



Interesting Case

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Case Scenario

- ▶ **Case:** a Thai Female 46-year-old
- ▶ **Diagnosis:** Insulinoma
- ▶ **Operation:** Laparoscopic Distal Pancreatectomy



Case Scenario

- ▶ **Chief Complaint:** ฐบเป็น ๓ หาย ๓ 4 - 5 yr PTA



Patient History

- ▶ **Chief Complaint:** วูบเป็น ๆ หาย ๆ 4 - 5 yr PTA
- ▶ **Present Illness:** 4 - 5 yr PTA มีอาการวูบบ่อย เป็น ๆ หาย ๆ หิวบ่อย มีนุเวียนศีรษะ เบลอส์บสนพูดจาช้า ๆ เหงื่อแตก ใจสั่น ไม่มีแน่นหน้าอก กินจุมากขึ้น หลังกินอาหารอาหารดีขึ้น เคยไปตรวจสุขภาพประจำปีไม่พบอาการผิดปกติ
- ▶ 1 yr PTA เคยวูบหมดสติ ไป รพ.เอกชน พบว่ามีน้ำตาลต่ำ
- ▶ จากนั้นยังมีอาการวูบเป็น ๆ หาย ๆ อยู่ จึงมา รร.รพ.6 มา Present ด้วย Symptomatic Hypoglycemia และได้ Work Up หา Cause พบว่าเป็น Insulinoma จาก CT Upper Abdomen

R_1
History Taking





Patient History

- ▶ **Present Illness (cont.):**

วันที่มา Admit

กินอาหารได้ปกติ ไม่มีเหงื่อแตก ไม่มีใจสั่น ไม่มีมือสั่น ไม่มีวูบหมดสติ ไม่มีซึม
สับสน พูดคุยถามตอบรู้เรื่อง

- ▶ ขณะ Admit เพื่อปรับน้ำตาล มีภาวะ Asymptomatic Hypoglycemia บ่อย ๆ
ได้รับการรักษาด้วย IV Dextross; 10% DN/2 -> 12.5% DN/2
ก่อนวันผ่าตัดได้ IV Fluid เป็น 12.5% DN/2 150 ml/hr ร่วมกับ
จิบน้ำหวานบ่อย ๆ จนถึงเวลา 08:00 น.



Insulinoma

- ▶ Functional neuroendocrine tumor of pancreas
- ▶ Rare \approx 1 - 4 per million per year
- ▶ Ectopically secrete insulin from beta cells -> **Hypoglycemia**
- ▶ Average age of occurrence is 40-50 years old
- ▶ Generally small (>90% are <2 cm), solitary (90%) and benign (90%)
- ▶ Occur only in the pancreas, distributed equally in the pancreatic head, body, and tail

Insulinoma

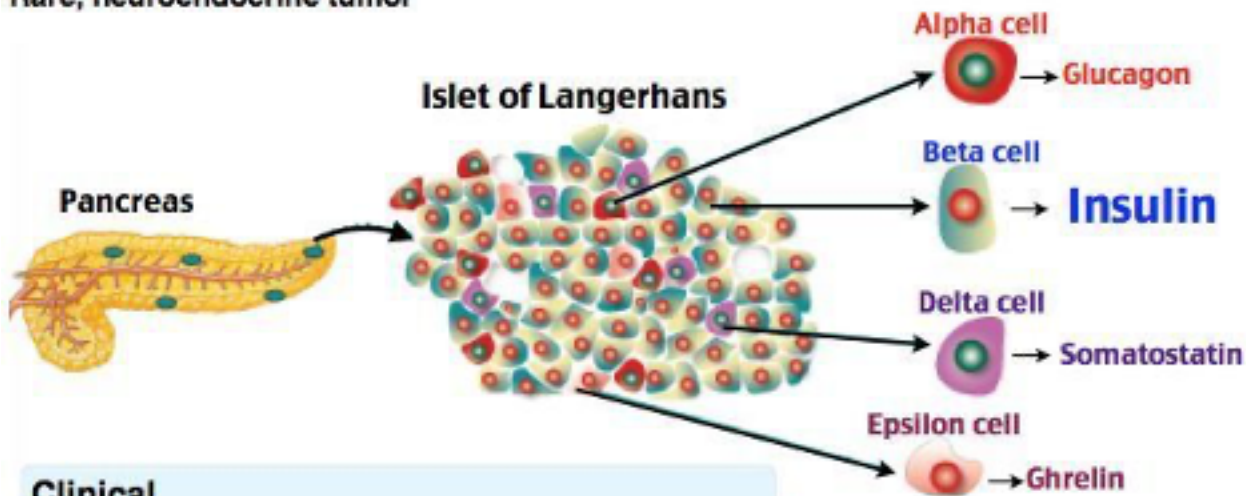


Signs and Symptoms

- ▶ Effect of hypoglycemia -> weight gain due to overfeeding
- ▶ Associated with fasting
 - ▷ CNS symptoms (most common)
 - confusion, headache, disorientation, visual difficulties, irrational behavior, seizure and even coma
 - ▷ Symptoms due to excess catecholamine release
 - sweating, tremor, tachycardia and palpitations

