

Interesting case

A Thai male with
Chronic Inflammatory Demyelinating Polyneuropathy
(CIDP)

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What is
Chronic Inflammatory Demyelinating Polyneuropathy?

Chronic Inflammatory Demyelinating Polyneuropathy

An acquired, **immune-mediated neuropathy** affecting peripheral nerves and nerve roots, characterized by a **relapsing remitting or progressive** course, glucocorticoid responsiveness, and electrodiagnostic or pathologic features of **demyelination**

Case

A 82-year Thai male with CIDP

Diagnosis: Closed fracture Intertrochanter of Lt. Femur

Operation: CRIF with PFNA

Patient's History

(R1)



Present illness

- **3** วันก่อนมาโรงพยาบาล ผู้ป่วยให้ประวัติเดินหกล้ม สะโพกด้านซ้ายกระแทกพื้น หลังจากหกล้มมีอาการปวดที่บริเวณสะโพกด้านซ้ายมาก เมื่อขยับมีอาการปวดมากขึ้น ไม่สามารถยืน เดิน หรือลงน้ำหนักได้

Past History

Underlying disease:

- Hypertension
- DLP
- SIADH
- CIDP

Past History

Recurrent AIDP → CIDP (Diagnosis 2018)

Presented as paresthesia, paresis

Treatment: IVIg 5 episodes (Latest 6/11/2020)

- Cellcept(250) 2x1 po pc

Past History

Current medication:

- Telmisartan(40)1x1 po pc
- Rosuvastatin (10) 1x1 po hs
- Furosemide(40) ½ x 1 po pc
- NaCl(300) 1x2 po pc
- Cellcept (250) 2x1 po pc

Past History

No drug, No food allergy

No smoking, No alcohol drinking

Previous surgery: Rt. TKA 6 years ago

Laparoscopic Cholecystectomy 25 years ago

Functional class 1

Physical Examination

(R1)

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Physical Examination

Vital signs T 36.3 C, BP 126/58 mmHg, PR 56 bpm, RR 16 bpm SpO2 RA 96%
BW 72 kg, HT 168 cm (BMI 25.51 kg/m²)

GA: A Thai female, good consciousness, not pale, no jaundice

HEENT: No sunken eye balls, no dry lips and tongue

RS: Equal breath sound both lungs, no accessory muscle used
CVS: Pulse 2+ full and regular, no heaving, no thrill, normal S1 S2, no murmur

Physical Examination

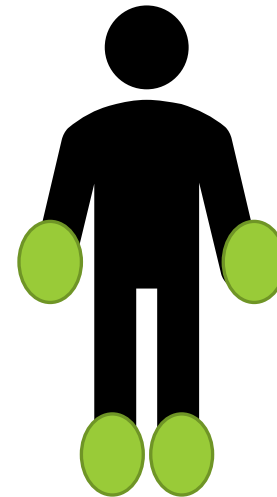
Abdomen: Soft, not tender, liver and spleen cannot be palpated, old surgical scar

Extremities: No deformity, no pitting edema

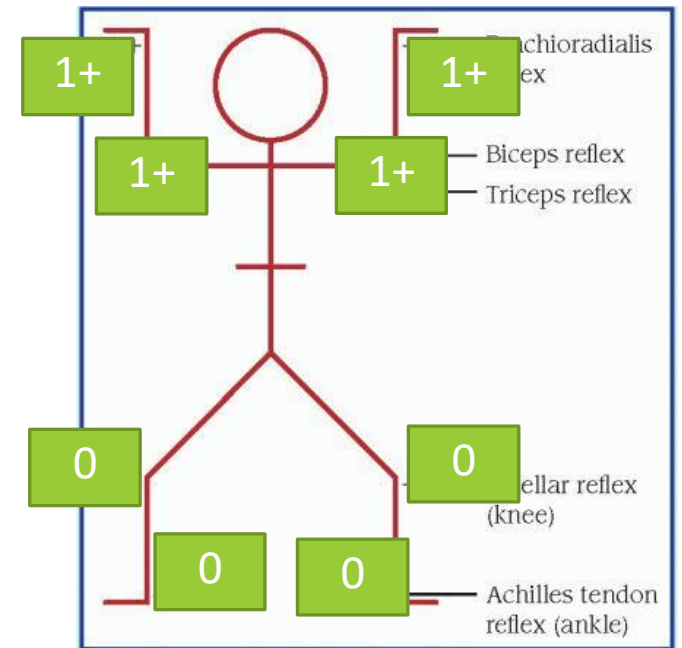
Physical Examination

NS: E4V5M6, no facial palsy, full EOM, pupil 2 mm BRTL

Lower Extremities	Rt.	Lt.
Hip Flexion/Extension	V	V
Hip Abduction/Adduction	V	V
Knee Flexion/Extension	IV/IV+	IV/IV+
Ankle Plantar/Dorsiflexion	IV/IV	IV/IV
Toe Flexion/Extension	IV/IV	IV/IV



Decreased Vibration, Proprioception



Physical Examination

Airway Examination:

- No limit neck motion
- Thyromental distance > 6 cm
- Mouth opening > 3 cm
- Upper lip bite test : grade 1
- No prominent incisor
- Mallampati grade 2
- No teeth

Investigation

(R1)

