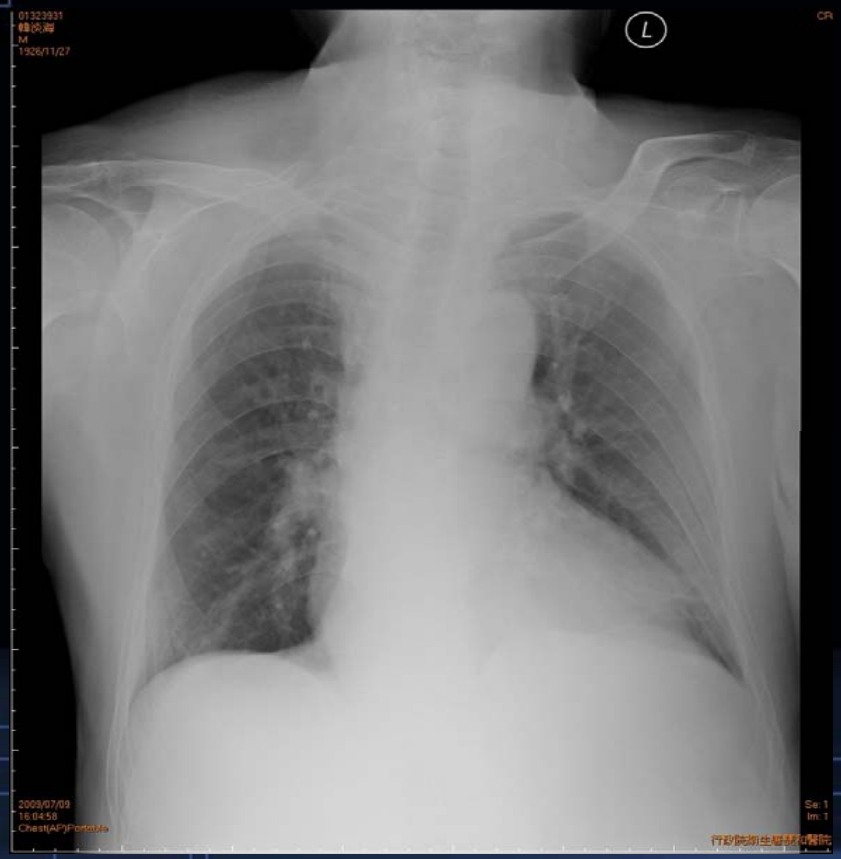
可能由代謝性酸血症所引起

SP.Gr	1.011	1.003-1.030
PH	5.0	5.5-8.0
Protein	1+	
Sugar	2+	
Ketone	2+	
Bilirubin	-	
Occult Blood	2+	
Nitrite	-	
Urobilinogen	0.0	
RBC	3-5	
WBC	0-2	
Eithel	0-2	
Bacteria1	+	
.Colour	YEL	

2009.7.9檢驗值- stool

- Consistency Soft
- Color Brown
- Occult Blood 4+
- Parasite Not Found
- WBC Not Found
- Mucus --

1.CXR analysis :



- Enlargement of heart.
- Tortuous aorta
- Increased pulmonary vascularity.
- Scoliosis of spine.

2.Abdomen+ plevis CT 7/9

- Right renal stones; a suspicious tiny left renal stone; bilateral renal parechymal thinning;
- No hydronephrosis.
- No ascites; no extraluminal free air.
- s/p urinary catheterization.
- No remarkable finding in the liver, spleen,
- pancreas, gallbladder, and bilateral adrenal glands.
- Suspicious mild hiatal hernia of stomach.
- S/P internal fixation at left femur.

3.EKG：7/9

- RBBB，sinus tachycardia

Problem list

1、Mr.Han 之ARF是如何診斷的？

2、屬於何種ARF?

3、ARF的治療有哪些?

4、除了ARF，有哪些問題?

(1)anemia　OB:4+

(2)Infection?

