CASE DISCUSSION

2013/05/22

Supervisor: 楊毓錚 醫師

Presentation : R2 羅志威

PATIENT INFORMATION

- 檢傷資料
- 68歲女性
- 到院日期 : day1 08:55 AM 到院方式:119
- 檢傷級數: 2級 判斷依據: 典型心因性心絞痛
- 主訴: 病患來診為心因性胸痛胸悶，痛到背後去
- 意識 E4V5M6 血氧:99%
- 體溫 37.1oC 脈搏 85/分 呼吸 18/分 血壓 173/68 mmHg
- 過去病史: 高血壓

主訴/現病史

- 主訴：全身痛 無法下床
- 現病史：
- 先生過世後，有一天刷牙閃到腰
- 之後背痛，再之後胸也痛
- 有到本院ER及外院骨科就診 X光正常
- 吃得少，下床少，吃不好
- 之後不會走路，大便水水的會失禁

- 過去史: NKDA, 子宮有拿掉 Old CVA (+)

理學檢查

- 意識: clear
- 胸肺心臟： RHB, bilateral clear breathing sound
- 腹部: soft, diffuse tender

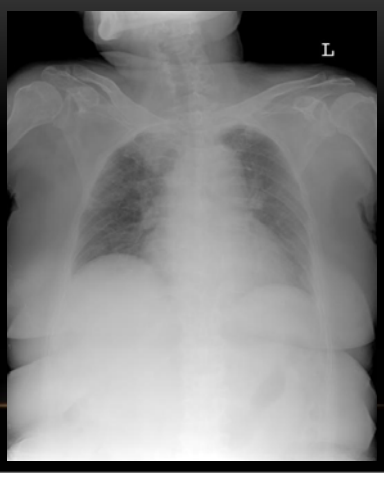
- 初步診斷：
- Chest/back/ abdominal pain

INITIAL ORDER

day1 08:55

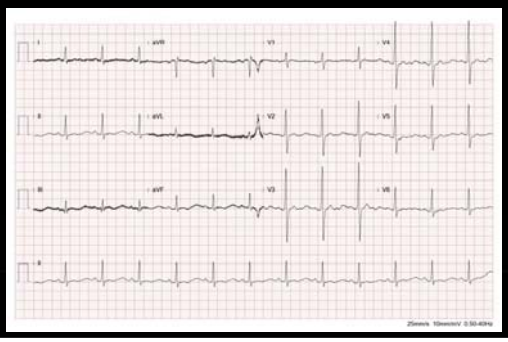
- NPO
- 外帶O2 NRM→ DC
- N/S 60ml/hr
- F/S(114)
- CXR, ECG
- 雙手BP
- CBC/DC/Plt
- Panel I/Tn-I / CPK / iCa / Lipase
- D-dimer, PT/aPTT

CXR



Mediastinum 7.3cm, (躺著CXR), RLL infiltration

ECG



Segmented Neutro.	35.0	%
Lymphocyte	60.5	%
Monocyte	1.0	%
Eosinophil	0.0	%
Basophil	0.0	%
Atypical lymphocyte	1.0	%
Band	1.0	%
Metamyelocyte	1.0	%
Myelocyte	0.5	%

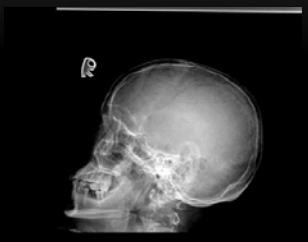
WBC	6.4	X1000/ul
RBC	2.70	million
Hb	8.4	gm/dl
Ht	24.3	%
MCV	90.0	fl
MCH	31.1	pg
MCHC	34.6	%
RDW	12.4	%
Platelet	147	x1000/ul

PT	11.3	second
Normal control	10.5	second
INR	1.08	Ratio
APTT	25.8	second
Normal control	32.8	second
D dimer(ELISA)	2632.5	ng/mL

Glucose	104	mg/dL
GOT(AST)	25	U/L
BUN	44	mg/dL
Creatinine	2.6	mg/dL
Na	140	meq/L
K	2.7	meq/L
eGFR	18.30	
CPK	57	U/L
iCa	8.25	mg/dL
Lipase	28	U/L
Troponin I	0.039	ug/L

EB COURSE

- Line 1 : N/S 500ml iv st then 100ml/hr
- Line 2 : on 2nd line , N/S 500ml +KCL 15meq run 100ml/hr
- PTH, Total protein, Mg/P
- 轉EC床
- 排Nephro/Oncology 床