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Investigation

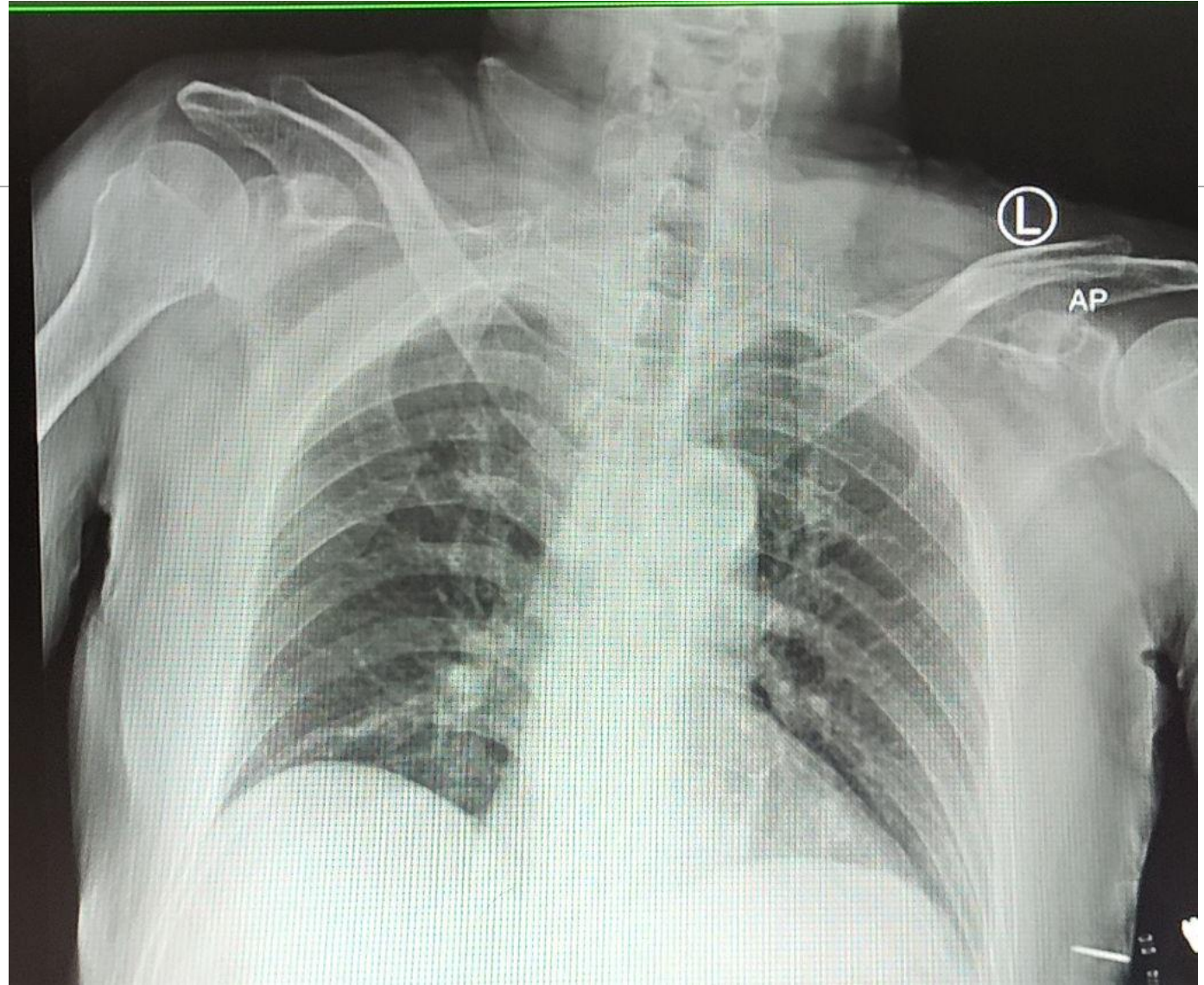
CBC: Hb 12.5 Hct 31.5 % platelet 209,000

Electrolytes: Na 136 K 4.13 Cl 102.6 CO₂ 24.5

BUN 18.3 Cr 0.98 GFR 71.7

Coagulogram: PT 13.1 INR 1.13 PTT 31.3 ratio 1.22 TT 15.7 ratio 1.04

CXR



Film Pelvis



QTc 433

408

--AXIS--

P 47

QRS 34

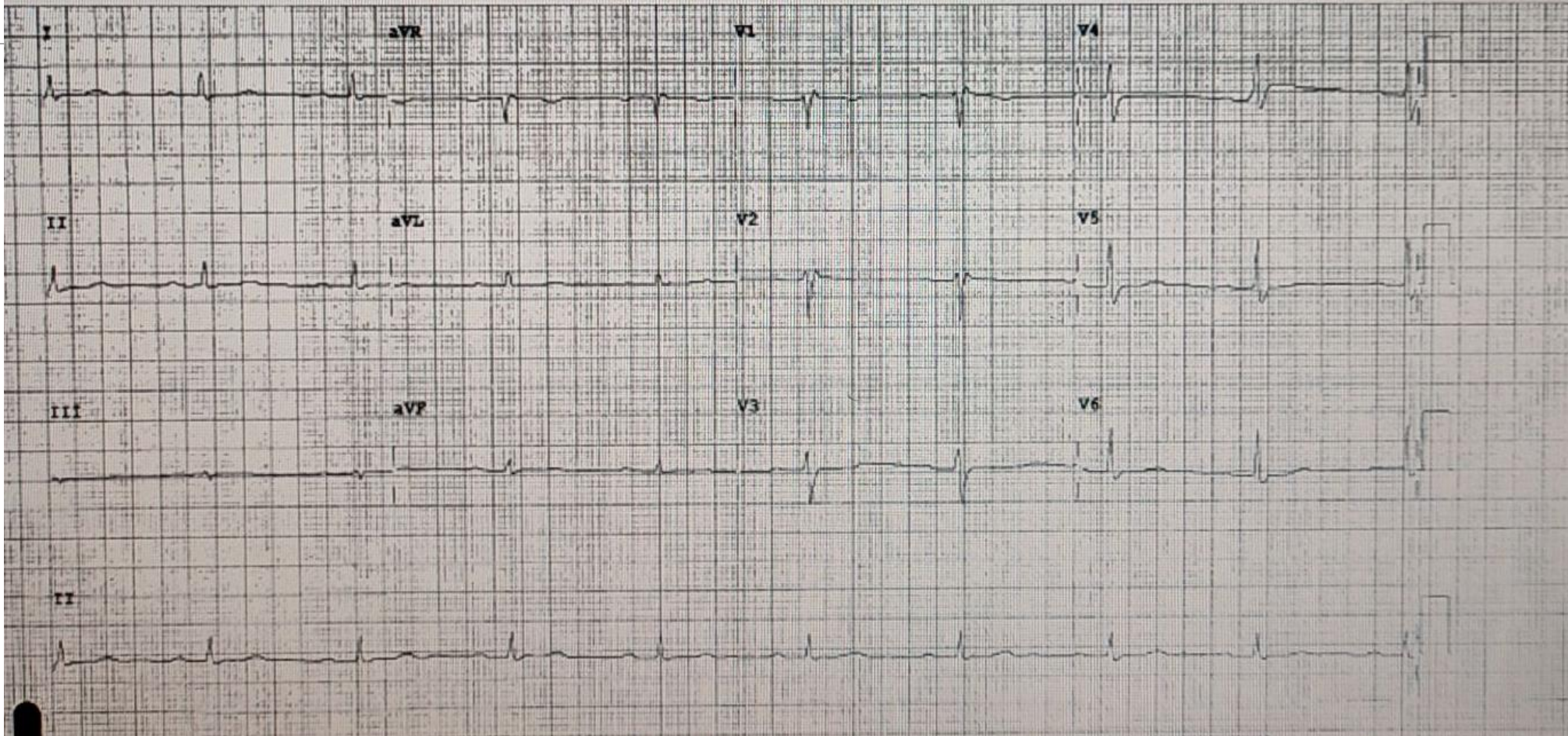
T 24

12 Lead; Standard Placement

- ABNORMAL ECG -

Unconfirmed Diagnosis

SCAN



Device: Speed: 25 mm/sec Lamb: 10 mm/mV Chest: 10.0 mm/mV P 50 0.15-100 Hz 100B CL

Problem list

(R1)

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Problem list

A 82-year male with Closed fracture Intertrochanter of Lt. Femur

-CIDP

-SIADH

-Hypertension

-Dyslipidemia

ASA classification

ASA class 2

Preoperative evaluation and preparation

(R2)

