Case discussion

ราชวิทยาลัยฯ สัญจร
ครั้งที่ 3/2568

วันที่ 1 กันยายน พ.ศ.2568

นำเสนอโดย แพทย์หญิงเบญจรัตน์ ตรีวิริยานุภาพ
โรงพยาบาลมหาสารคาม

Patient Identification

- หญิงไทยคู่ 45 ปี อาชีพ ข้าราชการ
- สิทธิการรักษา จ่ายตรง
- สถานภาพ สมรส
- ภูมิลำเนา อ.กันทรวิชัย จ.มหาสารคาม
- วันที่รับเข้ารักษาโรงพยาบาล 13-28 มิถุนายน 2568

Chief complaint

- ปวดท้องน้อยด้านขวา 1 สัปดาห์

Present illness

- **1 สัปดาห์ ก่อนมาโรงพยาบาล** ปวดท้องน้อยด้านขวา ไม่มีปวดย้ายที่ ปวดหน่วงๆ ปวดร้าวไปที่ทวารหนัก ปวดมากขึ้นเรื่อยๆ ร่วมกับมีไข้ต่ำๆ เบื่ออาหาร ไม่มีคลื่นไส้อาเจียน ไม่มีท้องเสียถ่ายเหลว ไม่มีเลือดออกทางช่องคลอด ตกขาวสีขาวขุ่นๆ ไม่คัน ไม่มีกลิ่น
- **3 วัน ก่อนมาโรงพยาบาล** ไปพบแพทย์ที่คลินิก แจ้งว่าลำไส้อักเสบ ได้ยาฆ่าเชื้อแบบฉีด 3 วัน (ไม่ทราบชื่อยา) และยาแก้ปวดมารับประทานสามเวลา อาการดีขึ้น
- **1 วัน ก่อนมาโรงพยาบาล** อาการปวดกำเริบมากขึ้น ร่วมกับมีไข้ต่ำๆ มีคลื่นไส้ ไม่อาเจียน จึงมาโรงพยาบาล

Past History

- ปฏิเสธประวัติโรคประจำตัว
- ปฏิเสธประวัติแพ้ยา แพ้อาหาร
- **ประวัติผ่าตัดในอดีต**
  - พ.ศ. 2550 left endometriotic cyst s/p left salpingo-oophorectomy with lysis adhesion
  - พ.ศ. 2564 Adenomyosis with adenomyoma s/p open adenomyomectomy
- ไม่มียาที่ใช้เป็นประจำ
- ปฏิเสธประวัติมะเร็งนรีเวชในครอบครัว
- ปฏิเสธประวัติดื่มสุรา/สูบบุหรี่/สารเสพติด
- ปฏิเสธการใช้ยาต้มยาหม้อยาสมุนไพร

Past History
: OBGYN history

- Parity 0
- Active SI, no contraception
- Regular menstruation :
  LMP 1/6/2568, Duration 5 days,
  Amount 2-3 pads/day
- Dysmenorrhea ปวดประจำเดือนวันที่ 1-3 ของรอบเดือน ต้องใช้ยาแก้ปวด Ponstan และ Paracetamol 1-2 เม็ดต่อรอบเดือน
- ปฏิเสธประวัติโรคติดต่อทางเพศสัมพันธ์
- Last PAP 2564 : NILM
- หลังผ่าตัดปี 2564 : ไม่ได้ติดตามต่อเนื่อง

Physical Examination

- General Appearance : A Thai Female, good consciousness, well co-operative
- Vital signs : BT 37.8 ◦ c, PR 82/ min, RR 16/min, BP 120/71 mmHg
- Body weight 61 kgs, Height 158 cm, BMI 24.4 kg/m2
- HEENT : pink conjunctivae, anicteric sclerae
- Heart : Normal S1,S2, no murmur
- Lungs : normal breath sound, no adventitious sound
- Abdomen :
  - Pfannenstiel skin incision scar, normoactive bowel sound,
  - Soft, marked tender at suprapubic and right lower quadrant, no guarding, no rebound tenderness
- Extremities : No edema

Investigation

: CBC

	13/6/2568 15.49น. (แรกรับ)
CBC	
Hb (g/dL)	11.2
Hct (%)	35.3
WBC (cell/mm^3)	18,150
- Neutrophil (%)	84%
- Lymphocyte (%)	8%
Plt. (cell/mm^3)	284,000
MCV (fl.)	76.2
RDW	14.5%

Investigation

- Urine pregnancy test : Negative
- Urinalysis
  - WBC 3-5
  - RBC 1-2
  - Epithelial 1-2

- Anti-HIV : Non reactive
- VDRL : Non reactive
- HBsAg : Negative

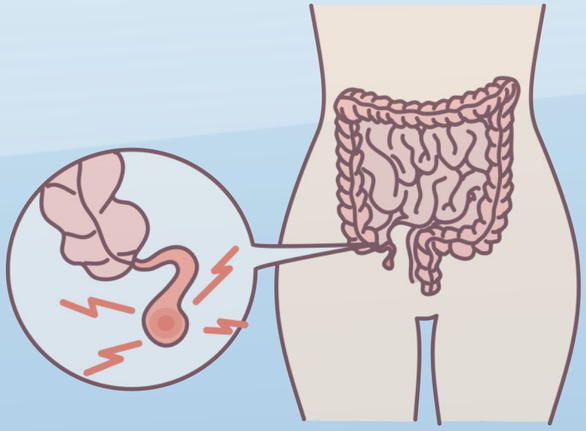
Investigation

BUN	10
Creatinine	0.78
Sodium	136
Potassium	3.8
Bicarbonate	23
Chloride	98

Initial Management

14.30u.
Admit to **surgery unit** : **suspected acute appendicitis**

- NPO
- NSS 1000 ml IV 80 ml/hr
- further investigation → **CT lower abdomen**



Alvarado Score for Acute Appendicitis

Predicts likelihood of appendicitis diagnosis.

When to Use | Pearls/Pitfalls | Why Use

Signs		
Right lower quadrant tenderness	No 0	**Yes +2**
Elevated temperature (37.3°C or 99.1°F)	No 0	**Yes +1**
Rebound tenderness	**No 0**	Yes +1
Symptoms		
Migration of pain to the right lower quadrant	**No 0**	Yes +1
Anorexia	**No 0**	Yes +1
Nausea or vomiting	No 0	**Yes +1**
Laboratory Values		
Leukocytosis >10,000	No 0	**Yes +2**
Leukocyte left shift >75% neutrophils	No 0	**Yes +1**

7 points

Probable/likely appendicitis by the Alvarado Score.

Surgery Unit

Transfer

Gyn. Unit

Start Antibiotics 21.00u.

- Ceftriaxone 2 g IV OD with stat
- Metronidazole 500 mg IV q 8 hours with stat

Physical Examination

- Vital signs: BT 38 ◦ c, PR 90/ min, RR 16/min, BP 101/67 mmHg
- Abdomen:
  - Pfannenstiel skin incision scar, normoactive bowel sound,
  - Soft, marked tender at suprapubic and right lower quadrant, no guarding, no rebound tenderness,
  - Palpable pelvic mass size 10 cm at right to mid pelvis, tense cystic consistency, fixed

- **Pervaginal examination**
  - NIUB: normal
  - Vagina: normal vaginal mucosa, normal whitish discharge
  - Cervix: no lesion, cervical motion tenderness
  - Uterus: slightly enlarged uterus with deviation to the left side, mild tenderness
  - Adnexa: palpable tense cystic mass at right adnexa, size 10 cm, fixed, marked tenderness, mild voluntary guarding, no rebound tenderness

Transabdominal Sonography (TAS)

(bedside)