Insulinoma

Rare, neuroendocrine tumor



Clinical

- Fasting hypoglycemia
- Discrete episodes of neuroglycopenic symptoms
 - Headache
 - Lethargy
 - Diplopia
 - Blurry vision



Insulinoma

Diagnosis

- ▶ Clinical: Whipple's Triad
- ▶ Biochemical tests
 - ▶ Serum blood glucose $< 50\text{mg/dL}$
 - ▶ *72-hr fasting test*
- ▶ Imaging modalities for localization of tumor

Treatment

- ▶ Surgical excision

Insulinoma

Easy to diagnose and treat -- if you think of it.

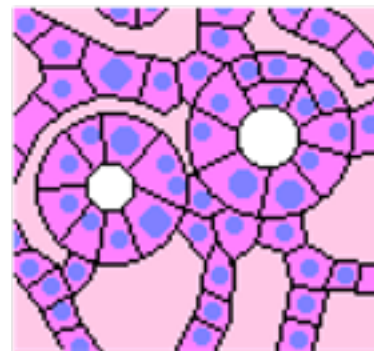
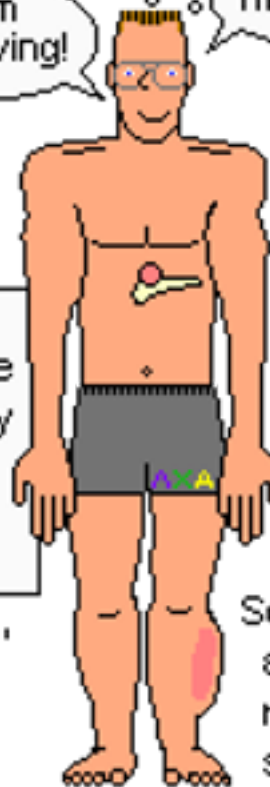
Think of insulinoma whenever you see sudden weight gain and/or "emotional illness."

Whipple's triad:

1. Measured low blood glucose
2. Mental symptoms induced by fasting and/or exercise
3. Symptoms relieved by intravenous glucose.

If leucine induces hypoglycemia, think of an insulinoma.

If the serum C-peptide is high, think of an insulinoma.



Typical benign endocrine tumor histology

Some fibrosarcomas and mesotheliomas make insulin-like substances.

Patient History



Underlying Disease

- ▶ Insulinoma

Patient History



Current Medication

- ▶ Diazoxide (25) 2 tab PO TID PC



Patient History

Personal History

- ▶ Drug/Food allergy: None
- ▶ Smoking: None
- ▶ Alcohol drinking: None

Family History

- ▶ ไม่มีประวัติญาติสายตรงมีภาวะแทรกซ้อนจากการดมยาสลบ

R_1
**Physical
Examination**





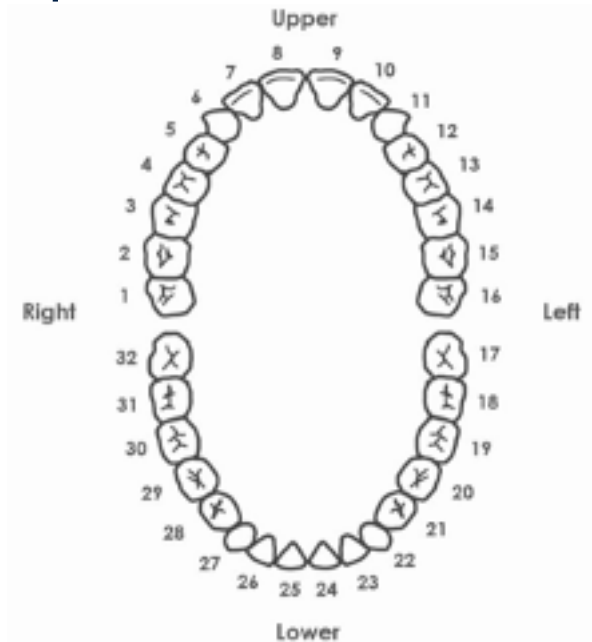
Physical Examination

- ▶ **General appearance:** Thai, Female, normostenic built, good consciousness, well cooperated, no jaundice
- ▶ **V/S:** BT 36.2 °C, BP 108/64 mmHg, PR 70 bpm, RR 18/min
Weight 55 kg, Height 159 cm, BMI 21.76 kg/m²



