

ER Case Conference

A 65 Y/O MAN WHO VOMIT FOR 10 MORE TIMES

Presentation: 溫雅婷
Supervised by VS 楊毓錚

- 65 y/o man
- 10:54 GI OPD轉入
- Chief complaint:
Nausea / Vomiting for 10+ times since last night
Referred from GI's OPD for hydration
- T/P/R: 36.2 / 95 / 16 BP: 114 / 68
Triage: II

◎ Present Illness:

abdominal pain(-), headache(-)

stool passage(+), diarrhea(-)

abdominal surgery history(-)

◎ Past history & Medication:

- Low back pain for one month

→ 台大, LMD

→ NS OPD f/u, taking pain killer

- Leg pitting edema for 2 weeks, decreased urine output recently

→ Taking Lasix (自述因止痛藥過敏造成)

● PE:

Con's: E4V5M6

HEENT: anicteric, no pale conjunctiva

Chest: RHB

BS: clear

Abdomen: Soft, No tenderness

BoS: hypoactive

Tympanic percussion over epigastric area

Extremities: Warm, pitting edema(+)

Chart Record

- NS OPD (one month ago)

Right side low back pain with radiation to lateral thigh for weeks

Numbness (+), hyperesthesia

Right foot dorsiflexion 4+

SLRT right 20 degree

Imp: Right L5 sciatica

Arrange L-spine MRI

L-spine MRI

- NS OPD (two weeks ago)

Bil. legs pitting edema → Lasix

BUN	18
Cr	1.1
Albumin	4.0
GOT	15
GPT	9

- NS OPD (one week ago)

Leg edema got some improvement

Keep Lasix use



What's your impression?

- ◎ Impression:

Vomiting with dehydration, cause?

r/o gastric outlet obstruction

r/o ileus,

r/o electrolyte imbalance

(∴門診吃Lasix for 腳腫)