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Preoperative evaluation

- Patient factor
- Surgical factor
- Anesthetic factor

CIDP

Incidence rate



0.33 cases per
100,000 person-years

Prevalence rate



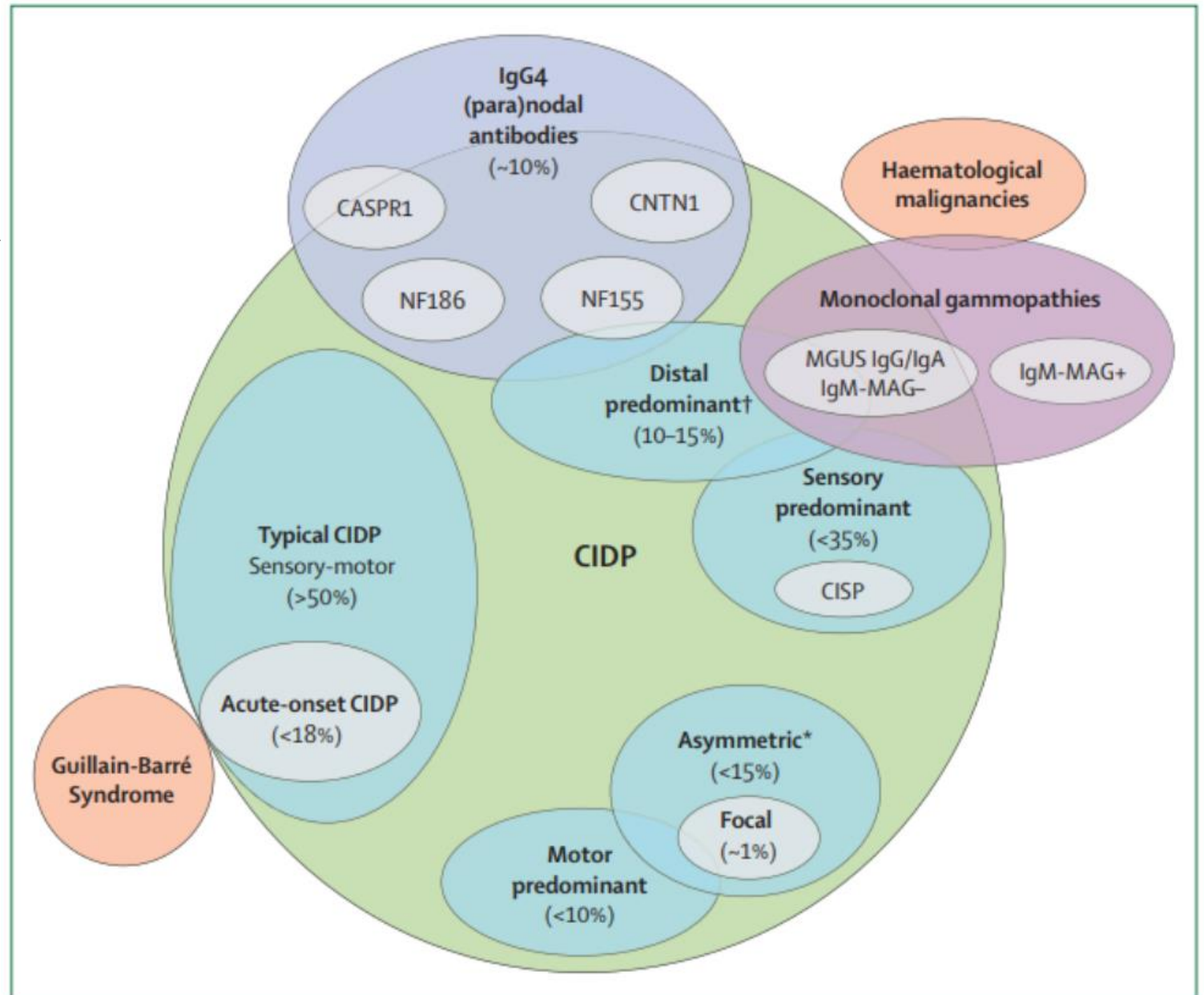
2.81 cases per
100,000 persons

No clear risk factor



- Male predominance 1.5-4X
- Increasing with age

CIDP



Criteria for CIDP

Progressive escape paresis and sensory dysfunction in legs and arms

Involvement of proximal muscles in legs and most often also arms

Hypo- and areflexia

Progressive phase of 8 weeks

Demyelination on electroneurography, in at least two different motor nerves

Typical CIDP

Symmetric sensorimotor polyneuropathy

Proximal and distal motor involvement in similar degrees (non-length dependent), **exceeds sensory involvement**

Sensory involvement greater for **vibration and position sensation** than pain and temperature, worse **distally**

Decreased or absent reflex

Gradually progressive more than 2 months, some patients presenting rapidly (acute onset CIDP)

Treatment

Corticosteroid

Intravenous Immunoglobulin(IVIg)

Subcutaneous Immunoglobulin(SCIg)

Plasma Exchange



Anaesthetic Options in Chronic Inflammatory Demyelinating Polyneuropathy

Rivas BH*, Romero RP and Sánchez JLA

Department of Anesthesiology, Son Llätzer Hospital, Palma of Mallorca, Spain

Author	Anaesthesia	Surgery	Observations/Outcome
Hara et al. [6]	General anaesthetic	Gastrectomy and colectomy	Prolongation of the effect of the rocuronium. Normal recovery
Schabel et al. [7]	Subarachnoid anaesth.	Caesarean (36 weeks)**	Improved symptoms
Galan et al. [8]	Femoral block + sciatic block	Bimalleolar fracture	Anaesthetic effect and normal recovery. Stronger electrical currents for sciatic stimulations
Gupta et al. [9]	Subarachnoid anaesth.	Fractured neck of femur	Anaesthetic effect and normal recovery
Richter et al. [10]	Subarachnoid anaesth.	Caesarean (38 weeks)**	Dorsiflexion recovery >15 h. Over 24 h before recovered pre-anaesthetic status

**Both caesareans were performed due to worsening of CIDP symptoms and the contraindication for specific therapy in pregnant women.



Anaesthetic Options in Chronic Inflammatory Demyelinating Polyneuropathy

Rivas BH*, Romero RP and Sánchez JLA

Department of Anesthesiology, Son Llätzer Hospital, Palma of Mallorca, Spain

Case 65-year male with Lt. intertrochanteric femur fracture

- Underlying disease:
- DM, a two-year history of diabetic polyneuropathy
- CIDP
- Hashimoto's thyroiditis
- Fatty liver disease
- A simple hepatic cyst.

