Case Conference

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- 檢傷主訴：病患來診為四肢肢體無力/中風症狀
- GCS: E4V5M6　　SpO2: 98%
- 體溫:36.4oC　　呼吸:20次/分　血壓：183/121mmHg
- 過去病史：糖尿病

Present Illness

- 主訴：早上起床就四肢無力
- 現病史：之前脖子就會痛
  今天沒有更痛
  早上跌倒之後有撞到頭
- 過去病史：DM(+), NKDA

Physical examination

- Consciousness: clear
- Head&Neck: no mid line tender
- Chest: RHB

Impression

- Suspect C-spine myelopathy

ER order DAY1-10:03

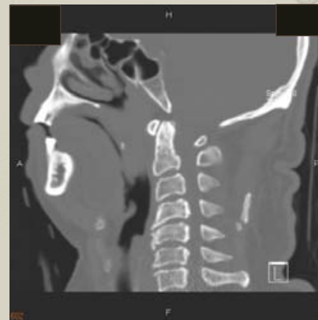
- NPO
- N/S 60ml/hr
- EKG/CXR
- C-spine + brain CT w/o contrast
- On monitor
- VBG (6)
- WBC/DC/Plt
- PT/aPTT
- BUN/Cr/GOT/ iCa/ CPK
- ABG 3 after CT
- On neck cola

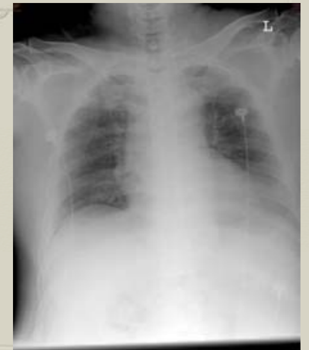
Laboratory data

PH=7.411
PCO2=45.4 mmHg
PO2=59 mmHg
BE=4 mmol/L
HCO3=28.9 mmol/L
TCO2=30 mmol/L
SO2=90 %
NA=139 mmol/L
K=3.8 mmol/L
HCT=46 %PCV
HB=15.6 g/dL

PH=7.406
PCO2=45.0 mmHg
PO2=68 mmHg
BE=4 mmol/L
HCO3=28.3 mmol/L
TCO2=30 mmol/L
SO2=93 %

Images





ER order DAY1-10:40

- Pantoloc 1amp iv st +q12h
- Solu-medrol 2500mg ivd >15mins, then solu-medrol 10300mg in N/S500ml run 22ml/hr
- C&T-spine MRI w/o contrast
- F/S q6h

Laboratory data

WBC	9.1	X1000/ul
Seg	69.7	%
Lymphocyte	19	%
Monocyte	7.8	%
Eosinophil	2.9	%
Basophil	0.6	%
Atypical Lym		
Band		
Metamyelocyte		
Myelocyte		
Promyelocyte		
Blast		
Nucleated RBC		
Platelet	209	X1000/ul

PT	11.4	sec
normal control	10.5	sec
INR	1.09	ratio
PTT	32	sec
Normal control	32.8	sec

GOT	21	U/L
CPK	250	U/L
BUN	16	mg/dL
Creatine	0.7	mg/dL
.eGFR	115.83	
iCa	4.49	mg/dL

ER order

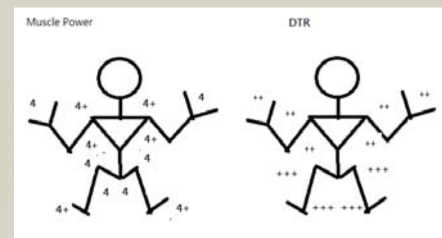
- 11:40 補CRP

CRP	0.198	mg/dL

- 13:30 U/A & U/C
- On Foley
- MRI
- 16:40 Admit to 8252
- On critical

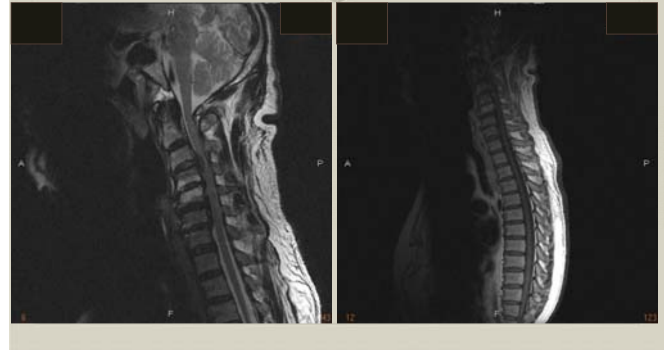
Sediment		
RBC	0-1	/HPF
WBC	1~2	/HPF
Epithelial Cell	1~2	/HPF
Cast	Not Found	/LPF
Crystal	Not Found	/HPF
Bacteria		
Others	Not Found	

NE by NS Dr.