Work Up

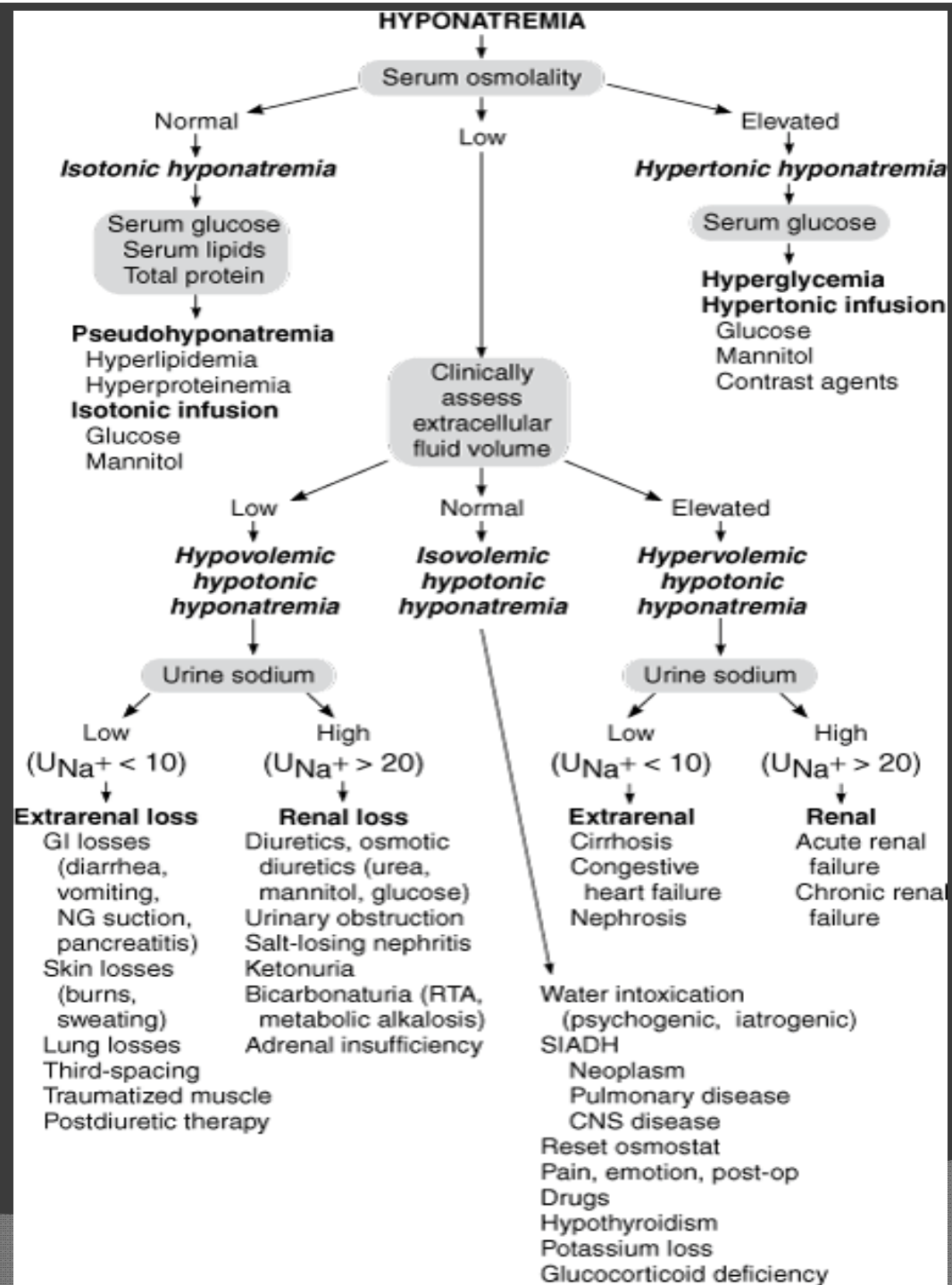
⦿ Abdomen standing plain film



CBC	
Hb	11.3
WBC	13.3
Differential count	
Segmented	87 %
Lymphocyte	8 %
Monocyte	4 %
Atypical lymphocyte	1 %

Panel I	10/15	10/28
Glucose		118
GOT		18
BUN	18	31
Cr	1.1	1.6
Na		122
K		3.9
Lipase		44

VBG	
pH	7.65
pCO2	36.9 mmHg
pO2	17 mmHg
BE	20 mmol/L
HCO3	40.7 mmol/L
SatO2	35 %



	検査値		参考値
Serum Osmolarity	252	mOsm/kg	278-305
Urine Na	18	meq/L	40-220
Urine Osmolarity	471	mOsm/kg	300-900

- Bedside echo:

distended stomach and duodenum,

enlarged LN

r/o gastric outlet obstruction,

r/o obstructive ileus

Management:

- On NG with decompression

- NS run 100 ml/hr for hydration and sodium supplement

- Arrange abdominal CT, consider panendoscopy

Abdominal CT

Radiologist report

- Wide-spreading retroperitoneal lesion with tightly regional **duodenal adhesion**, **vascular and ureteral encasement**, and **psoas muscle invasion**.
- Post-bulbar duodenal obstruction
- Bilateral obstructive uropathy and hydronephrosis
- **Right kidney** low density may be due to **infiltrative TCC** and right renal artery encasement.

- ⦿ Consult GI:

- Keep NG decompression

- Arrange panendoscopy for r/o PUD related gastric outlet obstruction

- ⦿ Consult GU:

- Suggest urine cytology

- Wait for PES result

Panendoscopy

- ⦿ Esophagus: multiple ulcers with oozing of blood at lower esophagus
- ⦿ Gastric: mild hyperemic mucosa at antrum
- ⦿ Duodenum: negative to second portion
- ⦿ Comment:
 - Esophageal ulcers and gastritis
 - Avoid insert NG tube
 - Advise continue PPI use

⦿ GI follow up:

- No gastric outlet obstruction was found from panendoscopy
- Vomiting symptoms should be related to hyponatremia
- Oral PPI, OPD follow up

⦿ GU follow up:

- Wait for urine cytology, OPD follow up

◎ Impression:

- Acute renal failure, bil. hydronephrosis, r/o right renal tumor
- Hyponatremia
- Esophageal ulcers with oozing, gastritis
- Vomit, r/o gastritis, r/o hyponatremia related

● Management:

- NPO, IVF: D5S run 80 ml/hr
- Pantoloc 1 vial QD
- Primperan 1 amp Q8H
- Follow Na, renal function

EC course

Day2 11:35

No more vomit

No abdominal fullness

Micturition(+), 但解比較久

	10/15	10/28	10/29
BUN	18	31	31
Cr	1.1	1.6	1.4
Na		122	126

Management:

Keep PPI use

Try liquid diet

Arrange Nephro. admission

Day3 10:00

Family:晚上人會胡言亂語

P't: 昨晚太吵不能睡

No vomit, On liquid diet: tolerable

Micturition (+), 但解比較久

Day3 16:20

No specific discomfort

Oral intake: OK

	10/28	10/29	10/30
Na	122	126	129

Managenent:

Education

GI/GU OPD follow up

MBD

24hr內重返ER

- ◎ Chief complaint:

Conscious disturbance 人時地分不清
問在那裡,說在上海

Nausea / Vomiting (+)

- ◎ T/P/R: 35.4 / 138 / 18 BP: 122 / 72

Triage: I

● PE

Con's: E4V4M6

Pupil: 3.0+/3.0+

Abdomen: soft

Chest: clear BS

MP: all 4



What's your impression?

- Imp: Acute delirium
 - r/o brain lesion
 - r/o hepatic encephalopathy
 - r/o electrolyte imbalance



Work Up

CBC	10/28	10/31
Hb	11.3	12.0
WBC	13.3	20.8
Differential count		
Segmented	87 %	89.5 %
Lymphocyte	8 %	1.5 %
Monocyte	4 %	4.5 %
Band		4.5 %

Panel I	10/15	10/28	10/29	10/31
Glucose		118		128
GOT		18		20
BUN	18	31	31	54
Cr	1.1	1.6	1.4	2.2
Na		122	126	127
K		3.9		3.2
Ammonia				43

VBG	10/31
pH	7.53
pCO2	40.5 mmHg
pO2	39 mmHg
BE	12 mmol/L
HCO3	34.5 mmol/L
SatO2	79 %



Brain CT

- Management:

 - Hydration: NS 300ml IV stat, then run 60ml/hr

 - Primperan 1 amp IV stat

- 09:21 Consult GU

- 10:00 Admission to GU ward

GU Ward course

● Active problems:

- R't renal pelvis TCC with retroperitoneal LNs meta and local invasion
- Acute renal failure
- Left hydronephrosis
- Ileus, vomiting
- Acute delirium

● Management:

- 15:30
Lt PCN for hydronephrosis
- Cefmetazole 1g Q12H
- Nexium 1 vial QD
Primperan 1 amp Q8H
Sucralfate
- Serequel 0.25# QN
Haldol 1amp IV PRN

Day4 (First day after admission)

11:00 Mild abdominal distention

Suggest NG tube insertion but families hesitate

Urine cytology: atypical urothelial cell

14:20 Poor response was observed by families.