Anaesthetic Options in Chronic Inflammatory Demyelinating Polyneuropathy

Rivas BH*, Romero RP and Sánchez JLA

Department of Anesthesiology, Son Llätzer Hospital, Palma of Mallorca, Spain

Choice of anesthesia : Spinal anesthesia

10 mg of 0.5% hyperbaric bupivacaine (Braun®) administered through the L3/L4 space

The “pinprick test” showed that sensory block had reached T10 by ten minutes after the puncture

Two hundred minutes after administration of the spinal anesthesia, he had recovered full flexion of knees and feet

CASE REPORT

Open Access

Anesthetic management of a patient with chronic inflammatory demyelinating polyneuropathy by combination of total intravenous and regional anesthesia



Daiki Takekawa^{1*}, Kishiko Nakai¹, Hiroataka Kinoshita¹, Junichi Saito¹, Masato Kitayama², Tetsuya Kushikata¹ and Kazuyoshi Hirota¹

Operation : Laparoscopic Hartman Procedure

Choice of anesthesia : TIVA (propofol, remifentanyl, and ketamine without muscle relaxants)

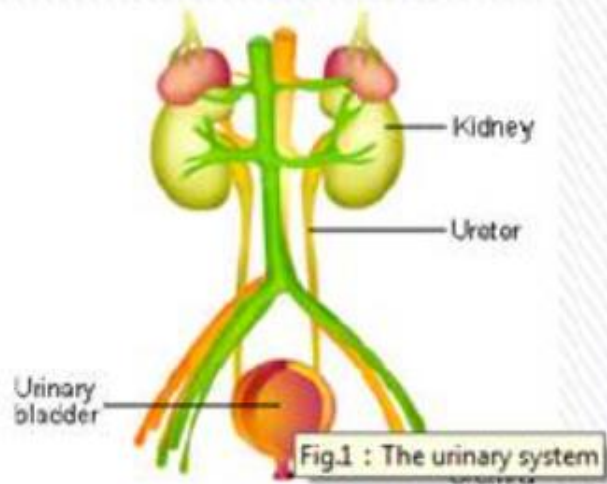
Ultrasound-guided transversus abdominis plane and rectus sheath blocks with 60 ml of 0.25% levobupivacaine

Case Report

Perioperative Management of Patients with Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) During Major Peripheral Vascular Surgery