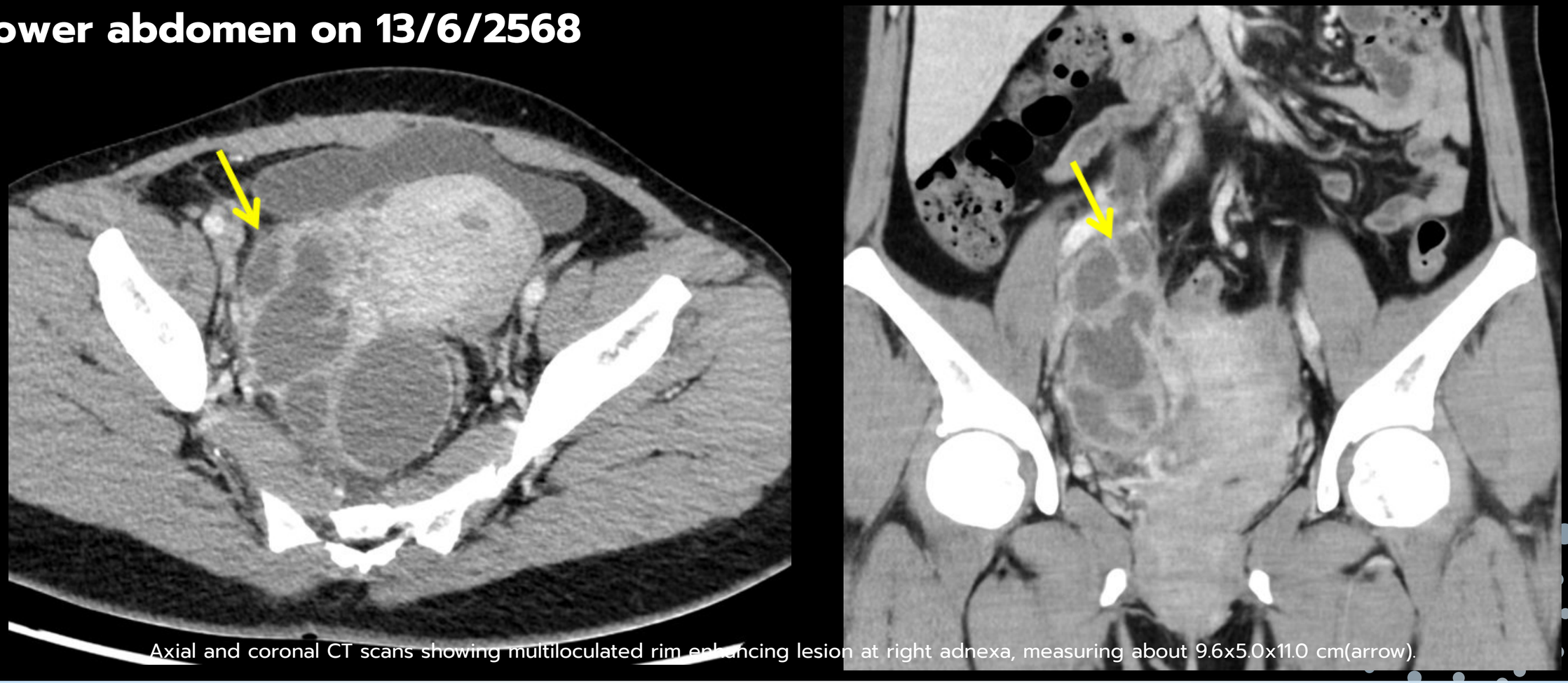
- Multiloculated hypoechoic cyst size 9.1x9.0 cm, at right adnexa. thick wall, no solid part
- Mild globular shape uterus, size 8.3x5.3 cm, deviates to the left pelvis, endometrial thickness 6 mm and mild posterior wall thickening
- No Free fluid in CDS, hepatorenal pouch, and splenorenal pouch

DDx Right tubo-ovarian abscess

Right endometriotic cyst + Adenomyosis

Right ovarian tumor

CT lower abdomen on 13/6/2568



Axial and coronal CT scans showing multiloculated rim enhancing lesion at right adnexa, measuring about 9.6x5.0x11.0 cm(arrow).

- A lobulated contour and multiseptated cystic lesion at the right adnexal region, size 9.6x5.0x11.0 cm, compresses the right pelvic ureter with surrounding fat strandings.
  DDx TOA and complex right ovarian cyst
- Mild right hydronephroureterosis with mild obstructive uropathy.
- The normal appendix is not visualized.
- The upper rectal and rectosigmoid lumen collapses and are displaced to the left.
- No ascites or adenopathy

CT lower abdomen on 13/6/2568

Axial images

- A lobulated contour and multiseptated cystic lesion at the right adnexal region, size 9.6x5.0x11.0 cm, compresses the right pelvic ureter with surrounding fat strandings.
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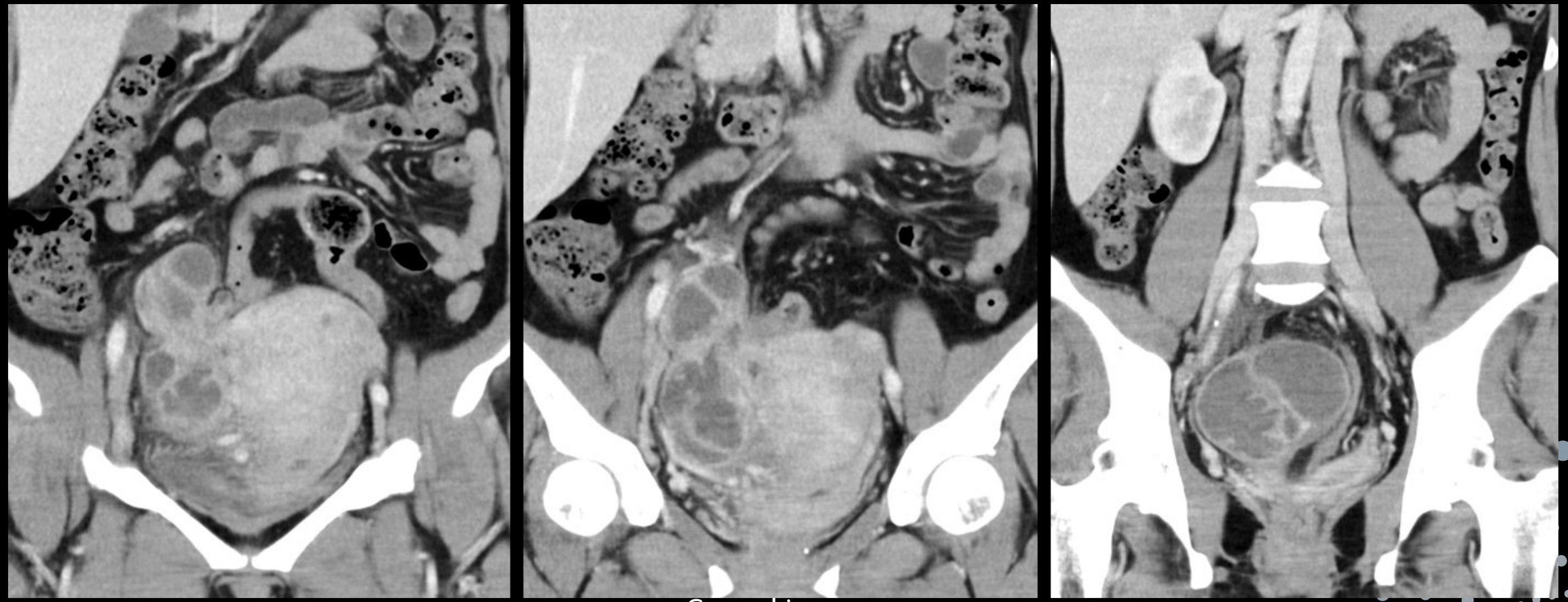

Coronal images

- A lobulated contour and multiseptated cystic lesion at the right adnexal region, size 9.6x5.0x11.0 cm, compresses the right pelvic ureter with surrounding fat strandings.
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- The normal appendix is not visualized.
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CT lower abdomen on 13/6/2568