E1V1M1, no pause, EKG: PEA

14:24 Start CPR

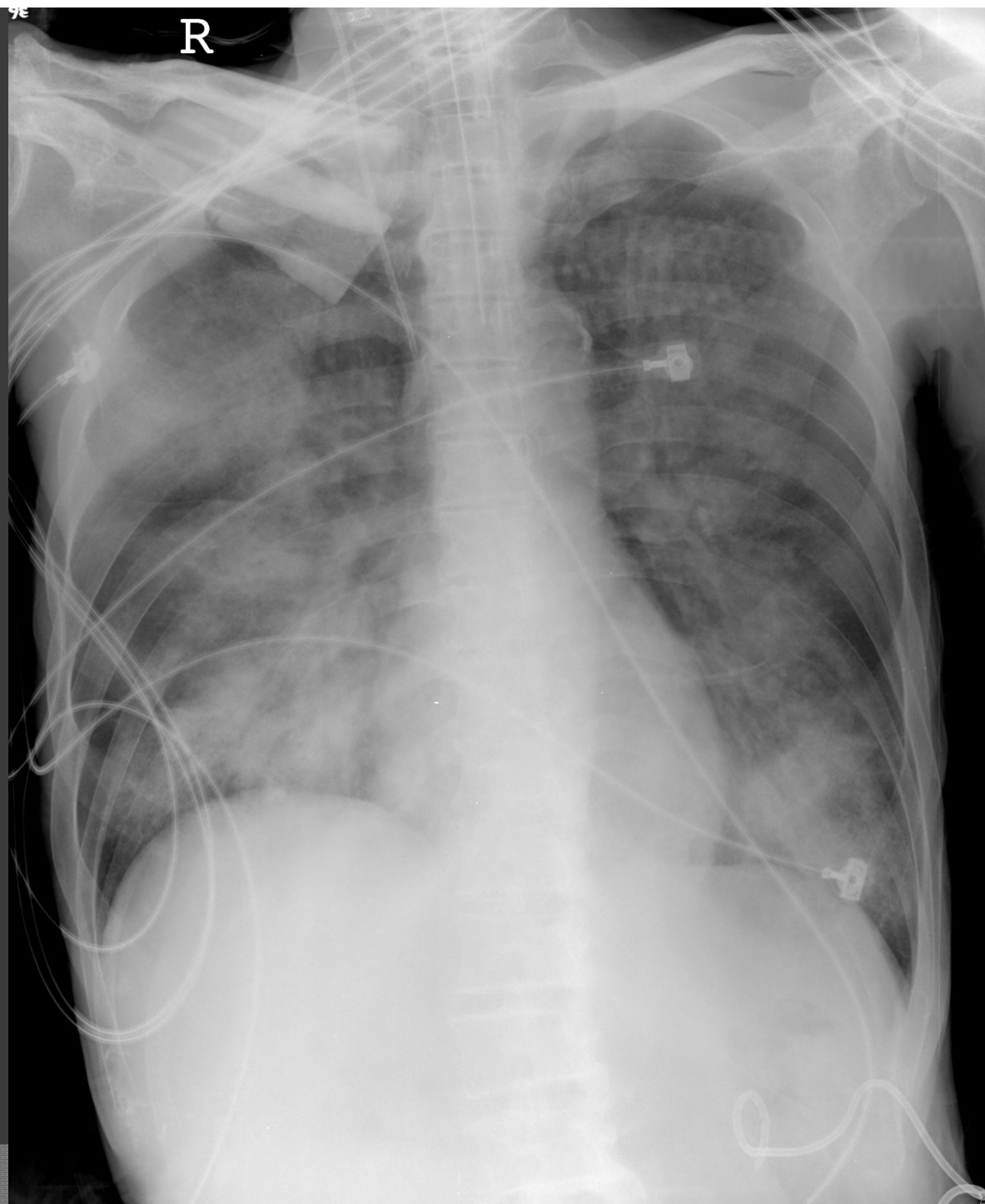
Massive coffee-ground vomitus (totally 1600 ml, 含
on NG 後suction and decompression的量)

14:45 ROSC

15:35 transfer to SICU

15:56 BP:量不到, EKG: PEA, start CPR again

16:46 No response to resuscitation, patient expired



Discussion

Nausea and Vomiting D/D

- Nausea and vomiting accompany a variety of illnesses.
- Symptoms may be the direct result of primary GI disorders, eg. bowel obstruction or AGE.
- May also represent pathology of the CNS (IICP, tumor), psychiatric conditions (anxiety), metabolic abnormalities (DKA, hyponatremia), or medications and toxins.
- Also, **acute symptoms** may be the result of severe pain, AMI, sepsis, or other systemic illnesses.