(3)Electrolyte imbalance

1、Mr. Han 之ARF是如何診斷的？

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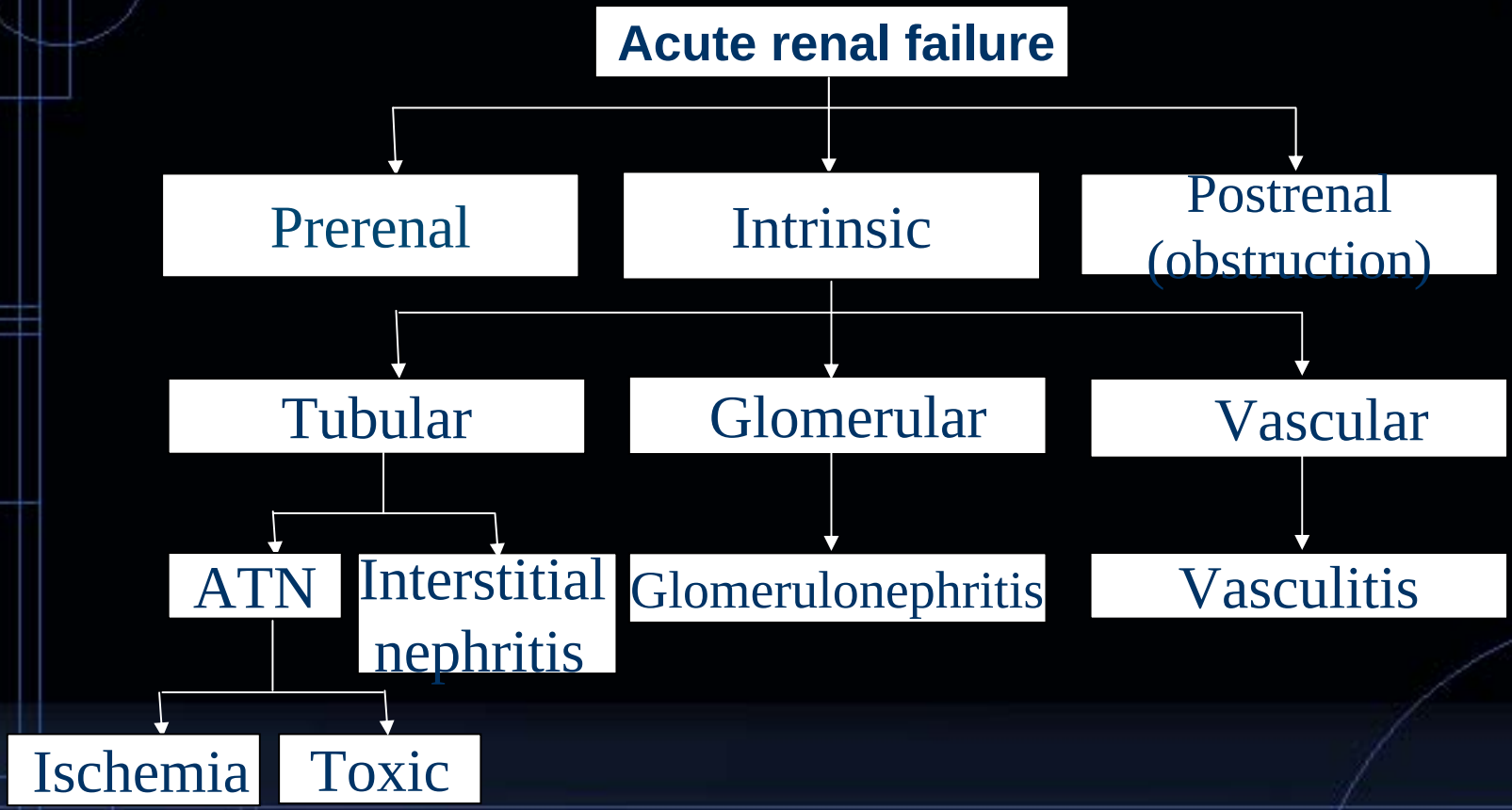
- ARF的臨床表徵-常見的實驗室檢驗異常：
- 短時間內BUN上升20~100mg/dl → •BUN：63.0mg/dl
- Cr 上升1~5mg/dl → •Creatinine：8.16 mg/d
- 低鈉血症
- 代謝性酸中毒 → PH:6.746,PCO2:12.6, HCO3 1.7 mmol/L
- 高鉀血症 → K:6.5 mmol/L
- 低鈣血症 → Ca 7.4 mg/dl
- 高尿酸血症 → Uric acid 8.2 mg/dl

2、屬於何種ARF?

Acute renal disease



Prereanl disease

→ **he suffered from abdominal pain and nausea with vomitting for three day**

- True volume depletion due to gastrointestinal, renal, or third-space losses
- Congestive heart failure or valvular heart disease
- Hepatorenal syndrome in advanced hepatic cirrhosis →
- Use of a nonsteroidal antiinflammatory drug in certain clinical settings
- Shock due to fluid loss,sepsis.or cardiac failure-frequently progresses to acute tubular necrosis →

Madopar-HBS(125) 、Novonorm 、Blopress、Plav

Intrinsic renal disease

1、急性腎小管壞死

- (1)缺血性

起因於腎臟的灌流不足，而當灌流不足，持續且嚴重時，可發生在與腎前因素引起的氮血症有關之任何狀況。

- (2)腎毒性

外生性毒素

顯影劑、具腎毒性的抗生素、具腎毒性之抗腫瘤藥物、重金屬(鉛、汞)、有機溶劑

內生性毒素

橫紋肌溶解症(肌蛋白)、溶血(血紅素)、腫瘤溶解症候群、骨隨瘤、高血鈣

Intrinsic renal disease

- 2、急性腎小球腎炎:鏈球菌感染後腎小球腎炎、快速進行性腎小球腎炎、全身性紅斑性狼瘡
- 3、惡性高血壓、皮質壞死、血管炎、腎動脈阻塞
- 4、間質性腎炎
- 5、其他：尿酸腎病變、高鈣血症