Physical Examination

- ▶ **Airway assessment; No Difficult intubation expected**
 - ▶ no Limit range of motion of neck
 - ▶ Thyromental distance more than 6 cm
 - ▶ Mallampati grade 1
 - ▶ Mouth opening more than 3 cm
 - ▶ no Prominent incisor
 - ▶ Upper lip bite test class I
 - ▶ normal Dental





Physical Examination

- ▶ **HEENT:** no craniofacial abnormality, not pale conjunctiva, no ictericsclera, trechea in midline
- ▶ **Lungs:** equal breath sound, no adventitious sound
- ▶ **Heart:** regular rhythm, normal S_1S_2 , no murmur, no jugular venouse distention
- ▶ **Abdomen:** normo active BS, soft, not tender
- ▶ **Back:** normal, no wound, no infection, normal spine alignment, no deformities, no dimping
- ▶ **Extremities:** no pitting edema, BK amputation Rt leg, Prayer sign negative
- ▶ **Neurological:** grossly intact; alertness, no confusion, good orientation to time-place-person, motor grade V all, intact sensory, no tremor

R_1
**Laboratory
Investigation**





Investigation

- ▶ **CBC:** Hb 13.9 %, Hct 43 %, Plt 381,000/uL
- ▶ BUN 13.6 mg/dL, Cr 0.81 mg/dL (eGFR 87.38 ml/min/1.73 m²)
- ▶ **Electrolyte:** Na 139.2, K 4.12, Cl 102, HCO₃ 26.7
- ▶ DTX 87.38 mg%, HbA₁C 4.6



Investigation

- ▶ **Chest X-Ray:** no new infiltration, no congestion
- ▶ **EKG 12 leads:** NSR 75 bpm, no ST-T change

Investigation



CT Upper Abdomen (04/12/63):

- ▶ 1.2×1.5×0.9 cm arterial enhancing lesion occupying at pancreatic body as previous CT on early arterial phase.
- ▶ The rest of the visualized pancreas appear unremarkable.
- ▶ No dilatation of the pancreatic duct is seen

R_1
Problem List





Problem List

Female 46 years

- ▶ Insulinoma
- ▶ Recurrent asymptomatic hypoglycemia episode

ASA Physical status: Class 2

Functional Class: 1

R_2
**Preoperative
Evaluation**





Preoperative Consideration

Patient Factor

- ▶ Comorbidities
 - Hypoglycemia (from Insulinoma)
 - Frequent small meals with appropriate NPO time prior to surgery
 - IV with dextrose containing fluid
 - Close monitor blood glucose; every 4 hourly
 - Avoid sedatives -> mask early symptoms of hypoglycemia
 - Diazoxide should be taken until the day of the operation
 - Maintain blood glucose level more than 50 mg/dl

Preoperative Consideration



Patient Factor

- ▶ Volume status
- ▶ Cardiorespiratory status



Preoperative Consideration

Surgical Factor

- ▶ Surgical technique
- ▶ Positioning
- ▶ Intraoperative bleeding
- ▶ Glycemic status



Preoperative Consideration

Surgical Factor (cont.)

Surgical technique : **Laparoscopic Surgery**

- ▶ Cardiovascular change
 - ▶ Increase systemic vascular resistance and mean arterial pressure
 - ▶ Cardiac arrhythmia (bradycardia or tachycardia)
 - ▶ \pm Cardiac filling volume and cardiac index



Preoperative Consideration

Surgical Factor (cont.)

Surgical technique : **Laparoscopic Surgery**

- ▶ Respiratory change
 - Cephalad displacement of diaphragm due to increase intra-abdominal pressure
 - Decrease functional residual capacity and total lung compliance
 - Basal lung atelectasis
 - Increased airway pressure



Preoperative Consideration

Surgical Factor (cont.)

Positioning: **Lithotomy with Reverse Trendelenburg tilt**

- ▶ Nerve injury
 - ▶ Common peroneal nerve
 - ▶ Sciatic nerve
 - ▶ Femoral nerve



Preoperative Consideration

Surgical Factor (cont.)