Pathophysiology

- Vomiting is a complex physiologic process that is coordinated at medulla.
- Chemoreceptor trigger zone (located in 4th ventricle): Chemoreceptors in this area are outside the blood–brain barrier and stimulated by circulating medications and toxins.
- Vagal afferents stimulate those through serotonin receptors.
- Vagal activation is triggered by direct gastric mucosal irritants (eg. NSAIDs) or increased luminal distention.

Table 75-1 Anatomic Locations of Receptor-Mediated Triggering Factors in Emesis

Anatomic Site	Chemoreceptors	Triggering Factor
Chemoreceptor trigger (area postrema)	Dopamine	Medications (dopamine agonists, digoxin, opiates, nicotine, chemotherapeutic drugs)
	5-HT ₃	
	H ₁	Metabolic (uremia, diabetic ketoacidosis, hypercalcemia)
	M ₁	
	Vasopressin	Neuroendocrine (hyperemesis gravidum)
		Toxins
Peripheral vagal afferents	5-HT ₃	Gastric irritants (salicylate, erythromycin, copper, ipecac)
		Bacterial toxins (<i>Staphylococcus</i> enterotoxin)
		GI distention (biliary colic, small bowel obstruction)
		Inflammation (peritonitis, cholecystitis)
		Chemotherapy
		Radiation
Vestibular system	H ₁	Motion
	M ₁	Labyrinth tumors or infections
		Benign position vertigo or Ménière disease
Cerebral cortex and limbic system	Poorly characterized	Psychogenic (fear, anxiety)
		Noxious odors
		Visual stimuli

Table 75-2 Differential Diagnosis of Nausea and Vomiting

GI	Neurologic	Infectious	Drugs/Toxins	Endocrine	Miscellaneous
Functional disorders	Head injury	Bacterial toxins	Digoxin	Pregnancy	Myocardial infarction
Psychogenic	Stroke	Pneumonia	Aspirin	Adrenal insufficiency	Acute glaucoma
Irritable bowel syndrome	Pseudotumor	Spontaneous bacterial peritonitis	NSAID	Diabetic ketoacidosis	Nephrolithiasis
Obstruction	Hydrocephalus	Urinary tract infection	Acetaminophen	Parathyroid disorders	Pain
Adhesions	Mass lesion	Viruses	Opiates	Thyroid disorders	Psychiatric disorders
Esophageal disorders	Meningitis	Adenovirus	Alcohol	Uremia	Anorexia nervosa
Achalasia	Migraines	Norwalk	Theophylline	Electrolyte disorders, especially hyponatremia	Bulimia
Intussusception	Labyrinthitis	Rotavirus	Chemotherapeutics		Conversion disorder
Tumor	Ménière disease		Anticonvulsants		Depression
Pyloric stenosis	Motion sickness		Antibiotics		
Strangulated hernia			Antiarrhythmics		
Volvulus			Hormones		
Organic disorders			Illicit drugs		
Appendicitis			Radiation therapy		
Cholecystitis			Toxins		
Cholangitis			Arsenic		
Hepatitis			Organophosphates		
Irritable bowel disease			Carbon monoxide		
Mesenteric ischemia			Ricin		
Pancreatitis					
Peptic ulcer disease					
Peritonitis					

History taking

- **Frequency** of the episodes is helpful to assess the severity of illness.
- **Timing** of the episodes
 - more in the morning: pregnancy or CNS cause
 - more postprandial: gastric outlet obstruction
- The **content of the vomitus** is helpful to determine if any obstruction and the obstruction level.
 - Bile (+): small bowel obstruction
 - Food particles without bile: gastric outlet obstruction
 - Stool-like material and a foul odor: colon obstruction

⦿ Associated symptoms:

- The presence of abdominal pain ?
Pain preceding N/V is mostly associated with an obstructive process.
- Fever or diarrhea suggests gastroenteritis.
- Recent weight loss: malignancy or psychiatric component.
- Headache, visual changes, vertigo, or neurologic deficits, may suggest a central cause

⦿ Prior abdominal surgeries ?