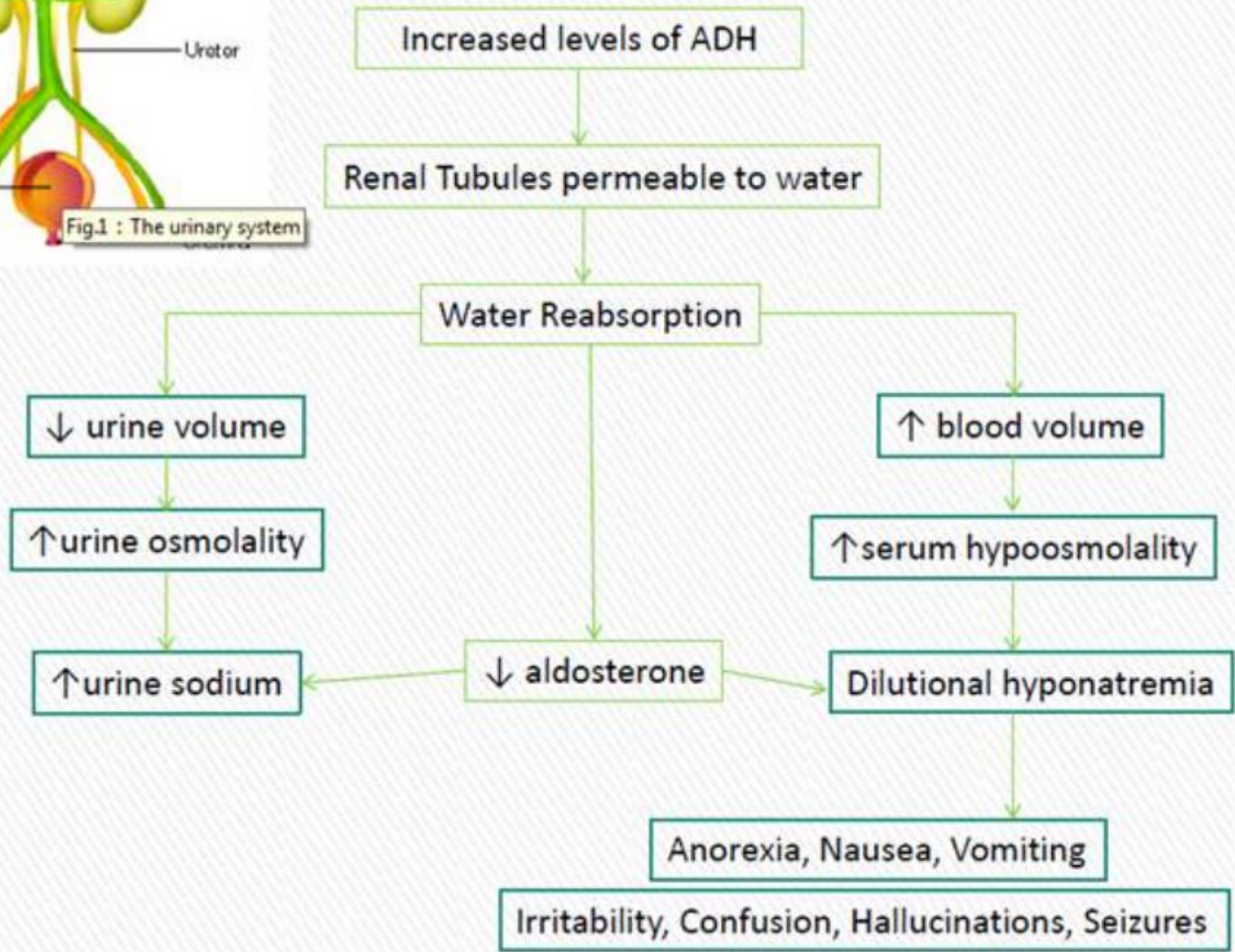
Operation : Femoral to popliteal bypass

Choice of anesthesia : GA + Epidural block



activity.ntsec.gov.tw

SIADH



SIADH

Treatment

Fluid Restriction

Hypertonic saline

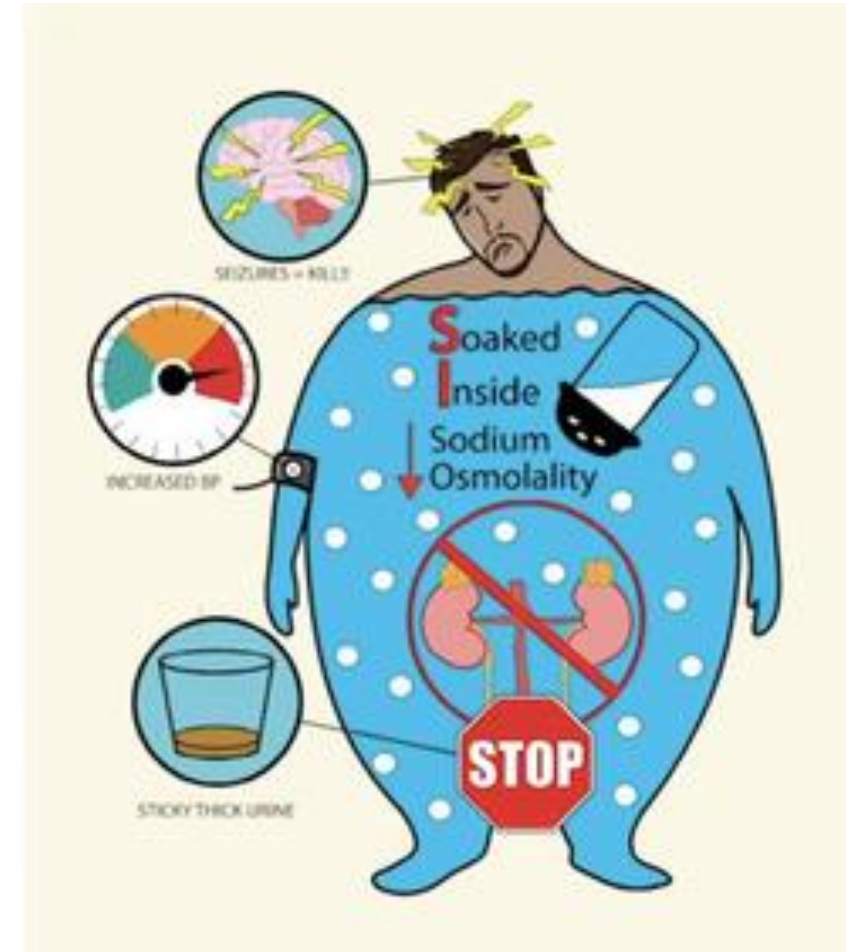
Vasopressin Antagonist

Others e.g. Diuretic

SIADH "Soaked"
"Yes" **ADDS DA H₂O**
Syndrome of Inappropriate Antidiuretic Hormone

7 S's

1. **S** **STOPs** urination (**LOW** urine output)
2. **S** **STICKY & THICK** "urine" **HIGH** Sp. Gravity **1.030+**
3. **SS** **OAKED** Inside "Low & Liquidy" Labs
HYPO osmolality (**LOW**) **NCLEX TIP**
HYPOnatremia below **135 Na+** (**LOW**) **NCLEX TIP**
4. **S** **SODIUM** Low!! (**Headache** Early Sign)
5. **S** **SEIZURES** - **NCLEX** key words: **Headache, Confusion**
6. **S** **SEVERE HIGH** blood pressure
7. **S** **STOP ALL FLUIDS + GIVE Salt + Diuretics**
(**NO IV or drinking**) + (**IV 3% Saline + Eat Salt**)



Hypertension

Baseline Bp 120/50-140/70

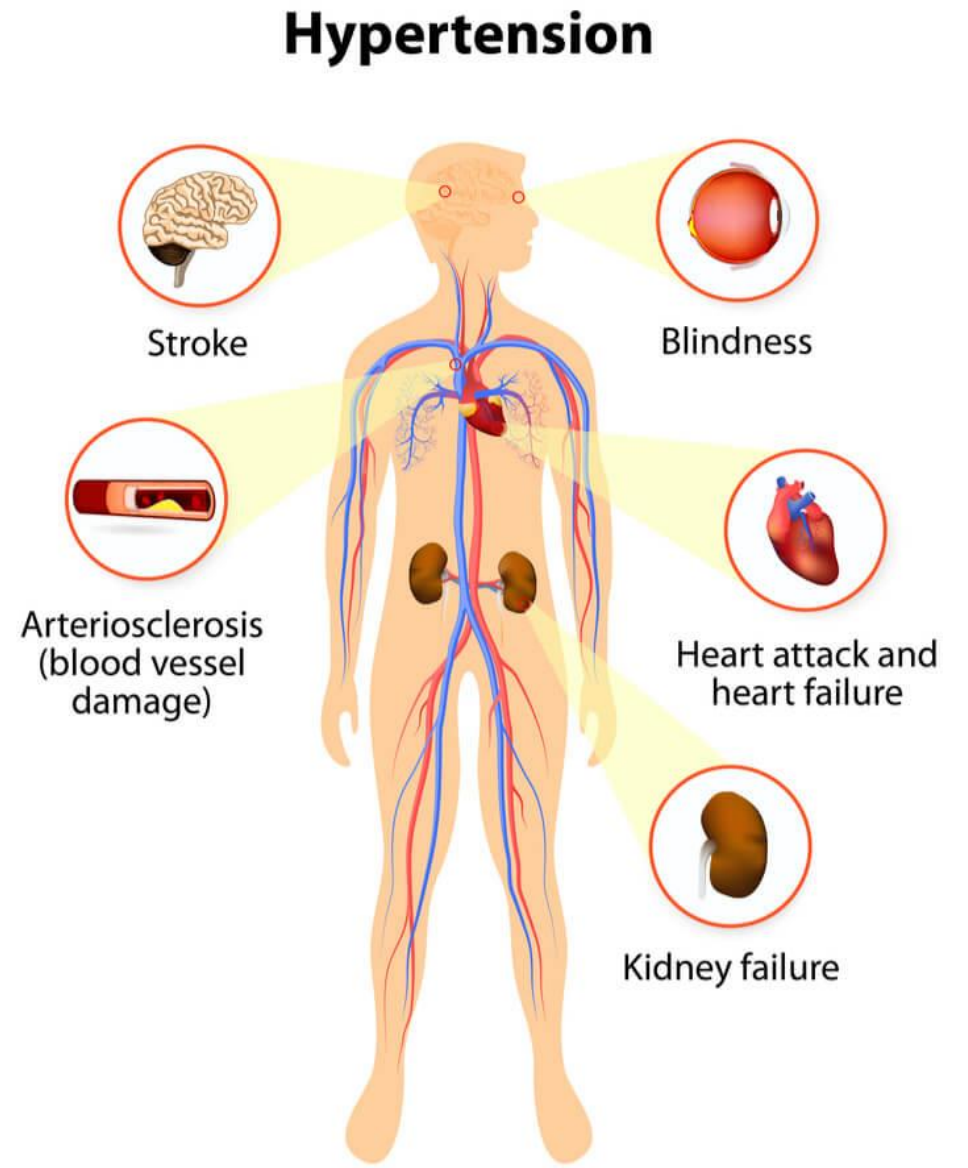
Current medication Telmisartan(40) 1x1 po pc