Positioning: **Lithotomy with Reverse Trendelenburg tilt** (cont.)

- ▶ Decrease in pulmonary compliance
 - ▾ Cephalad shift of diaphragm
- ▶ Decrease in lung volume
 - ▾ Residual volume
 - ▾ Functional residual volume
 - ▾ Tidal volume
 - ▾ Vital capacity



Preoperative Consideration

Surgical Factor (cont.)

Positioning: **Lithotomy with Reverse Trendelenburg tilt** (cont.)

- ▶ Increase SVR, MAP and cardiac arrhythmia (bradycardia/tachycardia)
- ▶ \pm Increase in cardiac preload



Preoperative Consideration

Surgical Factor (cont.)

Intraoperative bleeding

- ▶ Average blood loss 300 - 500 mL

R_2
**Preoperative
Preparation**





Preoperative Preparation

- ▶ Informed consent
- ▶ NPO
- ▶ IV + Fluid: 12.5%DN/2 IV 150 ml/hr
- ▶ DTX เข้าวันผ่าตัด; Keep > 50 mg%
- ▶ Premedication: none
- ▶ Antibiotic (Prophylaxis)
 - ▶ Ceftriazone 2 g IV OD



Preoperative Preparation

- ▶ Anesthetic Machine
- ▶ Set A-line and C-line
- ▶ Blood glucose level monitoring
- ▶ High concentration IV Fluid with Dextrose: 50% D/W
- ▶ Blood component: G/M PRC 2 unit, FFP 2 unit, Platelet 1 unit
- ▶ Airway equipment + difficult airway equipment
- ▶ Vasopressor
- ▶ Force air warmer

R_3
**Anesthetic
Consideration**



Anesthetic Consideration



Choice of Anesthesia

- ▶ **General Anesthesia combined with epidural**



Anesthetic Consideration

Hypoglycemic control

- ▶ Close monitor blood glucose via A-line
 - Frequent blood sampling requirement
 - Blood glucose level must be checked before induction and every 15 - 30 min
 - Insulin level returns to normal within 20 min after adenoma resection
 - Hyperglycaemia is self limiting
- ▶ Intraoperative hypoglycemia can cause CNS damage
 - require postoperative ventilatory support