⦿ Review the patient's medication list:

NSAIDs, cancer chemotherapeutic agents, oral contraceptives, Abx, HTN meds and antiarrhythmics.

Overdose: acetaminophen, digoxin

Physical Examination

Table 75-3 Differential Diagnosis Based on Physical Examination Findings

Physical Examination	Abnormal Signs or Symptoms	Some Diagnostic Considerations
General	Toxic appearing	Dehydration
	Generalized weakness	Chronic malnutrition
	Weight loss	Malignancy
Vital signs	Fever	Infection (gastroenteritis, appendicitis, cholecystitis)
	Tachycardia	
	Hypotension	Bowel perforation, septic peritonitis
	Hypertension	Severe volume depletion
		Intracranial hemorrhage or stroke
Head, eyes, ears, nose, throat	Nystagmus	Peripheral vs. central causes (benign positional vertigo, cerebellar infarct)
	Fixed-dilated pupil, eye pain	Opiate abuse
		Acute glaucoma
Abdomen	Distention	Small bowel obstruction, gastroparesis, gastric outlet obstruction, ileus
	↓ bowel sounds	
	Surgical scars	Ileus
	Hernias or palpable masses	Incarcerated hernia, tumors
		Peritonitis

Serious Disease in Low back pain

Table 276-1 Summary of Risk Factors in Neck and Back Pain

Historical Risk Factors	Concern/Comments
Pain >6 wk	Tumor, infection
Age <18 y old, >50 y old	Congenital anomaly, tumor
Major trauma	Fracture
Minor trauma in elderly or rheumatologic disease	Fracture, age >50 y old is a risk for compression fracture, >70 y old is more specific for fracture
History of cancer	Tumor
Fever and rigors	Infection
Weight loss	Tumor, infection
Injection drug use	Infection
Immunocompromised	Infection
Night pain awakes the p't from sleep	Tumor, infection
Unrelenting pain, even when supine	Tumor, infection
Incontinence	Epidural compression
Saddle anesthesia	Epidural compression
Severe/progressive neurologic deficit	Epidural compression
Anticoagulants and coagulopathy	Epidural compression
Physical Risk Factors	Concern
Fever	Infection
Patient writhing in pain	Infection
Unexpected anal sphincter laxity	Epidural compression
Perianal/perineal sensory loss	Epidural compression
Palpable bladder postvoiding	Epidural compression
Major motor weakness/gait disturbance	Nerve root or epidural compression
Positive straight leg raise test	Herniated disk

◎ Intra-abdominal cause of back pain:

abdominal aortic aneurysm

Pancreatitis

posterior lower lobe pneumonia

Urolithiasis

renal infarct

History Taking

- ⦿ Identify risk factors for serious disease
- ⦿ **Systemic complains:** fever, chills, malaise, and weight loss suggest infection or malignancy.
- ⦿ **Pain Features**
 - A dull pain, worsens with movement but improves with rest and lying still is the typical description of benign back pain.
 - Red flags: **night pain, awakening the patient from sleep, unremitting**