Sagittal images

- A lobulated contour and multiseptated cystic lesion at the right adnexal region, size 9.6x5.0x11.0 cm, compresses the right pelvic ureter with surrounding fat strandings.
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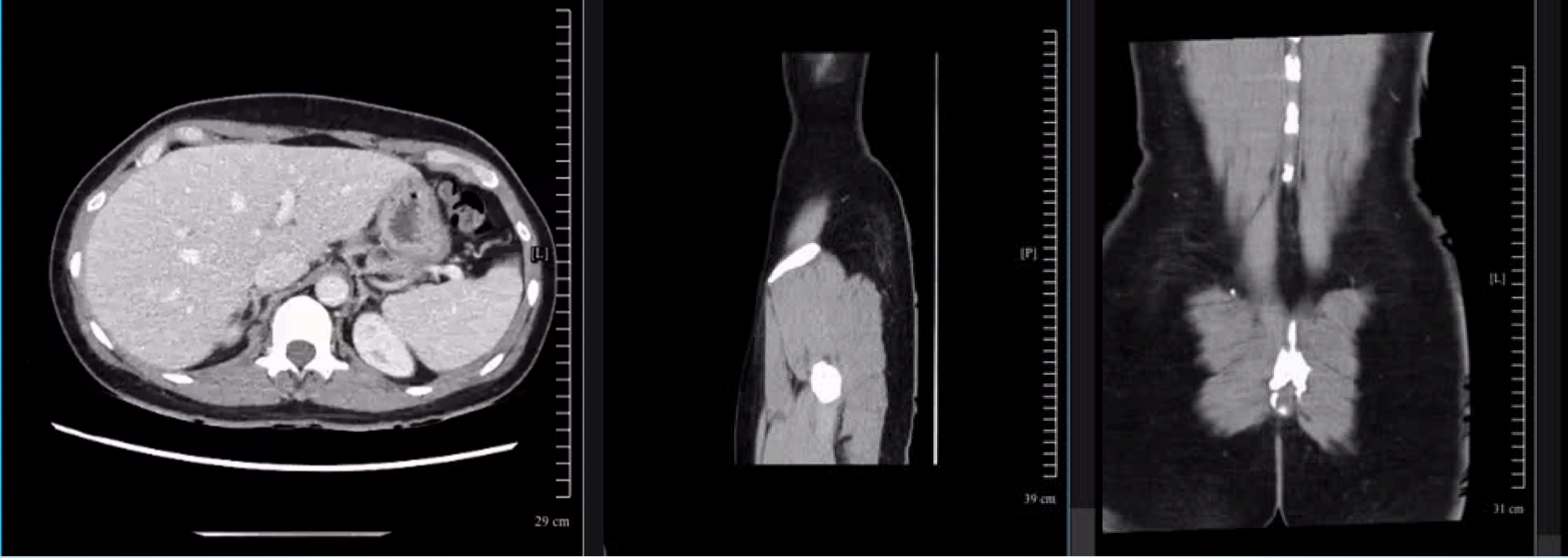

CT lower abdomen on 13/6/2568

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- No ascites or adenopathy

Differential Diagnosis

1. Infected Ovarian Tumor
2. Tubo-ovarian Abscess

with

Severe pelvic adhesion

- Previous abdominal surgery * II
- History of endometriosis
- CT findings
  - right hydronephroureterosis
  - rectosigmoid collapse

Plan of Management

- **Empiric Antibiotics**
  - Clindamycin 900 mg IV q 8 hours
  - Gentamicin 240 mg IV OD
- Observe clinical/ abdominal signs/ signs of sepsis
- If not improved in 72 hours, plan explore laparotomy

Case Progression

ไข้สูง อาการปวดเท่าๆเดิม คลื่นไส้ อาเจียน 1 ครั้ง

BT 39.2 ◦ c, PR 100/min,
BP 109/68 mmHg, RR20/min
Abdomen : marked tender at RLQ, no rebound, no guarding

Activate Sepsis protocol

14.00u. Sepsis

- NSS 1000 ml IV loading then rate 80/min
- lab CBC, BUN, Cr, electrolyte, LFT, PT, PTT, INR, Lactate
  H/C x 2 specimens
- Retained foley catheter
- On oxygen cannula 3 lpm, keep O2 sat ≥ 94%
- Record V/S q 1 hour
- Record I/O, keep urine output ≥ 120 ml/4 hours
- NPO

ไข้สูง อาการปวดเท่าๆเดิม

BT 39.2 ◦ c, PR 100/min,
BP 80/52 mmHg, RR 22/min
Abdomen : mild tender at RLQ, no rebound, no guarding
Urine output 200 ml/2 hours

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lab : WBC 2,850, PMN 81%, lactate 30.8 mg/dL

17.23u. Severe Sepsis

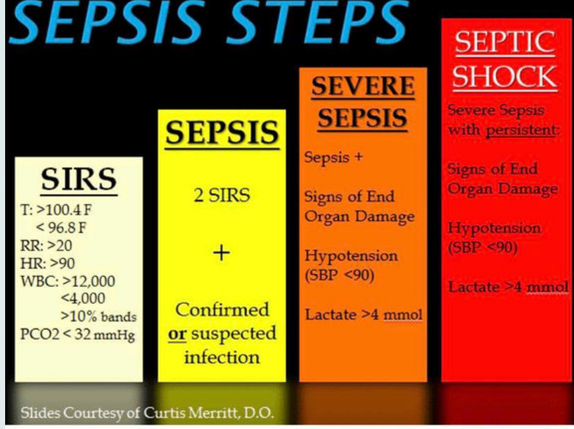
- Volume assessment by USG IVC;
  → IVC collapse
- NSS 1000 ml IV loading (total volume 2000 ml)
  → BP 90-101/57-72 mmHg
  Then NSS IV rate 120 ml/hour
- Record V/S q 15 mins x IV, q 30 mins x II, then q 1 hour until stable
- Change ATB; Meropenem 2 g IV stat then 1 g IV q 8 hours

อาการเท่าๆเดิม

BT 38 ◦ c, BP 87/52 mmHg,
PR 98/min, RR 20 /min
Lungs : clear
Abdomen : mild tender at RLQ, no rebound, no guarding
Urine 20 ml/ 2 hours ↓

20.00u. Septic Shock

- Volume assessment by USG IVC; Collapsibility index 13%
- Start **Levophed** 4 mg + 5%DW 250 ml IV drip 5 ml/hour, titrate 2 ml/hour q 5 mins keep MAP ≥ 65 mmHg
- NSS IV rate 120 ml/hour
- Request lab emergency -> for pre-operative assessment
  o CBC, PT, PTT, INR, BUN, Cr, electrolyte, LFT, Anti HIV, VDRL, HBsAg
  o G/M PRC 4 u, FFP 4 u, Platelet conc 4 u
- **Plan set OR for emergency EL**
- Consult Surgeon for stand by intraoperation



Case Progression

	13/6/2568 15.49น. (แรกรับ)	14/6/2568 15.09น. (dx sepsis)	14/6/2568 23.25น. (dx septic shock)
CBC			
Hb (g/dL)	11.2	10.2	9.8
Hct (%)	35.3	31.8	30.6
WBC (cell/mm^3)	18,150	2,850	19,520
- Neutrophil (%)	84%	81%	94%
- Lymphocyte (%)	8%	18%	1%
			Band 5%
			Toxic granule
Plt. (cell/mm^3)	284,000	165,000	89,000
MCV (fl.)	76.2	75.5	75.9
RDW	14.5%	14.4%	14.5%
BUN	10	11	12
Creatinine	0.78	0.86	1.34
Sodium	136	138	138
Potassium	3.8	3.5	3.4
Bicarbonate	23	19	16
Chloride	98	105	108
LFT			
- total protein		5.8	4.8
- albumin		3.0	2.5
- globulin		2.8	2.4
- Total bilirubin		0.8	1.3
- AST (0-35)		51	54
- ALT (0-35)		68	61
- ALP (35-104)		191	199

	13/6/2568 15.49น. (แรกรับ)	14/6/2568 15.09น. (dx sepsis)	14/6/2568 23.25น. (dx septic shock)
Coagulogram			
- PT (10.5-14.3)		15.5	19.3
- PTT (24-38)		33.2	38.9
- INR (0.8-1.2)		1.4	1.7
Lactate (mg/dL) (4.5-19.8)		30.8	18.3
VDRL	NR		
HBsAg	Negative		
Anti-HIV	NR		