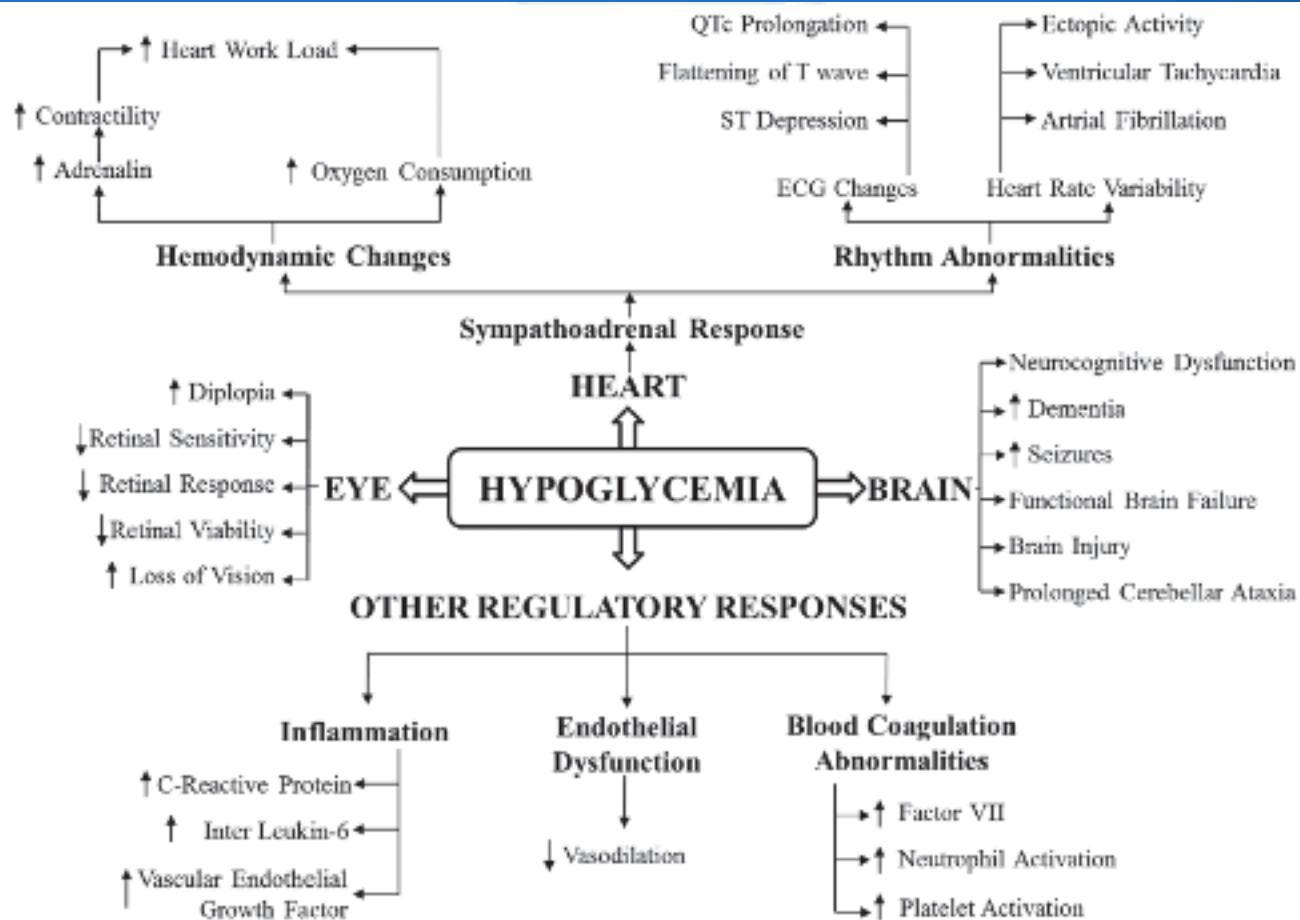


Figure 2: Physiological impact of hypoglycemia on different systems and their counter-regulatory responses. ECG. Electro cardiogram, ↑ denotes increased response; ↓ denotes decreased response



Anesthetic Consideration

Hypoglycemic control

- ▶ Maintain blood glucose level more than 50 mg/dL
- ▶ IV infusion of 5%, 10% or more concentration of Dextrose should be started during fasting period prior to surgery

Anesthetic Consideration



Hypoglycemic control

- ▶ Monitored till recovery period also
 - ▷ Risk of rebound hyperglycaemia after resection
 - ▷ Multiple adenomas may exist which can cause early postoperative hypoglycemia which is not seen intraoperative

Anesthetic Consideration



Hypoglycemic control

- ▶ Additional medication
 - Somatostatin analogues e.g. Octrotide, Lanreotide
 - decrease insulin secretion
 - Steroid therapy
 - Inhibit insulin mediated glucose uptake
 - Promote release of glucose
 - Exaggeration rebound hyperglycemia
 - High risk infection



Anesthetic Consideration

Anesthetic Management

- ▶ Induction with Propofol or Thiopental
 - ▷ decrease cerebral metabolic rate
- ▶ Signs of hypoglycemia may be masked under general anaesthesia such as sweating, tachycardia, and hypertension and dilated pupils
 - ▷ Ddx with...
hypovolemia, surgical stimuli, lighter surgical planes and drugs



Anesthetic Consideration

Cardiopulmonary change prevention

- ▶ Induce pneumoperitoneum in supine position
- ▶ Use lower IAP (10 - 12 mmHg; less than 15 mmHg)
- ▶ Limit position change
- ▶ Early use of vasodilators and beta-blockade to control hypertension
 - R/O hypoglycemia
- ▶ Standard monitoring in healthy patient

Anesthetic Intraoperative Flow



Anesthetic Management



- ▶ General Anesthesia
- ▶ Monitoring: NIBP, EKG, SpO₂, ETCO₂, A-line, Temperature
- ▶ Position: Lithotomy
- ▶ Addition venous access: IV, C-line



IV Glucose/Dextrose

- ▶ FDA suggest
 - ▶ Central vein, if final dextrose concentration is greater than 5% or osmolality is greater than 900 mOsm/L approximately
 - ▶ Peripheral vein, if final dextrose concentration 5% or less and osmolality is less than 900 mOsm/L approximately