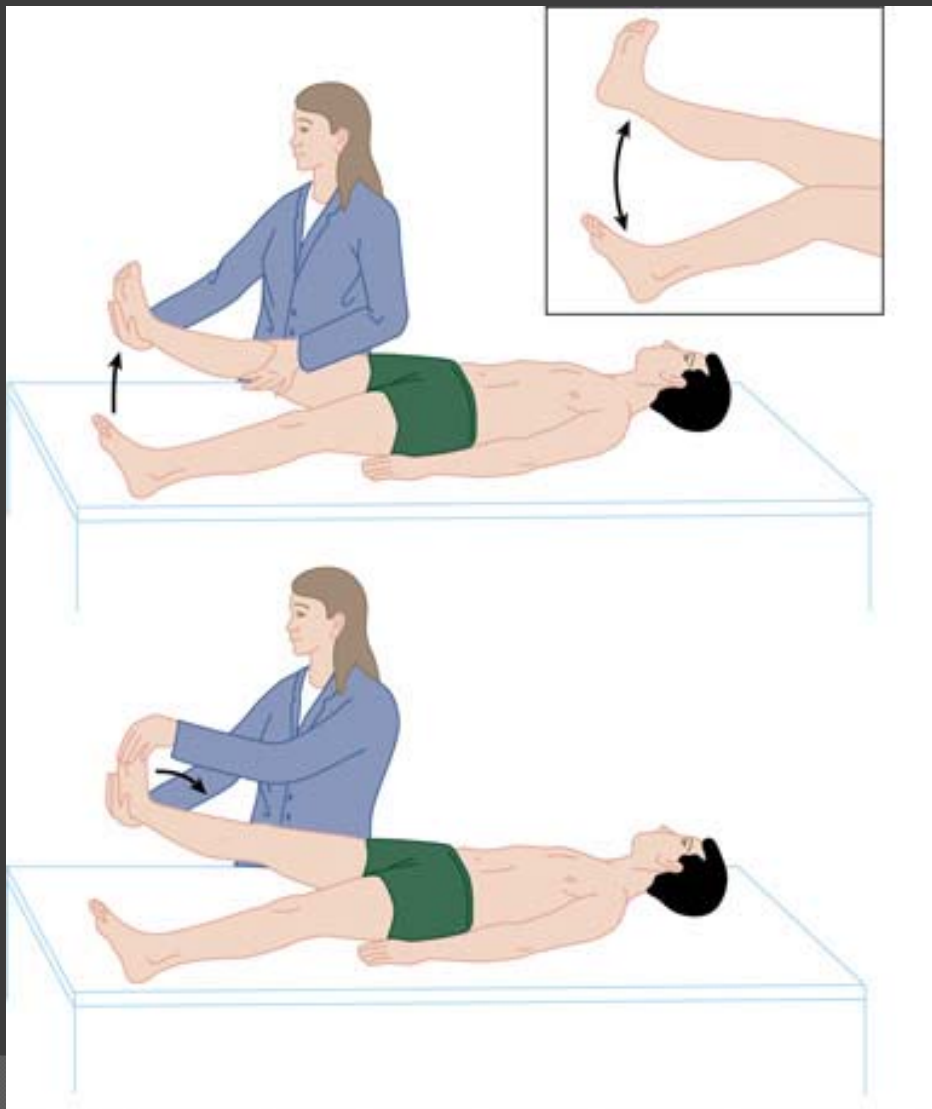
● Neurologic Deficits

- Bowel or bladder incontinence is a serious symptom that raises concern for an epidural compression syndrome.
- If a back pain patient has a history of urinary incontinence (acute or chronic)
 - = > measure the postvoid residual volume.
- The most common finding in cauda equina syndrome is urinary retention
sensitivity 90% , specificity 95%.
- Decreased anal sphincter tone in 60~80% cases