22.50u. Septic Shock with DIC

อาการเท่าๆเดิม

BP 83/53-90/58 mmHg,
PR 90-99/min,
BT 37.2 ◦ c, RR 20/min
Lungs : clear
Abdomen : mild tender at RLQ, no rebound, no guarding
Urine 20 ml/ 2 hours

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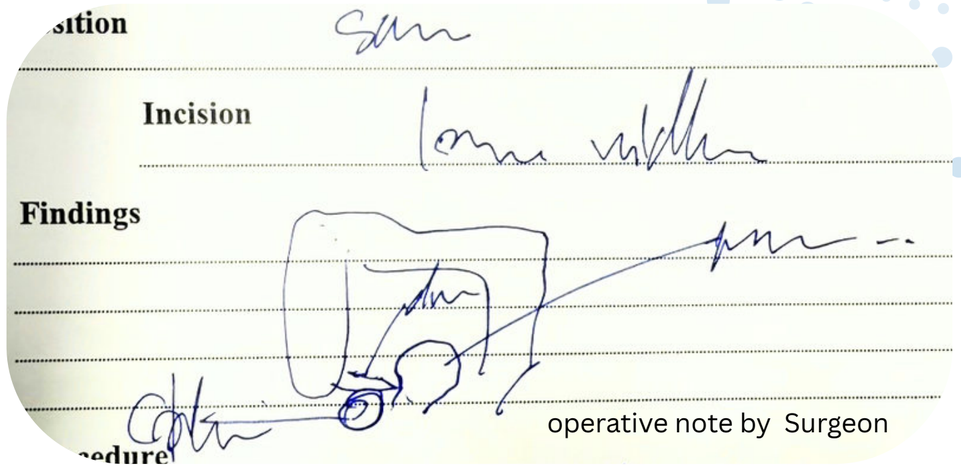
lab : hct 30.6%, WBC 19,520, band5%, Plt 89,000, BUN 12, Cr 1.34, AST/ALT 54/61, INR 1.7

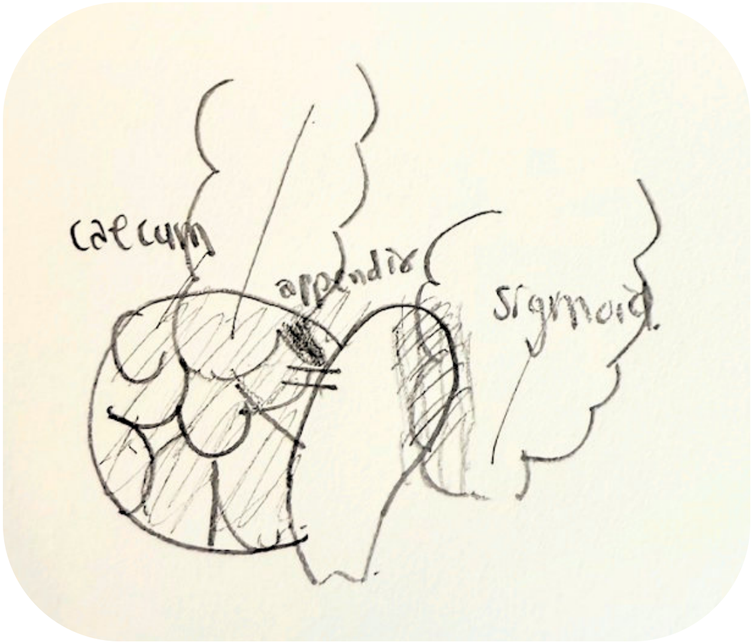
- Titrate Levophed(4:250) until 20 ml/hour
- Hydrocortisone 100 mg IV stat
  then 200 mg + 5%DW 100 ml IV drip in 24 hour
- เตรียม PRC 2 u, FFP 4 u, Plt. conc. 4 u to OR
- **Transfer to OR**

Operation Findings

- **<u>Operation</u> : Emergency explore laparotomy with right TOA drainage with biopsy right ovarian wall and lysis adhesion (consult surgeon intraoperation)**
- Anesthesia : GA
- Operative times : 24 mins (23.35-23.59u.)
- Operative findings :
  - Multiloculated right tubo-ovarian abscess, measuring 10 cm, with a thick wall and 50 ml of pus content. Severe dense adhesion adhered to the caecum and appendix. Packed in CDS and covered with bowel loops.
  - Slightly enlarged uterus and left deviated. Severe dense adhesion adhered to the sigmoid colon.
  - Not seen left adnexa
  - Obliterated CDS
- EBL 300 ml
- No immediate post-operative complication
- JPD was placed at right pelvis.
- Pus G/S, C/S
- Blood transfusion in OR : FFP 4 u, Plt. Conc. 2 u



operative note by Surgeon



POST-OPERATIVE PROGRESSION

Transferring Patient from OR to **ICU**

	13/6/2568 15.49น. (แรกรับ)	14/6/2568 15.09น. (dx sepsis)	14/6/2568 23.25น. (dx septic shock)	15/6/2568 2.34น. (immediate post-op)	15/6/2568 07.53น. (post-op day0)
CBC					
Hb (g/dL)	11.2	10.2	9.8	8.8	9.8
Hct (%)	35.3	31.8	30.6	27.1	30.1
WBC (cell/mm^3)	18,150	2,850	19,520	31,550	42,040
- Neutrophil (%)	84%	81%	94%	93%	92%
- Lymphocyte (%)	8%	18%	1%	1%	1%
			Band 5% Toxic granule	Band 6%	Band 6%
Plt. (cell/mm^3)	284,000	165,000	89,000	90,000	96,000
MCV (fl.)	76.2	75.5	75.9	76.8	76.4
RDW	14.5%	14.4%	14.5%	14.7%	15%
BUN	10	11	12	12	11
Creatinine	0.78	0.86	1.34	1.26	1.09
Sodium	136	138	138	139	139
Potassium	3.8	3.5	3.4	3.6	3.5
Bicarbonate	23	19	16	19	19
Chloride	98	105	108	107	106
Coagulogram					
- PT (10.5-14.3)		15.5	19.3		17.4
- PTT (24-38)		33.2	38.9		37.5
- INR (0.8-1.2)		1.4	1.7		1.5
Lactate (mg/dL) (4.5-19.8)		30.8	18.3		22.1

Immediate post-op 2.30u. 15/06/2568

V/S BT 36 ◦ c, BP 131/92 mmHg, PR 96/min, RR 20/min

-On ETT

-On ventilator : PCV mode ; IP 16, RR 16, PEEP 5, FiO2 0.4

-Meropenem 1 g IV q 8 hours

-On levophed (4:250) IV rate 25 ml/hour

-Hydrocortisone 200 mg IV drip in 24hrs

-Transamine 500 mg IV q 6 hours x 24hrs

-Record V/S, I/O

-Serial Hct, DTX

-Follow Lab at ICU + tomorrow ; CBC, BUN, Cr, Electrolyte, PT, PTT, INR, lactate

-**Chest X-rays : pulmonary congestion**

-Access C-line at right femoral vein

-Change to levophed (8:125) IV rate 6 ml/hr

-Lasix 40 mg IV

-Post-op lab ; Hct 27.1%, Plt. 90,000

-> PRC 1 u, Plt conc 4 u transfusion

-Control pain with Morphine IV prn

Post-op Day0 8.00u. 15/06/2568

ตื่นดี ไม่ปวดแผล ไม่หอบ

E4VTM6

V/S BP 118/50 mmHg, PR 75/min

RR 16/min, BT 37 ◦ c

- Lungs : minimal crepitation at RLL
- Abdomen : midline surgical wound, no gauze oozing, absent bowel sign, soft, mild tender at right lower abdomen
- JPD 50 ml, serosanguinous content
- I/O เวรดึก (post-op) 2842/740 clear yellow urine

Alarm H/C Gram negative bacilli x 2 sp.