- Impression:
  - Myelopathy, C-spine or T-spine
  - Suggest: megadose steroid, check CRP, Cspine and Tspine MRI

MRI



Imge impression

- Cervical stenosis C3~C6
- OPLL(Ossification of posterior longitudinal ligament) C3~C6
- HIVD of C3-4, C4-5 with myelopathy

Admission courese

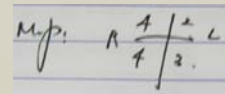
- DAY1:
  - C3~C6 laminectomy + posterior/lateral bone fusion
- DAY5:
  - C3-4, C4-5 microdisctectomy & cage-screw
  - OP finding: C3-4 disc rupture with cord compression, more at left side
  - OPLL at right C4-5

住院後終於找到原因(兇)…

- 三天前，這個阿伯因為脖子痠，有去國術館給人抓龍…
- 腳這幾天越來越沒力
- 當天早上起來站不穩，跌倒，撞到頭，然後就手腳都不能動了

現在

- 復健中



- 沒有仰賴呼吸器，感覺不到自己的左手

Discussion: General weakness/quadriplagia

Approach of general weakness

- 嚴重general weakness病人要先確保airway還有hemodynamic stable
- History approach:
  - 分是Neuromuscular 或Non-neuromuscular
  - 問有沒有可能會死的(毒物、 MI、arrhythmia)
  - 根據病人underlying check(如老人意識改變urosepsis ↑)
  - 懷疑Neuromuscular→ Bladder function, sacral sparing, 遠端or近端較無力, 上行或下行性無力

Critical differential diagnosis (weakness)

- Non-neuromuscular
  - **可能hemodynamic不穩**
  - MI
  - Arrhythmia
  - Severe infection/sepsis
  - Respiratory failure
  - Hyperkalemia
- Neuromuscular
  - **Airway可能compromise**
  - Rabies
  - Botulism
  - Tetanus
  - Organophosphate
  - Myasthenia gravis crisis

Emergent Differential diagnosis(weakness)

- Non-Neuromuscular
  - Acute anemia
  - Dehydration
  - Metabolic disorder
    - Hypothyroidism
    - Diabetes
  - Electrolyte imbalance
- Neuromuscular
  - Guillian-Barre syndrome
  - Transverse myelitis
  - Impingement syndromes
  - Spinal cord inarction
  - Electrolyte imbalance

急插管indications

- Server fatigue
- 無法保護airway
- PaCO2上升很快
- Hypoxemia
- Forced vital capacity <12ml/Kg
- 吸氣負壓<20cm H_2O

Tips of NE

Location of Lesion	Deep tendon reflexes	Muscle Tone	Plantar Reflexes	Strength
Upper motor neuron	↑	正常(spastic隨時間↑)	Upgoing	無力/癱瘓
Lower motor neuron	↓or 消失	↓ or癱軟	正常或消失	無力/癱瘓
Neuromuscular junction	正常or ↓	↓ or癱軟	正常或消失	variable
Muscle	正常or ↓	↓ or癱軟	正常或消失	近端>遠端

Spinal cord injury

- 機轉
  - Trauma直接破壞
  - 被壓到(impingement syndrome): 骨頭、disc、hematoma
  - Ischemia: from damage or impingement on the spinal arteries

主要的partial cord

- **Central cord syndrome:** 多發於C spine(老人家跌倒臉撞到), 手比腳沒力，有 sacral sensory sparing. 有可能出現Dysesthiesia(灼熱的疼痛感)
- **Brown-Séquard syndrome:** 多於穿刺傷有關，特色是contralateral 溫痛異常，患側的運動及本體/震動覺異常
- **Anterior cord syndrome:** 常見HIVD Hx +Flexion injury→ anterior spinal artery壓到；溫痛喪失，運動功能異常程度不一，但本體感覺還在
- **Conus medullaris syndrome** : 腸子跟膀胱反射消失，下肢感覺運動消失/異常,但會有sacral sparing及相關反射(eg, bulbocavernosus and micturition reflexes).
- **Cauda equina syndrome :** 類似**Conus medullaris syndrome ,** 但加下肢反射消失。

- Key physical manifestation:
  - Bulbocavernous reflex:抓龜頭時肛門括約肌會收縮
  - Micturination reflex: 膀胱漲的時候括約肌會鬆開(也就是沒有尿滯留)
  - 記得要捅屁屁還有抓 GG…

Thanks your attention!