IV Glucose/Dextrose

- ▶ in Practical
 - ▶ 5% - 10% can give via peripheral IV
 - 10% at fast rate
 - irritation venous
 - increase risk of extravasation (vasicant)
 - >10% (hypertonic)
 - thrombosis if infuse via peripheral vein

hypotension

Phramongkutkhas Hospital Anesthetic Record				ASA 1 (2)	3	4	5	6	WT 55 kg	HT 155 cm	Hx 43		
Date 12 Jun 12	SN	AN		HL Group	E	BL Report	PRC & G, ROP & G, pit: G						
Name	[Redacted]			PRE-Medication	-								
Ward 14/1	Code	Procedure	Op. No.	Monitoring	NIBP	USp	EKG	SpO ₂	ECG	Flow	CVS	PRP	TEMP
Anesthetic technique	OP 2 PT 2 G2	Service	Sa-D	Other	Spine air ventilator								
Remarks	DRS = 20												
TIME	10:00	10:05	10:10	10:15	10:20	10:25	10:30	10:35	10:40	10:45	10:50	10:55	11:00
SpO ₂	100	100	100	100	100	100	100	100	100	100	100	100	100
HR	80	80	80	80	80	80	80	80	80	80	80	80	80
BP	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80
TEMP	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
ECG													
RESPIRATORY													
CONSTANT	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO												
PRE-OP VISIT	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO												
POSITION	<input type="checkbox"/> SUPINE <input type="checkbox"/> PRONE <input checked="" type="checkbox"/> LITHOMY <input type="checkbox"/> SITTING <input type="checkbox"/> TRENDEL <input type="checkbox"/> BILATERAL <input type="checkbox"/> UNILATERAL <input type="checkbox"/> JACK-KNIFE <input type="checkbox"/> OTHER												
LAB	<input checked="" type="checkbox"/> BIL <input checked="" type="checkbox"/> Blood Sugar <input checked="" type="checkbox"/> Electrolyte <input checked="" type="checkbox"/> ABG												
PRE-INDUCTION	FLUID 12.5% DN 500 mL												
INDUCTION AGENT	propofol 100 = 20 = 20 mg												
INTUBATION AGENT	succinylcholine 100 mg												
INHALATION AGENT	A ₂ 0.5 + A ₂ Desflurane 0.6												
M-RELAXANT	Rocuronium 20 mg												
ANALGESIC	Fentanyl 150 mcg Morphine 10 mg												
REVERSE	Flumazenil 2 mg, Physostigmine 0.4 mg, Lempidol 10 mg												
LA	<input type="checkbox"/> EPIDURAL <input type="checkbox"/> SPINAL <input checked="" type="checkbox"/> OTHER												
DRUG	0.5% Propofol 8 mL												
ANEST LEVEL	PRE-OP POST-OP												
DRUG	0.5% Propofol 8 mL												
ANEST LEVEL	PRE-OP POST-OP												
REVERSAL	Flumazenil 2 mg, Physostigmine 0.4 mg, Lempidol 10 mg												
REVERSAL	Flumazenil 2 mg, Physostigmine 0.4 mg, Lempidol 10 mg												

in OR 09:15

- ▶ Monitoring: NIBP, EKG, SpO₂
- ▶ IV cath No.22 at RH was checked
- ▶ 12.5%DN/2 ยกมา 400 ml (continue)
- ▶ V/S: BP 139/71 mmHg, PR 84 bpm, RR 18/min SpO₂ 100% (RA)

hypotension

Phramongkutkhas Hospital Anesthetic Record				ASA 1 (2) 3 4 5 E	WT 55 kg	HT 159 cm	Hx 43
Date: 12 Jan 12	SPN	AN		HL Group	E ¹	Bl. Report	PRE: A ₂ , B ₂ , D ₂ , P ₂ : 0
Name: [REDACTED]	Age: 43	Sex: male		PRE-Medication	-		
Ward: 14/1	Code: 45730001	Op. No. 24		Monitoring:	NIBP	USp	ECG
Anesthetic technique: GA 2 PTT 2 ETC	Service: Sa-D			Other:	SpO ₂	air	watermeter
Remarks: DR5 = 20				ROOM No.	109		

Time	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00
SpO ₂	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
HR	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
BP	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80
Temp	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0

Time	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00
IV FLUID INTAKE																		
DRUGS																		
RESPIRATORY																		
LAB																		

PRE-INDUCTION	INDUCTION AGENT	INTUBATION AGENT	INHALATION AGENT	M-RELAXANT	MEASUREMENT	ANESTHETIC LEVEL	ANALGESIC	REVERSE
PRE-INDUCTION	propofol 100 + 50 + 20 mg	succinylcholine 100 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
INDUCTION AGENT	propofol 100 + 50 + 20 mg	succinylcholine 100 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
INTUBATION AGENT	succinylcholine 100 mg	succinylcholine 100 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
INHALATION AGENT	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
M-RELAXANT	rocuronium 20 mg	rocuronium 20 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
MEASUREMENT					LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
ANESTHETIC LEVEL	PRE-OP	PRE-OP	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
ANALGESIC	Fentanyl 150 mcg, Morphine 10 mg	Fentanyl 150 mcg, Morphine 10 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg
REVERSE	Flumazenil 2 mg, Physostigmine 0.4 mg	Flumazenil 2 mg, Physostigmine 0.4 mg	A ₂ : 0.5, B ₂ : 0.5, Desflurane 6%	rocuronium 20 mg	LA	PRE-OP	Fentanyl 150 mcg, Morphine 10 mg	Flumazenil 2 mg, Physostigmine 0.4 mg