“Gram negative Septicemia”

-Plan IV ATB x 14 days

-Wean off levophed

-Keep I/O negative

-NPO

-Serial DTX

-Follow Lab tomorrow ; CBC, BUN, Cr, Electrolyte, PT, PTT, INR, lactate, CXR

-Observe abdominal signs

POST-OPERATIVE PROGRESSION

Transferring Patient from ICU to **GYN ward**

	16/6/2568 07.51น. (post-op day1)	17/6/2568 07.19 (post-op Day2)
CBC		
Hb (g/dL)	9.0	10.3
Hct (%)	27.1	33
WBC (cell/mm^3)	38,840	25,110
- Neutrophil (%)	90%	90%
- Lymphocyte (%)	3% Band 5%	8%
Plt. (cell/mm^3)	100,000	106,000
MCV (fl.)	75.1	78.4
RDW	14.5%	14.9%
BUN	20	35
Creatinine	0.89	0.86
Sodium	144	144
Potassium	3.0	4.0
Bicarbonate	27	26
Chloride	104	110
Lactate (mg/dL) (4.5-19.8)	15.8	9.51

Post-op Day1 16/6/2568 8.00u.

ตื่นดี ไม่ปวดแผล ไม่หอบ
E4VTM6
V/S BP 121/82 mmHg, PR 60/min
RR 16/min, BT 36 ◦ c

- Lungs : minimal crepitation at RLL
- Abdomen : midline surgical wound, no gauze oozing, hypoactive bowel sign, soft, mild tender at RLQ
- JPD 25 ml, serosanguinous content
- I/O 4234/4075 ml, clear yellow urine

- On PSV mode -> plan off ETT
- Lasix 40 mg IV
- Follow Lab tomorrow ; CBC, BUN, Cr, E'lyte
- Keep I/O negative

12.00u.

ตื่นรู้ตัวดี ไม่ไข้ ไม่ปวดแผล

- On PSV ได้ตลอด ไม่หอบไม่เหนื่อย
- Lungs: clear
- I/O 752/2110 ml

-Off ETT-

Post-op Day2 17/6/2568 8.00u.

ไม่ไข้ ไม่หอบ ไม่เหนื่อย ไม่ปวดแผล
ไม่มีคลื่นไส้อาเจียน ผายลมได้
V/S BT 37.2 ◦ c, BP 116/77 mmHg, PR 77/min

- Lungs : clear
- Abdomen : midline surgical wound, no gauze oozing, Active bowel sign, soft, mild tender at right lower abdomen
- JPD 15 ml, serosanguinous content
- I/O 1664/2500 ml

H/C identify **E.coli ESBL**
S: Meropenem/ Augmentin/ Tazocin
R: Ampicillin / cef-3

-Step diet ; จิบน้ำ มื้อเช้า / liquid diet มื้อเที่ยง / soft diet มื้อเย็น
-Off oxygen cannular
-Off IV, off Foley's catheter, off C-line
-**Plan IV Meropenem x 14 days**
-Promote ambulation

POST-OPERATIVE PROGRESSION

Post-op day 3

Clinical improving

กินได้ ผายลมได้ ถ่ายได้ ไม่คลื่นไส้อาเจียน ไม่ปวดท้อง ไม่ปวดแผล

- JPD 55 ml, serosanguinous content

- Continue ATB
- Step diet ; regular diet

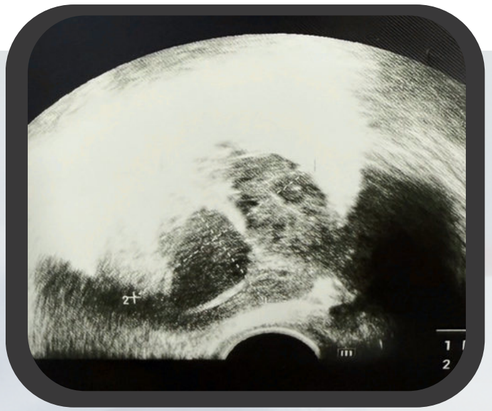
Post-op day 4

Clinical improving

กินได้ ผายลมได้ ถ่ายได้ ไม่มีคลื่นไส้อาเจียน ไม่ปวดท้อง ไม่ปวดแผล

- JPD 50 ml, serosanguinous content
- Follow TVS; tri-loculated hypoechoic cysts 4.0x5.2 cm, no free fluid in CDS

- Off JPD
- Stitch off wound at Post-op Day 7
- Continue ATB until 14 days (28/6/68 10.00u.)



Post-op day 5-14

Clinical improving ไม่ไข้ ไม่ปวดท้อง

- Follow TVS; Tri-loculated hypoechoic cysts 6.7x3.6 cm, largest locule 3.4x3 cm, no free fluid in CDS

Discharge

Follow up 2 weeks + TVS

Home medication :

-Augmentin (1g) 1x2 oral pc # 28 tabs

-Azithromycin (250) 2x1 oral pc # 28 tabs

-Ibuprofen (200) 2x3 oral pc # 30 tabs

-Paracetamol (500) 1 tab oral prn q 4-6 hours # 20 tabs

Follow up at 2 weeks

S : ผู้ป่วยสบายดี ไม่มีปวดท้อง ไม่มีไข้ มูกตกขาวสีเหลืองเล็กน้อย ไม่มีกลิ่น ไม่มีเลือดออกผิดปกติ
On oral ATB จนครบ 14 วัน

O : V/S BT 37 ◦ c, BP 125/78 mmHg, PR 90/min, RR 14/min
Abdomen : midline surgical scar, soft, mild tender at right lower abdomen
PV NIUB : normal
Vagina : normal mucosa and normal discharge
Cervix : no lesion, no cervical motion tenderness
Uterus : normal size, not tender
Adnexa : mild tender at right side, palpable cystic lesion 10 cm

- TVS : Globular shape uterus size 8.7x4.9 cm, endometrial thickness 7.5 mm
  Ill-defined hypoechoic mass 3.5x2.9 cm at posterior wall (suspected Adenomyosis with adenomyoma)
  Right multiloculated hypoechoic mass 10.5x4.3 cm, largest locule 4.5x4.8 cm
- Pathological report (Ovarian wall biopsy) : Acute inflammation with congestion

A : **Chronic TOA**
with Adenomyosis and Adenomyoma
with Severe Pelvic Adhesion

P : หากผ่าตัดอีกครั้ง -> high risk for adjacent organs injury due to severe adhesion
และเนื่องจากเกินศักยภาพ จึงส่งรักษาต่อยัง tertiary center for role of drainage or definite treatment

Discussion

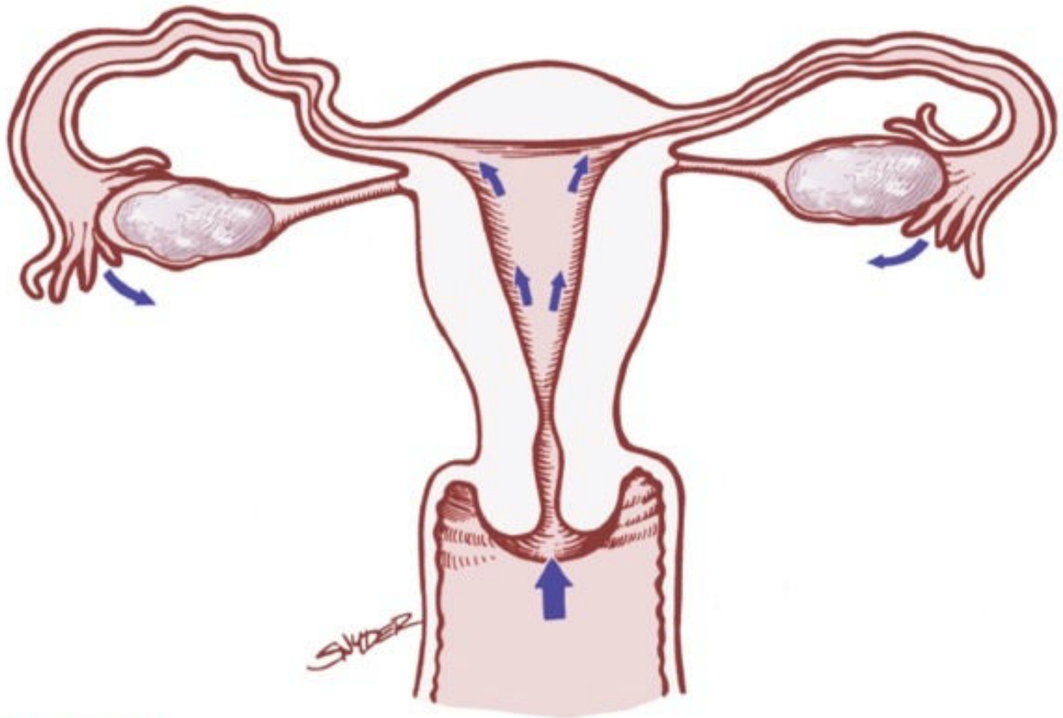


Figure 15-1 Micro-organisms originating in the endocervix ascend into the endometrium, fallopian tubes, and peritoneum, causing pelvic inflammatory disease (endometritis, salpingitis, peritonitis). (Reprinted from Soper DE. Upper genital tract infections. In: Copeland LJ, ed. *Textbook of Gynecology.* Saunders; 1993:521. Copyright © 1993 Elsevier. With permission.)