Physical Examination

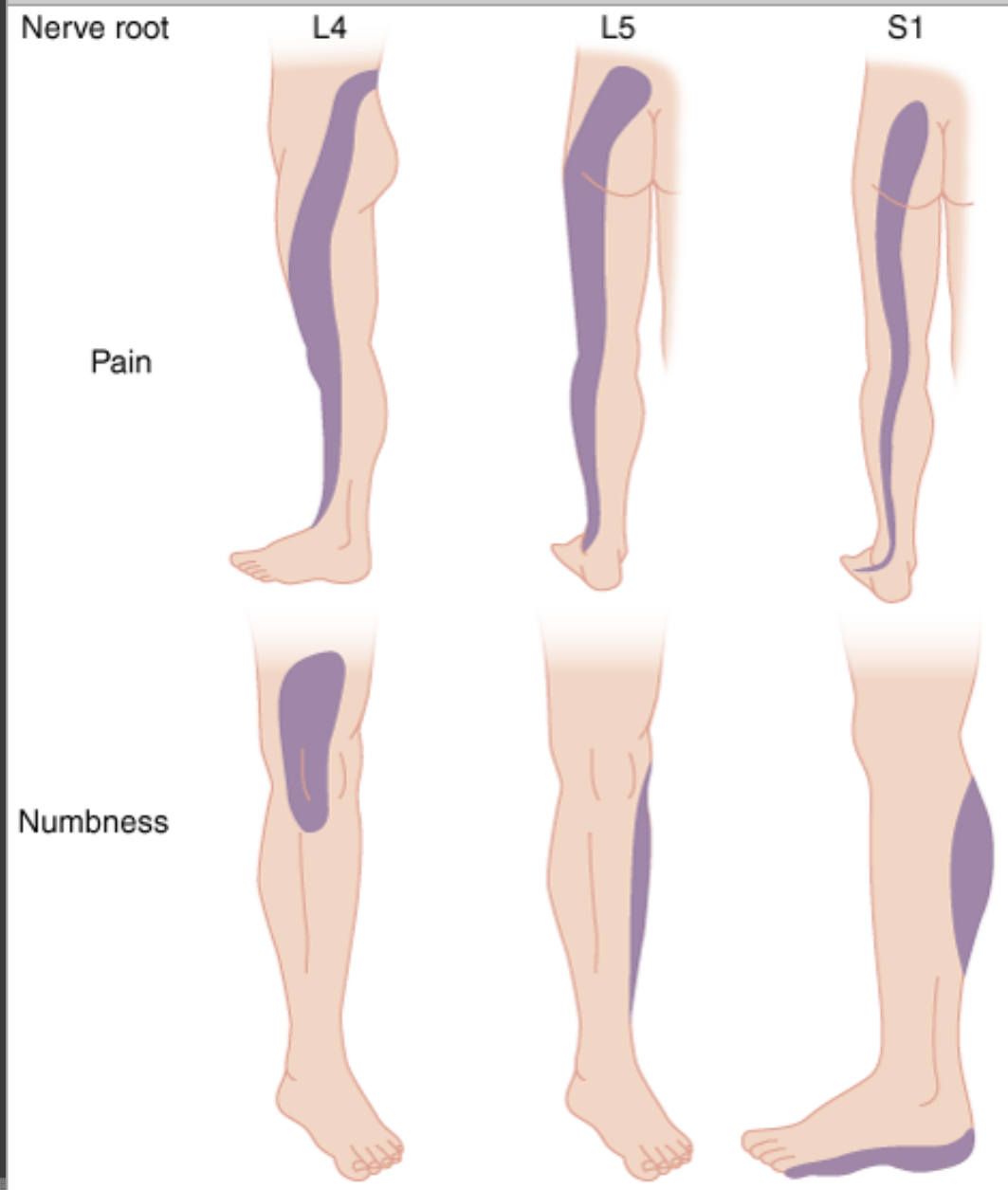
- In patients with severe or excessive pain when lying still, consider acute spinal infection or abdominal aortic aneurysm.
- Point tenderness to percussion is found with fractures and bacterial infection

Straight Leg Raise Test



Stretch test:
dorsiflex the ankle

Figure 276-3.



- ⦿ A **positive** SLRT causes radiating pain of the affected leg.
- ⦿ Reproduction of the patient's back pain or pain in the gluteal or hamstring area when the leg is raised, is not a positive result.
- ⦿ Positive crossed SLRT: highly specific for nerve root compression by a herniated disc

Thank you for your attention.