Distinction between Prerenal Disease and Acute Tubular Necrosis

Test	Favors Prerenal Disease	Favors ATN
BUN-to-PCr ratio	>20:1	10-15:1
Urinalysis	Normal or near normal with few cells or casts; hyaline casts may be seen but are not abnormal	Many granular casts with renal tubular epithelial and epithelial cell casts
Urine sodium	<25 mEq/L	>40 mEq/L
FENa	< 1%	>2 %

$$FE_{Na} = \frac{U_{Na} \times P_{Cr} \times 100}{P_{Na} \times U_{Cr}}$$

Urine osmolality	> 500 mOsm/kg	300-350 mOsm/kg

FENa

$$FENa = \frac{Na^+ \text{ excreted} \times 100}{Na^+ \text{ filtered}} = \frac{U_{Na} \times V \times 100}{P_{Na} \times \frac{Ucr \times V}{P_{Cr}}}$$

$$= \frac{U_{Na} \times P_{Cr} \times 100}{P_{Na} \times U_{Cr}}$$

U=尿液，P=血漿，V=體積

Urinary tract obstruction

1、輸尿管阻塞(例如血塊、鈣化石、外來壓迫)

2、膀胱出口阻塞(例如攝護腺肥大、腫瘤)

Urinalysis

Urine	
Red cells、red cell casts, and proteinuria ⟶ •Protein 1+	glomerulonephritis or vasculitis.
White cells and white cell casts with or without some red cells	acute interstitial nephritis
a clearly positive sulfosalicylic acid test points	myeloma kidneysince the immunoglobulin light chains are not detected by the dipstick.
muddy-brown granular casts with epithelial cells and epithelial cell casts	acute tubular necrosis
normal urinalysis	seen in prerenal disease, but may also occur in about 10% to 15% of cases of acute tubular necrosis and with urinary tract obstruction.

3. ARF之治療方法?

急性腎小管處理原則

- 急性腎小管壞死的恢復是自發性的，處理方面是支持性的並根據以下幾點原則：
- 限制水、鈉、鉀與磷的攝取
- 限制蛋白質的攝取以減少尿素的生成
- 使用利尿劑控制體液過剩
- 給予NaHCO3以矯正酸血症
- 調整依賴腎臟代謝之藥物劑量
- 如果保守性處理不足以維持溶質與水的平衡時，應進行透析

ARF之治療

★使用利尿劑控制體液過剩

7/9 Lasix 2amp

- 高劑量的Loop利尿劑需用於急性腎衰竭?

Samuel Shem’ s novel House of God支持以下公式：

年齡+血液尿素氮=Lasix劑

過度的利尿可能造成體液缺乏與腎臟的灌流過低，增加造成傷害的機會。

Furosemide與其他loop類的利尿劑作用於亨氏環上行支腎小管細胞的管腔面

ARF之治療

- 在ARF，「腎-劑量」的dopamine如何改善尿液排出？

  注射腎-劑量(1~3 e
  在處理寡尿性病人

  注射腎-劑量的dopam 可經由直接的腎小管作用增加尿液排出。也可幫忙腎小管傳送利尿劑與阻斷醛固酮在遠端腎小管的留鹽作用。

即使低劑量的dopamine也會導致心搏過快、心律不整或心肌缺氧。因爲它的α-腎上腺作用，肢端的缺血可能會發生。腸道缺血，雖不常見，但可能造成細菌或細菌的產物穿過腸道。

ARF之治療

★給予NaHCO3以矯正酸血症

7/9 Rolikan 7%（sod.bicarbonate）3 amp

★如果保守性處理不足以維持溶質與水的平衡時，應進行透析

7/9 HD

治療目標:體液-體積狀況正常化、

矯正電解質的平衡、與控制尿毒。

4、除了ARF，有哪些問題?

4、除了ARF，有哪些問題?

(1) abdominal pain
    OB:4+
(2)Infection?
(3)Electrolyte imbalance

(1) abdominal pain

- **7/9 Abdomen+ plevis CT**
- **7/10 KUB**
- **7/16 Endoscopy：7/16**
  Gastric ulcer with recent bleeding.
  Erosive gastritis.

(2)Infection?

- 7/9
- WBC 22.2 10^3/ul1
- %NEUT 79.0

- Empirical antibiotic with rocephen
- ——→ 7/15 WBC 8.70 10^3/ul1
-

(3) Electrolyte imbalance

★ Hyperkalemia

7/9 16:15 K:6.5 mmol/L

Kalimate5g/ Sachet 3pk

Glucose 50% 2PC +RI 8U

Bricanyl nebulizing 1amp INH

⟶ 7/9 23:48 K:4.0 mmol/L

★ P 6.8 mg/dl

★ Ca 7.4 mg/dl