at 09:30

- ▶ Induction:
 - Fentanyl 50 mcg IV
 - Propofol 100 + 50 + 20 mL IV
 - Succinylcholine 100 mg IV
- ▶ ETT No. 7.5 was inserted with 21 cm depth
- ▶ Maintainance:
 - Air:O₂ = 0.5:0.5, Desflurane up to 6%
- ▶ Addition IV was opened; #16 at RH and #16 at LH
- ▶ on A-Line #20 Lt Radial artery
- ▶ on C-Line Tripple lumen at Rt IJ with marked 13 cm

Phramongkutkias Hospital Anesthetic Record

ASA 1 2 3 4 5 E WT: 65 kg HT: 159 cm Hct: 45 %

Date: 13 Jan 63 S/N: [redacted] AN: [redacted]
 Name: [redacted] Age: 45 Sex: male
 Ht Group: B Bl Response: PEC 2 G, BP 2 G, pit 1 G
 Ward: 1471 Code: Pharmaceutical Op No: [redacted]
 Pre-Medication: [redacted]
 Anesthetic technique: OP 2 ETT & ESE Service: Sk - 2
 Monitoring: NIBP USp ECG ETCO₂ flow SpO₂ TEMP
 Remark: HR = 20 Other: Force air warmer ROOM No: 7

Time	10:00	10:10	10:20	10:30	10:40	10:50	11:00	11:10	11:20	11:30	11:40	11:50	12:00	12:10	12:20	12:30
SpO ₂	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
HR	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
BP	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80
Temp	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

IV FLUID INTAKE

240 240 240 240 240 240 240 240 240 240 240 240 240 240 240 240 240

ECG

36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36 36

START ANES

X

START

30

END ANES

32

TEMP

36

RELINQ. ANES

32

BLOOD

BLOOD 18.5% 600 ml

TOTAL URINE OUTPUT

440 ml

PRE-ILLUMINATION mg

INDUCTION AGENT propofol 100 + 20 = 20 mg

INTUBATION AGENT succinylcholine 100 mg

DILUTION AGENT A₂O₂:O₂:A₂O₂:A₂O₂ Desflurane 0.8%

MUSCLE RELAXANT rocuronium 20 mg

SEDATIVE

ANALGESIC fentanyl 150 mg morphine 10 mg

REVERSE Flunitrazepam 2.0 mg, Glycopyrronium 0.4 mg

LA

EPIDURAL SPINAL OTHER

DRUG 0.5% Propofol 6 ml

ANEST. LEVEL - PRE - OP

POST - OP

BABY DELIVERED TIME

MALE FEMALE

TREATMENT

1 on A-line No. 20 at 10:30
 2 on F line No. 23 at 10:30
 3 50 x 200 50 ml @ push (O₂ 50 ml)
 then 90 x 200 @ 40 ml/hr
 4 unilign 3 g @ after full dose end
 5 HES 1000 ml @
 6 HES 1000 ml @

Pharmangkulklas Hospital Anesthetic Record

hypotensive

Date: 12.5.63 ASA 1 3 4 5 E WT: 58 kg HT: 159 cm Hct: 42 %

Name: [REDACTED] AN [REDACTED] HI Group: B* Bl. Report: PRG A C, FFP A C, pH 7.4

Ward: 19/1 Code: 4-21/2001 Op. No.: 9-1 PRE-Medication: -

Anesthetic technique: ORCETT (RSI) Service: Su-2 Monitoring: NIBP, ECG, SpO2, TCO2, A-BP, Vp, PVP, EMO

Remark: PMS + 20 Other: Force air warmer ROOM No.:

ACTIVITY TIME	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	
SpO2	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	
ECG	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
BP	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	120/80	
HR	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Temp	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	
Urine	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	
IV FLUID INTAKE	500 ml Ringer's Lactate																		
W	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	
V	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	
A	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	
PULSE	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
HEART	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
AXES	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
X	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
START	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
END	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	
AXES	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
TEMP	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Urine	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	0 ml	
BLOOD	200 ml																		
IV CATH NO.	501																		
PRECURARIZATION	mg																		
INDUCTION AGENT	mg																		
INTUBATION AGENT	mg																		
INHALATION AGENT	%																		
MUSCLE RELAXANT	mg																		
SEDATIVE	mg																		
ANALGESIC	mg																		
REVERSE	mg																		
EPIDURAL	<input type="checkbox"/>																		
SPINAL	<input type="checkbox"/>																		
OTHER	<input type="checkbox"/>																		
NEEDLE	SITE																		
BY	ATTEMPT																		
ANEST LEVEL - PRE - OP	T8/9																		
ANEST LEVEL - POST - OP	T8/9																		
BABY DELIVERED TIME	-																		
MALE	<input type="checkbox"/>																		
FEMALE	<input type="checkbox"/>																		

Postoperative





Postoperative Consideration

- ▶ Blood glucose level
- ▶ Minimal post-operative pain
- ▶ Aspiration pneumonia



Postoperative Day 1

- ▶ **S:** ผู้ป่วยตื่นดี ไม่มีไข้ ไม่ปวดแผล P/S at rest 5-6/10, P/S at movement 7-8/10 ได้ยาแก้ปวด Fentanyl (10:1) IV 5 ml/hr, Fentanyl 25 mg IV prn every 2 hr, Dynastat 1 amp IV every 12 hr เริ่มกินอาหารอ่อน ๆ ได้ ไม่มีท้องอืด ไม่มี N/V ไม่มีเหงื่อแตกใจสั่น ไม่มีวูบหน้ามืด ไม่มีไอ/เสมหะ ไม่มีหายใจเจ็บอก/หายใจหอบเหนื่อย/หายใจลำบาก/หายใจสั้น
- ▶ **O:** V/S: BT 37.1 °C, BP 110/58 mmHg, PR 90 bpm, RR 20 bpm
Lungs: clear, equal breath sound, no adventitious sound (esp. RLL)
DTX 126 - 138 mg% (Keep 80 - 180 mg%)
- ▶ **A:** Insulinoma S/P Laparoscopic Distal Pancreatectomy
Post-op Day 1 -> Improved
- ▶ **P:** Observe blood glucose level, fever, aspiration, pain



Postoperative Day 2

- ▶ **S:** ผู้ป่วยตื่นดี ไม่มีไข้ ไม่ปวดแผล P/S at rest 1-2/10, P/S at movement 3-4/10 ได้ยาแก้ปวด Fentanyl (10:1) IV 5 ml/hr, Fentanyl 25 mg IV prn every 2 hr เริ่มกินอาหารปกติได้ ไม่มีท้องอืด ไม่มี N/V ไม่มีเหงื่อแตกใจสั่น ไม่มีวูบหน้ามืด ไม่มีไอ/เสมหะ ไม่มีหายใจเจ็บอก/หายใจหอบเหนื่อย/หายใจลำบาก/หายใจสั้น
- ▶ **O:** V/S: BT 36.8 °C, BP 115/68 mmHg, PR 98 bpm, RR 18 bpm
Lungs: clear, equal breath sound, no adventitious sound (esp. RLL)
DTX 117 - 152 mg% (Keep 80 - 180 mg%)
- ▶ **A:** Insulinoma S/P Laparoscopic Distal Pancreatectomy
Post-op Day 2 -> Improved
- ▶ **P:** Observe blood glucose level, fever, aspiration, pain



Postoperative Day 3

- ▶ **S:** ผู้ป่วยตื่นดี ไม่มีไข้ ไม่ปวดแผล P/S at rest 1-2/10, P/S at movement 1-2/10 ได้ยาแก้ปวด Paracetamol (500) 1 tab prn for pain every 4 hr เริ่มกินอาหารปกติได้ ไม่มีท้องอืด ไม่มี N/V ไม่มีเหงื่อแตกใจสั่น ไม่มีวูบหน้ามืด ไม่มีไอ/เสมหะ ไม่มีหายใจเจ็บอก/หายใจหอบเหนื่อย/หายใจลำบาก/หายใจสั้น
- ▶ **O:** V/S: BT 36.5 °C, BP 98/71 mmHg, PR 84 bpm, RR 18 bpm
Lungs: clear, equal breath sound, no adventitious sound (esp. RLL)
DTX 123 mg% (Keep 80 - 180 mg%)
- ▶ **A:** Insulinoma S/P Laparoscopic Distal Pancreatectomy
Post-op Day 3 -> Improved
- ▶ **P:** Observe blood glucose level, fever, pain
Plan D/C tomorrow

Thank You