No Target organ damage

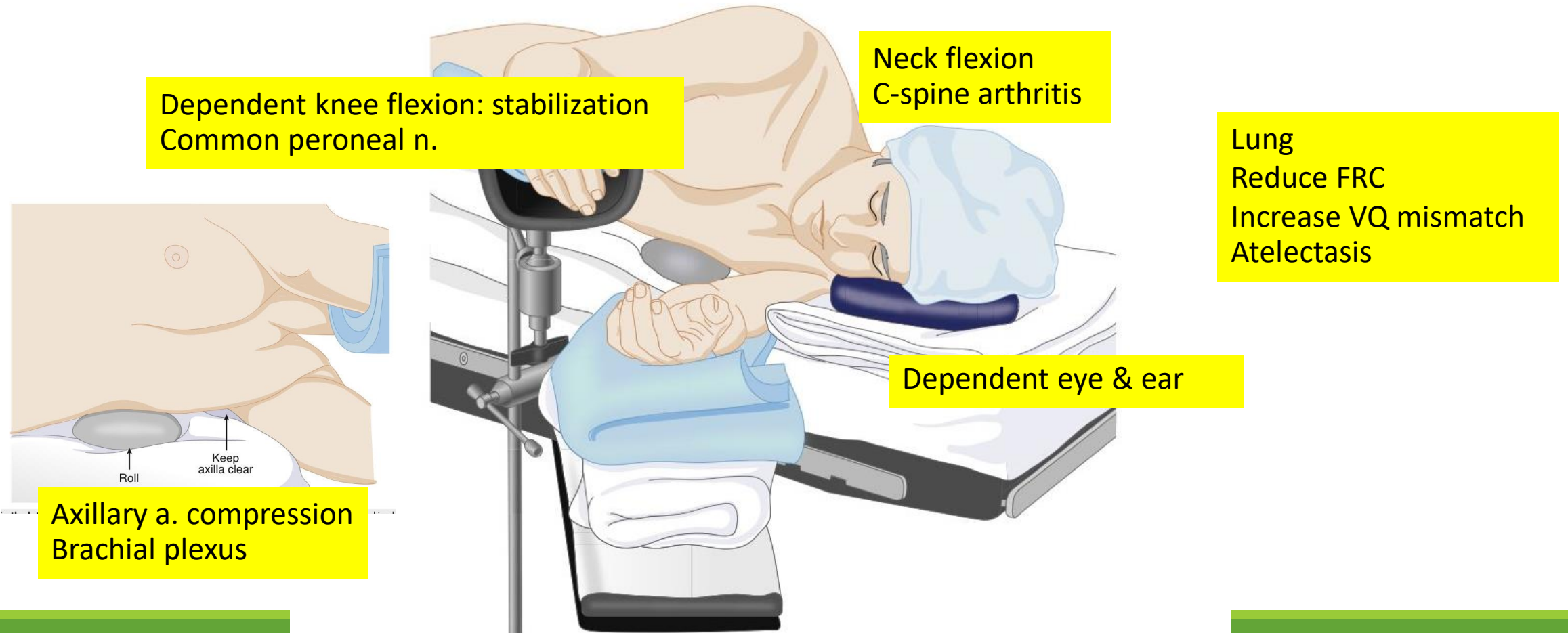
No LVH

No retinopathy, no nephropathy

No Hx of MI, stroke



Operation : Lateral position



Preoperative preparation

NPO

Inform consent

5% DN/2 1000 ml iv rate 80

Set spinal block

0.5% Isobaric bupivacaine

Force air warmer

Monitor(NIBP, O2 sat, EKG)

G/M PRC 2 units

Anesthetic Consideration

(R3)

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CIDP

The phase of the disease

The length of time they have remained stable and the type of surgery can all be decisive

Assessment of muscle strength on admission allow us to rule out any change from his baseline status after surgery

General anesthesia: DMR should be avoided

CIDP

For **Intubation**, NDMR are the drugs of choice and monitoring of the relaxation is mandatory. There is only one reported case of general anesthesia in patient with CIDP by Hara [6] et al. they observed a prolonged effect of rocuronium.

Neuraxial techniques appear to be safe, bearing in mind the possibility of a larger block level than expected

Postoperative Pain Control

Multimodal analgesia

Peripheral nerve block (the potential for direct nerve injury)

Systemic pharmacology therapy:

- Opioids (IV PCA fentanyl)
- Paracetamol
- Gabapentin or pregabalin
- IV Ketamine
- IV Dexmedetomidine
- IV Nefopam

Choice of Anesthesia

(R3)

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Choice of anesthesia



General
Anesthesia



Regional
Anesthesia

Neuraxial anesthesia

Advantages	Disadvantages
<p>Postoperative pain control</p> <p>Reduce opioid and analgesic requirement</p> <p>Avoid intubation</p>	<p>Possibility of a larger block level than expected</p> <p>Hemodynamic instability</p> <p>Duration of surgery</p> <p>Patient discomfort</p> <p>Risk PDPH</p>

General anesthesia

Advantages	Disadvantages
<p>Patient comfort</p> <p>Adequate anesthesia for surgery</p> <p>Duration of surgery</p> <p>Speed of induction</p>	<p>DMR and NDMR must be avoided</p> <p>NMBDs</p> <p>Postoperative pain control</p> <p>More nausea and vomiting</p>