Punctate hypodense lesion, r/o MM

EC ORDER

- Dx :
- 1. Hypercalcemia, cause?, r/o MM
- 2. Acute renal failure
- Rib fracture : R 3~5, L3~6
- IVF: line1 N/S 500+KCl 15meq iv 100ml/hr
- Line 2 N/S 100ml/hr
- 排Nephro
- On Foley
- Record I/O q8h

- Mx:
- Lasix 1amp iv q8h

Total-protein	7.0	g/dL	6.600
P	3.40	mg/dL	2.500
Mg	2.00	mg/dL	1.580
PTH(intact)	12.9	pg/mL	15.000
Urobilinogen	0.1	EU/dl	
Nitrite	Negative		
WBC(esterase)	+		
Sediment	**********		
RBC	3-5	/HPF	
WBC	8-15	/HPF	
Epithelial cell	1-2	/HPF	
Cast	Not Found	/LPF	
.cast-amount	-		
Crystal	Not Found	/HPF	
.Cry-amount	-		
Bacteria	+		
Others	Not Found		

EC COURSE

day1 21:00

- S: 動的時候會喘，但喘有好多了，打完點滴，尿出來，肚子也消很多
- PE: clear breathing sound, no basal rale, soft abdomen , no pitting edema
- Plan:
- IVF supply +lasix
- Be aware of fluid overload

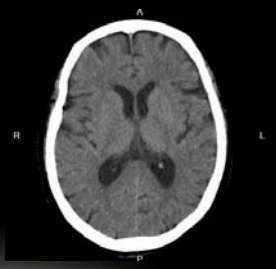
day2 13:15

- 病人訴很喘，動的時候全身都很痛，但家屬觀察和昨天差不多在家時可以走，但這幾天不能走，會痛
- P E ：basal rale; no crackle, RHB,
- Soft abdomen, no tender, breast no mass,
- CXR: r/o lung tumor, CXR infiltrate(+)
- A: hypercalcemia, r/o multiple myeloma, r/o other malignancy
- Acute renal failure

day2

- Head-chest-abd CT without CM:
- Osteolytic lesion over skull bone, ribs, pelvic bones

K	3.1	meq/L
iCa	7.88	mg/dL



EC COURSE

day3 00:00

- 動時有時會胸痛
- clear conscious
- Mild basal crackles, RHB,
- Soft abdomen, no tender point
- Ext: freely movable, no pitting edema
- Plan: IV diuretics, 排Nephro床, check renal function

day3 14:57

- Right elbow pain
- GCS: E4V5M6
- Heart: irregular heart beat with murmur
- Lung clear
- Abdomen: soft, normal bowel sound, no tender
- Extremites: freely movable
- A: Hypercalcemia, AKI, Multiple rib frx
- Hydration, symptom treatment

EC COURESE

day3

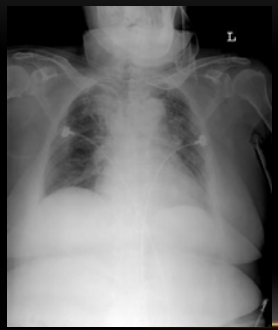
TSH	1.8763	uIU/mL
T4,Free	0.95	ng/dL
Creatinine	1.5	mg/dL
eGFR	34.53	
K	2.7	meq/L
iCa	7.36	mg/dL

day4 00:28

- No bone pain now, sleeping smoothly
- Afebrile
- Chest: clear breathing sound, no distress
- Abdomen: soft
- Ext: warm
- P: IV hydration + lasix for Ca, f/u level

01:20

- Acute onset SOB, SpO2 83%
- Bilateral rale with B-lines, acceptable cardiac contraction
- Favor lung edema, fluid overload
- Lasix 改 1amp iv q6h
- O2: NRM 15L/min
- 03:20 O2 mask 6~10L/min



PH=7.378
PCO2=40.8 mmHg
PO2=222 mmHg
BE=-1 mmol/L
HCO3=24.0 mmol/L
TCO2=25 mmol/L
SO2=100 %
NA=140 mmol/L
K=3.3 mmol/L
ICA=1.92 mmol/L
HCT=18 %PCV
HB=6.1 g/dL

BNP 466 pg/mL

EC COURSE

day4 07:25

- Recurrent dyspnea
- U/O: a lot; bilateral rales; SBP about 100mmHg
- On BiPAP, keep Lasix use, add millisrol if symptom worsen and SBP OK

day4 09:00

- BP: 147/58 PR 81/min RR 20/min BT 38.5oC
- S: SOB improved
- GCS: E4V5M6
- Neck : LAP(-), no retraction
- Heart irregular heart beat
- Lung mild rales, soft abdomen, warm extremities
- Lab: T-protein: 7 ablumin 3.1 LDH: 267, iCa 7.68
- No tarry stool passage