Pelvic Inflammatory Disease (PID)

- caused by microorganisms colonizing the endocervix and ascending to the endometrium and fallopian tubes.
- *Upper genital tract infection* and inflammation.
  - Endometritis, salpingitis, tubo-ovarian abscess and peritonitis

Tubo-Ovarian Abscess

- End-stage process/complication of acute PID
- Incidence: 15%–35% in women with PID
- Diagnosis: PID + palpable pelvic mass
- Agglutination of pelvic organs (tube, ovary, bowel) forming a palpable complex.
- Life-threatening condition if not treated appropriately

Berek & Novak's Gynecology, 17th Edition
Munro K, Gharaibeh A, Nagabushanam S, Martin C. Diagnosisand management of tubo-ovarian abscesses. Obstetr Gynaecol.2018;20:11–9

Discussion

Table 15-4 Clinical Criteria for the Diagnosis of Pelvic Inflammatory Disease

This case

Symptoms	
None necessary	
Signs	
Pelvic organ tenderness	✓
Leukorrhea and/or mucopurulent endocervicitis	
Additional Criteria to Increase the Specificity of the Diagnosis	
Endometrial biopsy showing endometritis	
Elevated C-reactive protein or erythrocyte sedimentation rate	
Temperature higher than 38 °C (100.4 °F)	✓
Leukocytosis	✓
Positive test for gonorrhea or chlamydia	
Elaborate Criteria	
Ultrasound documenting tubo-ovarian abscess	✓
Laparoscopy visually confirming salpingitis	

Criteria for hospitalization

This case

- Surgical emergencies (e.g., appendicitis) cannot be excluded ✓
- Tubo-ovarian abscess ✓
- Pregnancy
- Severe illness, nausea and vomiting, or oral temperature >38.5°C (101°F) ✓
- Unable to follow or tolerate an outpatient oral regimen
- No clinical response to oral antimicrobial therapy

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CDC/STI guidelines 2021

Discussion

Treatment

Recommended Parenteral Regimens for Pelvic Inflammatory Disease
Ceftriaxone 1 g by every 24 hours
plus
Doxycycline 100 mg orally or IV every 12 hours
plus
Metronidazole 500 mg orally or IV every 12 hours
or
Cefotetan 2 g IV every 12 hours
plus
Doxycycline 100 mg orally or IV every 12 hours
or
Cefoxitin 2 g IV every 6 hours
plus
Doxycycline 100 mg orally or IV every 12 hours

Alternative Parenteral Regimens
Ampicillin-sulbactam 3 g IV every 6 hours
plus
Doxycycline 100 mg orally or IV every 12 hours
or
Clindamycin 900 mg IV every 8 hours
plus
Gentamicin loading dose IV or IM (2 mg/kg body weight), followed by a maintenance dose (1.5 mg/kg body weight) every 8 hours; single daily dosing (3–5 mg/kg body weight) can be substituted

- Clinical improvement after 24–72 hours IV ATB
- About 75% of women with tubo-ovarian abscess respond to antimicrobial therapy alone.
- *Failure of medical therapy* suggests the need for drainage of the abscess

CDC/STI guidelines 2021
Berek & Novak's Gynecology, 17th Edition

Discussion

Definition of Antibiotic Therapy Failure

Failure to respond to medical therapy after 24–72 hours of antibiotic therapy alone and/or the existence of an acute clinical deterioration due to sepsis or abscess rupture

THE JOURNAL OF
Obstetrics and Gynaecology Research

doi:10.1111/jog.13946 J. Obstet. Gynaecol. Res. Vol. 45, No. 6: 1183–1189, June 2019

The effectiveness of neutrophil to lymphocyte ratio in prediction of medical treatment failure for tubo-ovarian abscess

Ismail Alay, Cihan Kaya, Ibrahim Karaca, Ecem Eren, Murat Hosgoren, Fidan Aslanova, Huseyin Cengiz, Murat Ekin and Levent YaSar

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Factors predicted medical treatment failure:

- Age
- TOA size
- WBC
- Neutrophil count
- Neutrophil/Lymphocyte ratio (NLR)

Table 1 Comparison of clinical characteristics, demographic data and laboratory results of the patients between the two groups

	Conservative treatment group (n = 38) mean ± SD/n(%)	Surgical intervention group (n = 43) mean ± SD/n (%)	*P* value
Age (years)	37 ± 7.1	42.3 ± 8.5	**0.004***
Gravidity	1.8 ± 1.1	2.4 ± 1.7	0.256
Parity	1.6 ± 1	2.2 ± 1.6	0.117
Abortion	0.2 ± 0.5	0.1 ± 0.7	0.263
BMI (kg/m^2)	24.5 ± 3.3	25.3 ± 3.6	0.286*
TOA size (mm)	57.1 ± 14.3	66.7 ± 23.7	**0.048**
Length of hospital stay (days)	8.8 ± 2.6	10.4 ± 8.1	0.478
WBC (×10^3 cells/mm^3)	15.83 ± 6.09	18.93 ± 3.75	**0.002**
Hemoglobin(g/dL)	11.1 ± 2	10.8 ± 1.7	0.399
Neutrophil (×10^{3}cells/mm^3)	12.51 ± 6.18	16.07 ± 3.54	**0.001**
Lymphocyte (×10^{3}cells/mm^3)	2.20 ± 0.94	1.88 ± 0.87	0.062
Platelet (×10^{3}cells/mm^3)	332.97 ± 129.65	340.38 ± 111.28	0.421
CRP (mg/dL)	16.5 ± 11.4	19.3 ± 11.6	0.289
NLR	7.4 ± 5.8	10.3 ± 5.8	**0.004**
PLR	197.6 ± 95.3	265.4 ± 177.7	0.088
Presence of IUD	14 (36.8%)	20 (46.5%)	0.499**
Marital status			
Single	9 (23.7%)	8 (18.6%)	0.597**
Married	29 (76.3%)	35 (81.4%)	—
Menopausal status			
Premenopause	36 (94.7%)	37 (86%)	0.272**
Postmenopause	2 (5.3%)	6 (14%)	—
Vaginal and/or cervical discharge	14 (36.8%)	20 (46.5%)	0.499**
Cervical motion tenderness	22 (57.9%)	23 (53.5%)	0.823**
Fever (>38°C)	7 (18.4%)	11 (25.6%)	0.593**
Abscess location			
Right	14 (36.8%)	20 (46.5)	0.105**
Left	12 (31.6%)	18 (41.9)	—
Bilateral	12 (31.6%)	5 (11.6)	—
Operation			
None	38 (100%)	0 (0%)	—
Laparoscopy	0 (0%)	28 (65.1%)	—
Abscess drainage	0 (0%)	4 (9.3%)	—
Laparatomy	0 (0%)	11 (25.6%)	—
Complication	0 (0%)	2 (4.7%)	—

*$p < 0.05$. Mann–Whitney *U* test, *Student *t* test, **Fisher's exact test. BMI, body mass index; CRP, C- reactive protein; IUD, intrauterine device; NLR, neutrophil-to-lypmhocyte ratio; PLR, platelet-to-lymphocyte ratio; TOA, tubo-ovarian abscess; WBC, white blood cell.