Intraoperative management



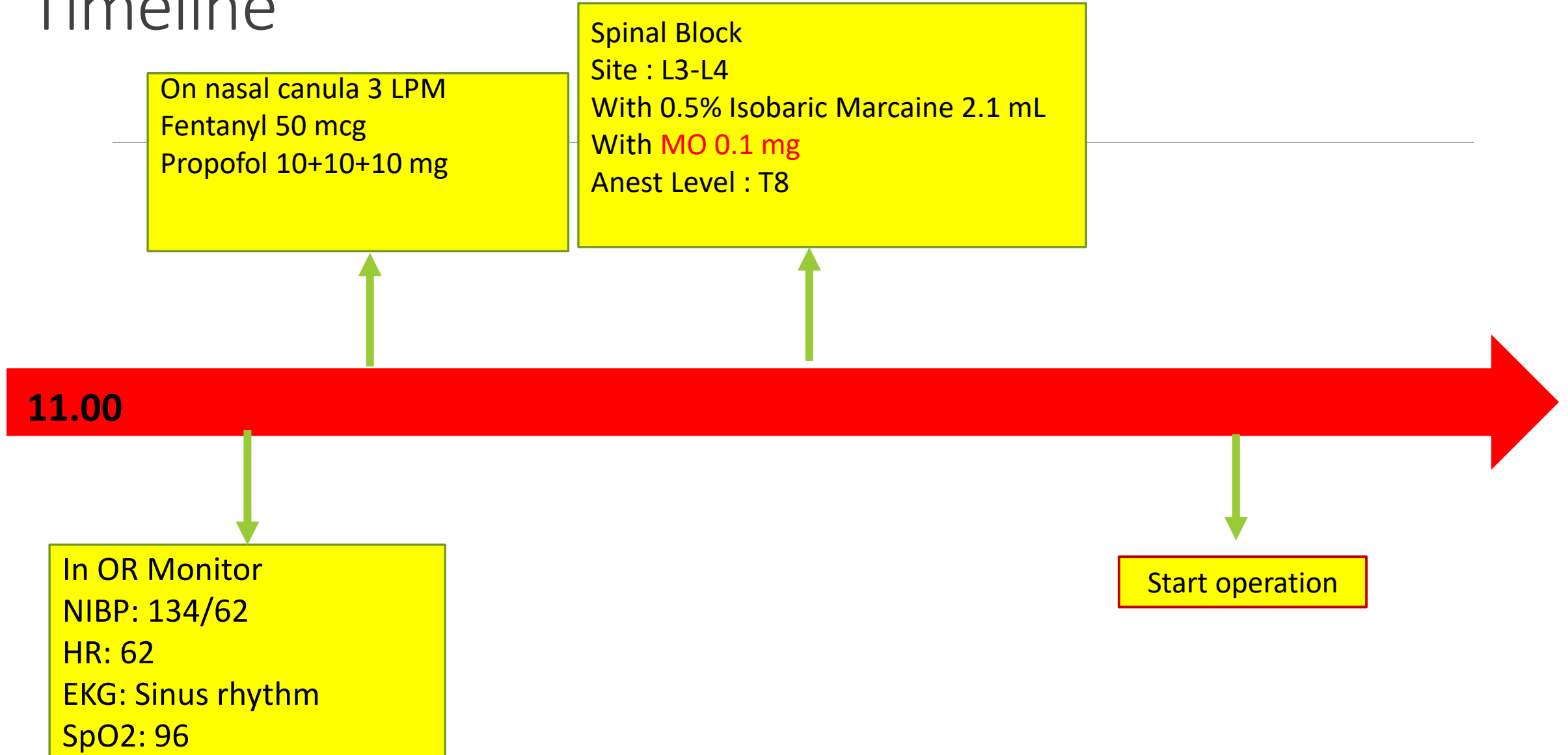
Intraoperative management

Choice of anesthesia: SA

Position: Rt. Lateral decubitus

Standard Monitoring: NIBP, O₂saturation, EKG

Timeline



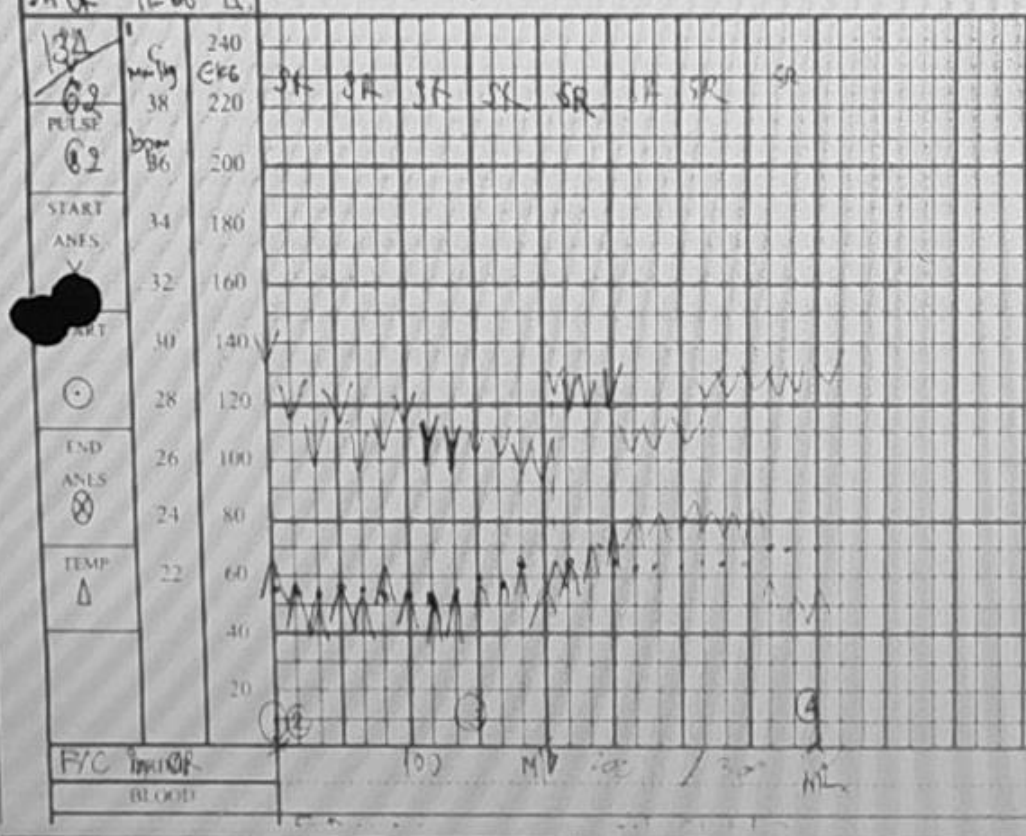
Anesthetic technique JA + MO
 Remark FRS: 50 0.12u
 Monitoring (SPO2) (Pao2) (FRC) (ETCO2) (Aline) (CVP) (PAP) (TEMP)
 Other Fick Air Normal
 ROOM No 40

AGENTS/TIMI	11:00	12:00	3:00	4:00	5:00
N/D					
Q. N/C					
Fentanyl Preparation	50	50			
Ephedrine		18			
IN FLUID INTAKE	Acetar 300	MLB Acetar 300	MLB		

CONSENT
 YES
 NO

PRE-OP VISIT
 YES
 NO

POSITION
 SUPINE



End anesthesia at 13.00
 EBL 50 ml
 Analgesic : fentanyl 50 mcg
 Vasopressor : Ephedreine 18 mcg
 Fluid : Acetar 300 ml
 Urine 300 ml
 Test Anest Level : T10