EC COUSE

day4 0958 order

- Line 1 N/S 500+KCl 15meq run 100ml/hr
- Line 2 改lock
- 改排Hematology床
- Heart ECHO:
- EF 84%, normal wall motion

Hematologist visit

- Hematologist : Hypercalcemia, cytopenia, osteopenia
- r/o hematologic disorder,
- Eg myeloma, lymphoma, causes bone distruction
- Plan: admission
- Conservative treatment for hypercalcemia
- 向病患家屬解釋bone biopsy

- Final diagnosis:
- Multiple myeloma with multiple osteoclastic lesion and hypercalcemia
- Acute renal failure
- Anemia
- day6

```
Clinical Dx:Pancytopenia
Hematological Dx: Multiple myeloma
Site and type of collection:Iliac,post.R.Aspiration
Condition of aspiration/biopsy: Adequte
Smear: good
Marrow smear description
  Gross: Marrow unit  +/
Microscopic Finding
  Cellularity:Moderate hypercellularity
  Megakaryocyte dist ribution/number: Decrease
  M/E: Normal
  Myeloid and Erythroidseries:marked hypoplastic
  Abnormal cell/Pattern:Increase of large plasma cells with nuclei.
IFE report:
Immunofixation electrophoresis ( IFE ) report
      Blood IFE shows elevated level of  IgG
      with IgG kappa monogammopathy.
```

DISCUSSION:
1. GENERAL PAIN/WEAKNESS IN ER
2. HYPERCALCEMIA
3. MULTIPLE MYELOMA

APPROACH(ROSEN 15TH ED.)

- Pathology:
  - 可分作Neuromuscular / non-neuromuscular
  - Neuromuscular: Myasthenia gravis/ Guillian-Barre syndrome/ Electrolyte imbalance/ polymyositis
- 注意： >50歲的患者，尤其女性，complain 全身無力要想到ischemia heart disease
- >65歲的患者，全身無力要想
  - Serious infection
  - Electrolyte distubance
  - Cardiovascular compromise

APPROACH(ROSEN 15TH ED.)

Table 11-2 Vital Signs: Weakness

VITAL SIGNS	ELEVATED	DECREASED	POTENTIAL INTERVENTIONS / ANCILLARY TEST
Heart rate	Arrhythmia Blood loss Dehydration Hyperthyroidism Pain Serious infection	Electrolyte imbalance Medication effect (BB, CCB)	ECG Fluid bolus and reevaluate Orthostatic blood pressure/pulse Rate control based on ECG findings Antibiotics if infection suspected
Blood pressure	Hyperthyroidism Medication noncompliance Pain	Arrhythmia Blood loss Dehydration Medication effect (BB, CCB) Serious infection	ECG Fluid bolus and reevaluate Orthostatic blood pressure/pulse Pressors
Respiratory rate	Serious infection COPD/Asthma	Impending respiratory failure	Bronchodilators CXR Respiratory support: oxygen, BiPAP, intubation
Temperature	Serious infection Medication effect	Serious infection Environmental exposure	Antipyretics/cooling measures Passive rewarming ECG Infectious workup
Oxygen saturation	N/A	Serious infection COPD/asthma Impending respiratory failure	Bronchodilators CXR Respiratory support: oxygen, BiPAP, intubation

APPROACH(ROSEN 15TH ED.)

Non-neuromuscular

Critical: Hemodynamic instability
Myocardial infarction
Arrhythmia
Severe infection/sepsis

Neuromuscular

Critical: Potential for respiratory compromise
Rabies
Botulism
Tetanus

Table 11-3 Physical Examination: Localizing Neuromuscular Lesions

LOCATION OF LESION	DEEP TENDON REFLEXES	MUSCLE TONE	PLANTAR REFLEXES	STRENGTH
Upper motor neuron	Increased	Normal (Increased/spastic as disease progresses)	Upgoing	Weak/paralysis
Lower motor neuron	Decreased or absent	Decreased/flaccid (may see fasciculations)	Normal or absent	Weak/paralysis
Neuromuscular junction	Normal or decreased	Decreased/flaccid	Normal or absent	Variable weakness pattern
Muscle	Normal or decreased	Decreased/flaccid	Normal or decreased	Constant/progressive Proximal > distal

Psychiatric (anxiety, depression)
Rheumatologic (fibromyalgia; SLE)
Malignancy
Renal or hepatic disease
Metabolic disease
Alcoholism and other toxin-related disease
Malingering

ALS
Paraneoplastic syndrome
Diphtheria
Porphyria
Drugs and toxins
Tick paralysis
Poliomyelitis