Alay I, Kaya C, Karaca I, Eren E, Hosgoren M, Aslanova F, Cengiz H, Ekin M, YaSar L. The effectiveness of neutrophil to lymphocyte ratio in prediction of medical treatment failure for tubo-ovarian abscess. J Obstet Gynaecol Res. 2019 Jun;45(6):1183-1189. doi: 10.1111/jog.13946. Epub 2019 Mar 24. PMID: 30907061.

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Full length article

Can antibiotic treatment failure in tubo-ovarian abscess be predictable?

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Table 1
Demographic and laboratory data of patients.

	Antibiotic treatment (n = 101)	Surgical treatment (n = 45)	p value
Age	37.8 ± 8.2	40.8 ± 10.1	0.017
BMI	27.1 ± 2.5	28.3 ± 2.9	0.026
Gravidity (median, min-max)	2 (0–8)	3 (0–7)	0.172
Parity (median, min-max)	2 (0–6)	2 (0–4)	0.515
Smoking	35 (34.6 %)	17 (37.8 %)	0.716
Previous PID	10 (9.9 %)	7 (15.5 %)	0.325
Previous C/S	62 (61.4 %)	32 (71.1 %)	0.257
Presence of DM	10 (9.9 %)	7 (15.5 %)	0.325
Presence of IUD	42 (41.6 %)	23 (51.1 %)	0.285
Hemoglobin (g/dL)	11.1 ± 1.7	10.4 ± 1.5	0.017
Hematocrit (%)	33.8 ± 4.9	31.9 ± 4.2	0.031
WBC ($x10^3$/mL)	13.27 ± 4.73	14.96 ± 5.0	0.045
CRP (mg/L)	113.8 ± 65.8	180.8 ± 86.4	<0.001
Neutrophil ($x10^3$/mL)	10.25 ± 4.75	11.89 ± 5.16	0.061
Lymphocyte ($x10^3$/mL)	1.95 ± 0.91	2.19 ± 2.29	0.587
Monocyte ($x10^3$/mL)	0.91 ± 0.77	0.86 ± 0.68	0.601
Platelet ($x10^3$/mL)	358.29 ± 131.18	370.73 ± 123.58	0.591
NLR	6.7 ± 6.0	8.6 ± 7.1	0.113
PLR	208.7 ± 111	238.2 ± 135.9	0.190
LMR	2.6 ± 1.3	3.6 ± 6.2	0.902

Data are expressed as n (%) or mean ± SD, as appropriate. BMI: Body mass index, PID: Pelvic inflammatory disease, C/S: Cesarean section, DM: Diabetes mellitus, IUD:

Location of abscess			
Unilateral	94 (93.1 %)	40 (88.9 %)	0.515
Bilateral	7 (6.9 %)	5 (11.1 %)	
Diameter of abscess (mm)	50.9 ± 13.2	79.4 ± 21.1	<0.001
Ultrasonographic features			
Unilocular cyst	57 (56.4 %)	15 (33.3 %)	<0.001
Complex multilocular cyst	16 (15.8 %)	22 (48.9 %)	
Pyosalpinx	28 (27.7 %)	8 (17.8 %)	

Data are expressed as n (%) or mean ± SD, as appropriate.

Discussion

Table 3
Multiple logistic regression analysis for antibiotic treatment failure.

Variable	Odds ratio (95 % CI)	P value
Age	1.098 (1.019–1.183)	0.014
BMI	1.298 (1.026–1.642)	0.030
Diameter of Abscess	1.131 (1.076–1.188)	<0.001
WBC	1.000(1.000–1.000)	0.406
CRP	1.014 (1.002–1.025)	0.017
Hemoglobin	0.285 (0.062–1.302)	0.105
Hematocrit	1.418 (0.832–2.418)	0.200
Ultrasonographic features		
Complex multilocular cyst	0.885 (0.215–3.633)	0.865
Pyosalpinx	0.663 (0129–3.409)	0.623

BMI: Body mass index, WBC: White blood cell, CRP: C-reactive peptide.

Factors predicted medical treatment failure:

- Age
- BMI
- TOA size
- CRP

Akselim B, Karaşin SS, Demirci A, Üstünyurt E. Can antibiotic treatment failure in tubo-ovarian abscess be predictable? Eur J Obstet Gynecol Reprod Biol. 2021 Mar;258:253-257. doi: 10.1016/j.ejogrb.2021.01.011. Epub 2021 Jan 15. PMID: 33482459.

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REVIEW ARTICLE

Risk factors for antibiotic therapy failure in women with tubo-ovarian abscess: A systematic review and meta-analysis

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Abstract

Aim: Medical therapy with antibiotics only and surgical drainage are the treatment options of tubo-ovarian abscess (TOA). It is not yet known exactly which cases need surgical treatment. The aim of this systematic review and meta-analysis was to evaluate the risk factors leading antibiotic therapy failure in women with TOA.

Methods: We searched the following databases from inception to June 1, 2022: PubMed, Ovid MEDLINE, The Cochrane Library, and Scopus. We also searched reference lists of eligible articles and related review articles. The observational cohort, cross-sectional, and case–control studies were included in the meta-analysis. At least four review authors independently selected eligible articles, assessed risk of bias, and extracted data. The random effect model was used in the meta-analysis.

Results: A total of 29 studies, including 2890 women, were included in the study. The age, abscess size, history of intrauterine device use, postmenopausal status, history of diabetes mellitus, fever, white blood cell count, erythrocyte sedimentation rate, C-reactive protein level, and history of pelvic inflammatory disease were found as significant risk factors for antibiotic therapy failure in women with TOA.

Conclusions: The findings of this study clarified the risk factors for antibiotic therapy failure in women with TOA.

KEYWORDS
abscess, antibiotic therapy, pelvic inflammatory disease, surgical therapy, tubo-ovarian abscess

Discussion

Significant risk factors for medical treatment failure:

- Age
- TOA size
- History of IUD
- Postmenopausal status
- History of diabetes mellitus
- Fever
- WBC count
- ESR
- CRP
- History of PID

Kinay T, Akay A, Aksoy M, Celik Balkan F, Engin Ustun Y. Risk factors for antibiotic therapy failure in women with tubo-ovarian abscess: A systematic review and meta-analysis. J Obstet Gynaecol Res. 2024 Mar;50(3):298-312. doi: 10.1111/jog.15870. Epub 2024 Jan 7. PMID: 38184888.

This case

Discussion: Risks for Medical Treatment Failure and Severe Illness

01

Missed Diagnosis

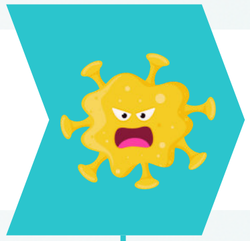
GI or GYN condition?

- Physical examination
  - Abdomen
  - PV
- Basic Investigation
  - Ultrasound bedside

02

Delay ATB

- admit 14.00u.
- start ATB 21.00u.



03

MDR pathogen

- E.coli ESBL

04

Patient Characteristics

- Age
- TOA size
- Fever
- WBC
- Neutrophil count
- Neutrophil/Lymphocyte ratio (NLR)