Postoperative day 1

S: ผู้ป่วยตื่นดี ทำตามคำสั่งได้ สามารถขยับตัวได้หลังผ่าตัด

- PS 4/10

O: V/S stable

RS: normal breath sound

Equal both lungs

A&P S/P CRIF c PFNA

IV PCA fentanyl

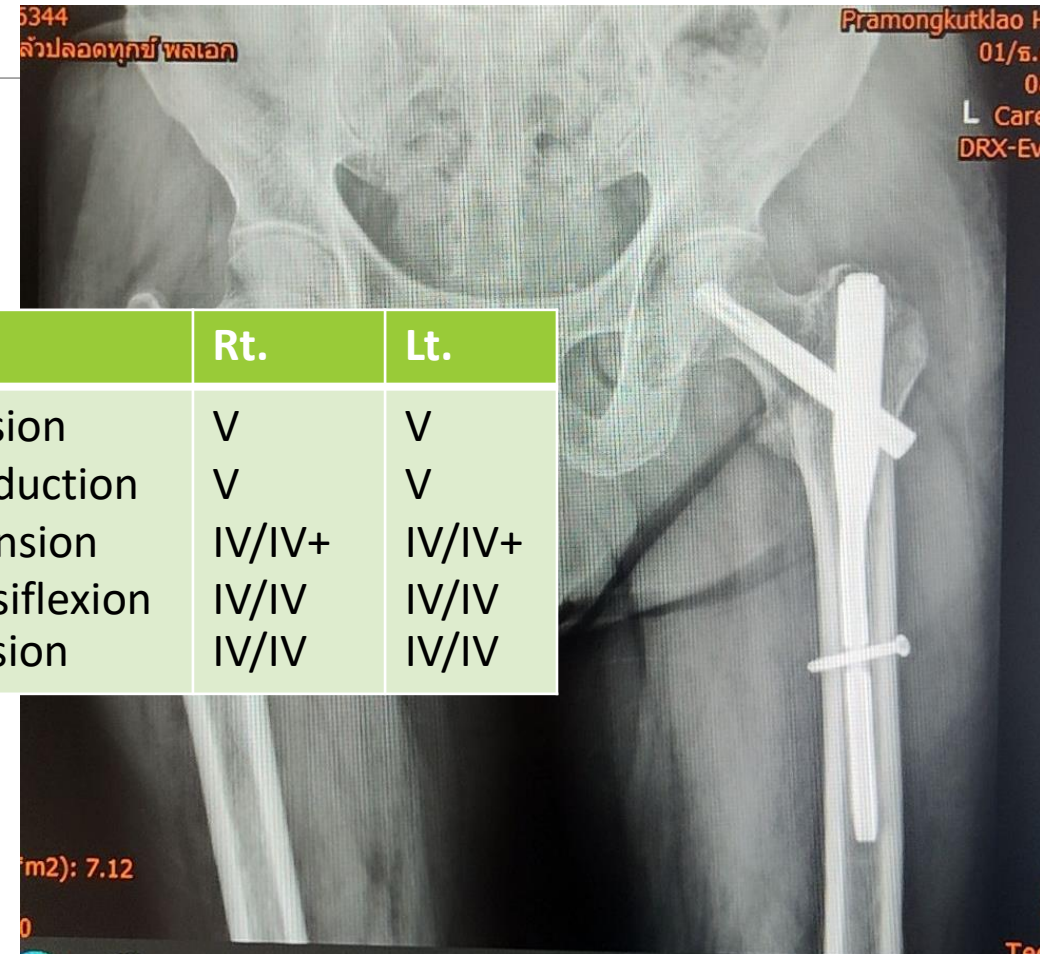
Ketolorac 15 mg iv q 12 h

Acupan 20 mg iv drip in 1 h q 8 h

Paracetamol(500) 1 tab po q 6 h

Early ambulate + consult PM&R

Lower Extremities	Rt.	Lt.
Hip Flexion/Extension	V	V
Hip Abduction/Adduction	V	V
Knee Flexion/Extension	IV/IV+	IV/IV+
Ankle Plantar/Dorsiflexion	IV/IV	IV/IV
Toe Flexion/Extension	IV/IV	IV/IV



Postoperative day 2

S: ผู้ป่วยตื่นดี ทำตามคำสั่งได้ สามารถขยับตัวได้หลังผ่าตัด

- PS 0-2/10

O: V/S stable

RS: normal breath sound

Equal both lungs

A&P S/P CRIF c PFNA

off IV PCA fentanyl

MO 3 mg iv prn q 4 h

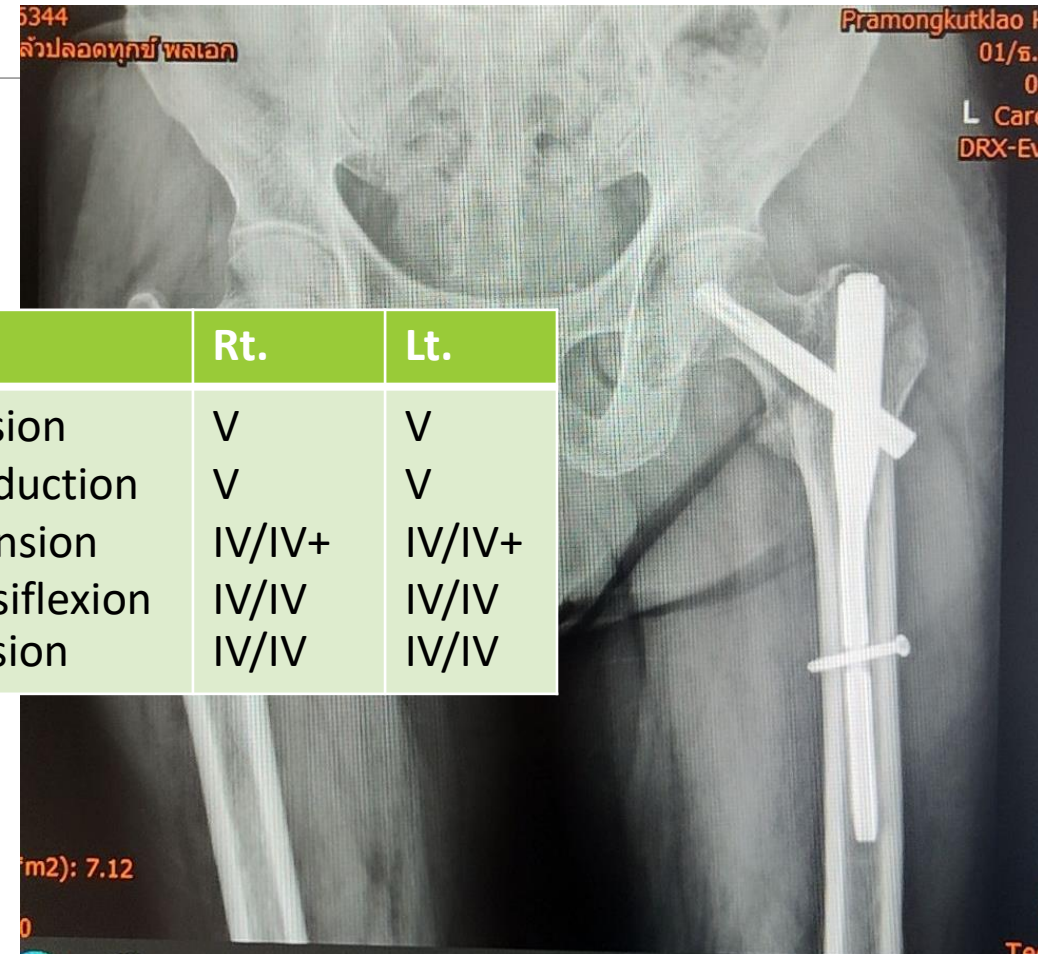
Acupan 60 mg + NSS 1000 ml iv drip in 24 h

Ketolorac 15 mg iv q 12 h

Ultracet 1 tab po q 8 h

Paracetamol(500) 1 tab po q 6 h

Lower Extremities	Rt.	Lt.
Hip Flexion/Extension	V	V
Hip Abduction/Adduction	V	V
Knee Flexion/Extension	IV/IV+	IV/IV+
Ankle Plantar/Dorsiflexion	IV/IV	IV/IV
Toe Flexion/Extension	IV/IV	IV/IV



Take Home message

Typical CIDP : Symmetric sensorimotor polyneuropathy, proximal and distal motor involvement, decreased or absent reflex, gradually progressive more than 2 months

Treatment : corticosteroids, IVIG. SCIG, plasma exchange

Neuraxial techniques appear to be safe, bearing in mind the possibility of a larger block level than expected

For **Intubation**, NDMR are the drugs of choice (prolonged effect of rocuronium)



THANK YOU
FOR YOUR ATTENTION