HYPERCALCEMIA

- 定義(Washington Mannual 33rd ediction):
  - Total Ca >10.3mg/dL, or iCa >5.2mg/dL
  - 單位換算: 1 mg/dL Ca/iCa x 0.2495 = mmol/L (mg/dL 換成mmol/L大概除以4)
- Etiology:
  - ambulatory patient: 最多為primary hyperparathyroidism(adenoma, hyperplasia,..)
  - Hospitalized patient: 最多為malignancy(osteoclast, PTHrP by tumor)
  - 其他少見原因: Vit D↑(sarcoidosis, TB), milk-alkali syndrome, Hyperthyroidism, adrenal insufficiency, Paget's Dz, Acromegaly)

HYPERCALCEMIA

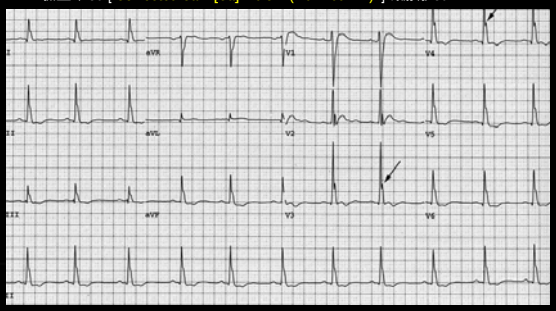
NON-NEOPLASTIC CAUSES OF HYPERCALCEMIA

Hyperparathyroidism
Hyperthyroidism
Renal insufficiency (diuretic phase of acute renal failure, after transplantation, secondary hyperparathyroidism)
Drugs (thiazide diuretics, lithium, and calcium carbonate)
Hypervitaminosis (A and D)
Acute adrenal insufficiency
Immobilization (Paget's disease, fracture, paraplegia)
Acromegaly
Myxedema
Milk-alkali syndrome
Sarcoidosis
Benign monoclonal gammopathy
Rarer still are factitious hypercalcemia, idiopathic hypercalcemia of infancy (with elfin facies), familial hypocalciuric hypercalcemia, and hypercalcemia from pheochromocytoma or periostitis

臨床表現:

- 神經學: weakness, fatigue, confusion, stupor, coma
- 腸胃: anorexia, vomiting, constipation, pancreatitis
- 泌尿: 多尿, 腎結石
- 其他: osteopenia, 容易骨折(如果原因為bone resorption增加)
- Primary hyperparathyroidism通常為無症狀的高血鈣

HYPERCALCEMIA

- 實驗診斷:
  - 驗血中Ca [Corrected Ca = [Ca] + 0.8 X (4.0-Albumin)]或游離Ca
- 

HYPERCALCEMIA

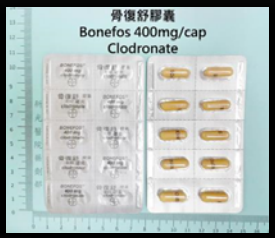
- 治療:
  - Ca>12就要積極治療
  - 0.9% normal saline 輸液, keep U/O 100~150ml/hr, correct hypovolemia
  - Loop diuretics: 可稍微增加Ca排放, 但不適用於 euvolemic/hypovolemic 病人
    - Furosemid 40~60mg IV

HYPERCALCEMIA

- 治療:
  - IV bisphosphonates:
    - Zoledronate 5mg/100ml ivd >15min
    - 兩天左右可能發生低血鈣, 最好照會後
  - Calcitonin: 4~8IU/kg IM/SC
    - 較安全，數小時內即產生作用，本院
  - Prednisolone 60~80mg/day
    - 比較常用在長期控制

HYPERCALCEMIA

- 治療:
  - 其他用藥: 口服 phosphonate(clodronate 4# po qd, Fosamax 1# qwk)→ 數天後生效
  - 小心hypokalemia(約50% 的病人合併低血鉀)



MULTIPLE MYELOMA

- 一種發生在老年人為主的疾病
- 主要是Plasma cell增生，造成monoclonal proteins(M-protein)增加
- 一般預後: 5年存活率35%
  - 高LDH, Hypercalcemia, renal impairment為不良預後指標

- 臨床表現:
  - 骨頭痛
  - Pathologic fracture
  - 全身虛弱，無力
  - Anemia
  - Hypercalcemia
  - Spinal cored compression
  - Renal failure
  - Neuropathies
- Epidemiology:
  - 多數為>60歲以上老年人
  - 男女比約3:2

MULTIPLE MYELOMA

- 實驗室診斷:
  - CBC: 可能看到anemia
  - 生化: protein, albumin, globulin, BUN, Cr (可能看到hyperproteinuria, hypoalbuminemia, 或者Albumin/globulin reversed), LDH
  - Proteinuria : >1g/day
  - Serum protein electrophoresis (SPEP): M protein >30g/L
  - Bone marrow biopsy
  - 影像: 頭骨/ 長骨/ spine