05

Delay surgical drainage

- High risk for surgery

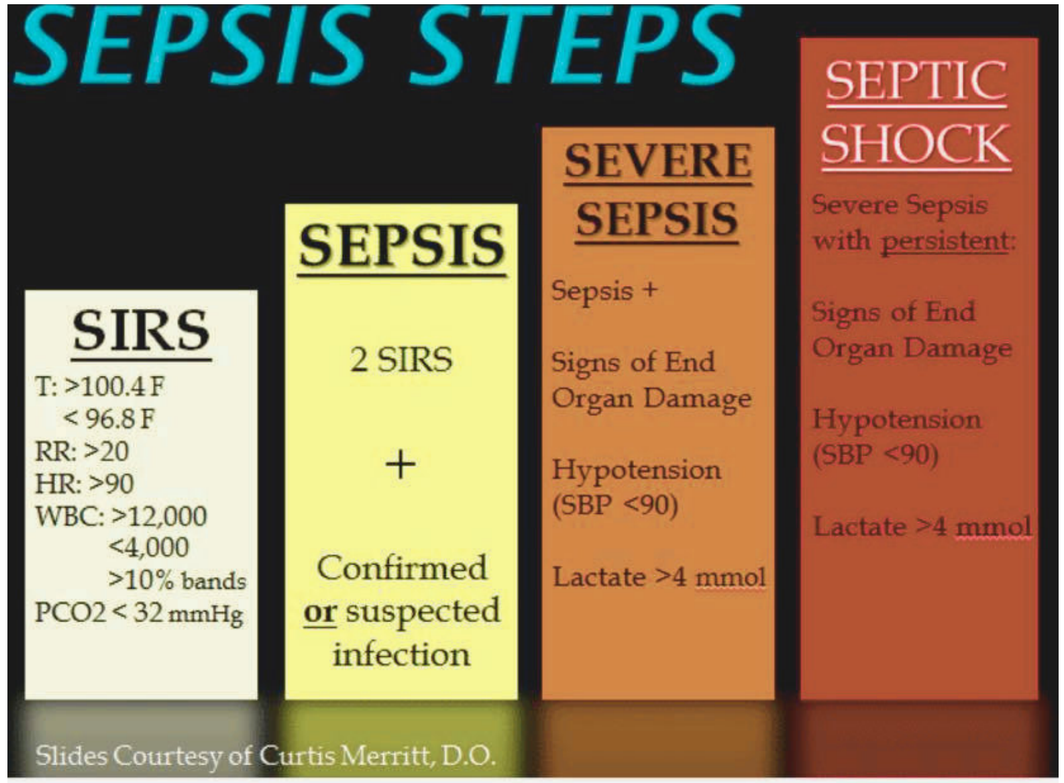
Discussion

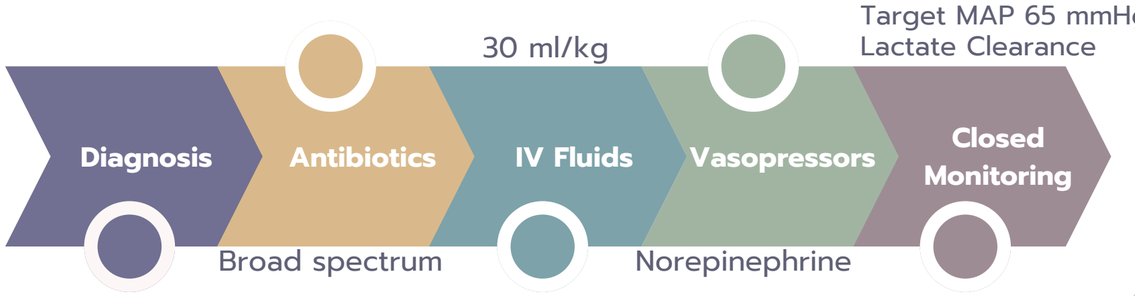
Modalities after medical treatment failure

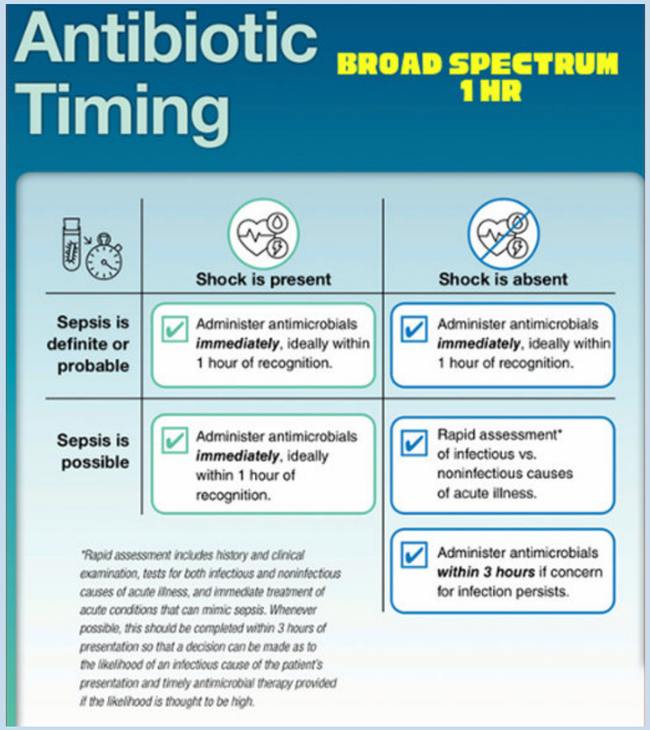
- Exploratory Laparotomy/Laparoscopy with
  - Abscess drainage
  - Unilateral Salpingo-oophorectomy
  - (no fertility need) Bilateral Salpingo-oophorectomy
- CT or US-guided Drainage of Abscess
  - Transabdominal
  - Transvaginal
  - Transrectal

Berek & Novak's Gynecology, 17th Edition
Goje O, Markwei M, Kollikonda S, Chavan M, Soper DE. Outcomes of Minimally Invasive Management of Tubo-ovarian Abscess: A Systematic Review. J Minim Invasive Gynecol. 2021 Mar;28(3):556-564. doi: 10.1016/j.jmig.2020.09.014. Epub 2020 Sep 28. PMID: 32992023.

Discussion: Sepsis/Septic Shock







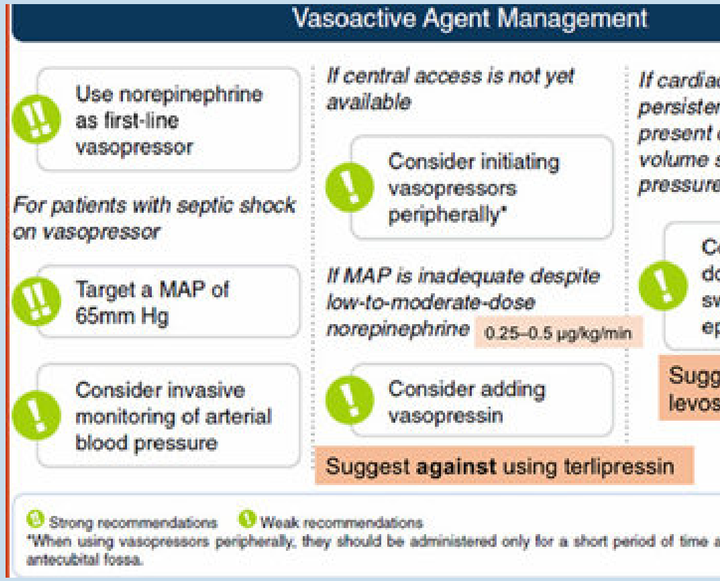


Table 1 Summary of recommendations and bedside reference guide for the management of severe sepsis and septic shock

Management of Severe Sepsis and Septic Shock Guideline	
Intervention	**Recommendation**
Screening Tools	Traditional sepsis screening tools like SIRS, NEWS, and MEWS remain more practical for the early detection of sepsis
Lactate Clearance and Capillary Refill Time	No definitive benchmark for guiding resuscitation ni septick shock, though CRT or lactate clearance may be considered
Intravenous Fluids	Administer 30 mL/kg of crystalloid (lactated ringers favored over normal saline) within the first 3 hours of resuscitation. Alternatively, based on CLOVERS trial, early vasopressor use may be considered if the patient is unresponsive to initial crystalloid therapy
Antibiotics	Suspicion of an acute bacterial process, consider a "broad" antimicrobial regimen to be administered within 1 hour of recognizing septic shock, or within 3 hours for sepsis without shock
Vasopressors	30ml/kg crystalloid fluid bolus (SSC guidelines), or consider early vasopressor use, followed by norepinephrine, vasopressin, then epinephrine
Steroids	Administration of corticosteroids in sepsis with vasopressor dependence to improve hemodynamics stability
Vitamin C	Current recommendations advise against the use of intravenous vitamin C
Albumin	Utilize albumin in sepsis patients who have received large volumes of crystalloid fluids or have hypoalbuminemia
Protein C	No current recommendations for the use recombinant human activated protein C
ECMO	Consider VA-ECMO in cases of septic shock with persistent hypotension and cardiac dysfunction that have failed to respond to other resuscitative techniques

Thank You for Your Attention