



# ESPEN Congress Madrid 2018

## Case Discussion: Critically Ill Septic Patient With Multi-Organ Failure

Case Discussion 1: ICU, Septic, MOF Patient  
*A. Reintam (CH)*



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SOCIETY FOR  
CLINICAL  
NUTRITION AND  
METABOLISM

# VOTING SYSTEM

Using any mobile device (smartphone, tablet, laptop, etc.) to easily participate to the voting system

Please access this website : [espen18.cnf.io](https://espen18.cnf.io)



# Critically ill septic patient with multi-organ failure



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Member of AIF - SIG



# History

- Male, 65 years
- Height 175 cm, Weight 85 kg, BMI 27.8 kg/m<sup>2</sup>
- 1 week before current admission

Robot-assisted laparoscopic prostatectomy  
(AdenoCa, localized)

Nausea and abdominal pain for 24h

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# Admitted to the ER

- Status

- Sopororous
- BP 70/45
- HR 140, sinus rhythm
- Dyspnoea, respiratory rate 30 x/min

- Management

- Fluids, noradrenaline, intubation, arterial cannulation
- Lab
- Blood cultures
- Piperacillin/Tazobactam 4.5 g 8-hourly

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# Lab Results

Parameter	Value	Reference
Hb	106	127-163 g/L
WBC	3.5	2.6-7.8 x 10 <sup>9</sup> /L
Platelets	73	130-330 x10 <sup>9</sup> /L
CRP	294	<5 mg/L
Creatinine	158	59-104 micromol/L
pH	7.2	7.35-7.45
BE	-8	-2 ...+3 mmol/L
Lactate	4.4	0.5-1.6 mmol/L
Myoglobin	1056	<110 micromol/L

Voting system : [espen18.cnf.io](http://espen18.cnf.io)



# Most concerning abnormal result ?

1. CRP
2. Platelets
3. pH
4. BE
5. Lactate
6. Myoglobin
7. WBC

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## ***Live Content Slide***

*When playing as a slideshow, this slide will display live content*

**Poll: Most concerning abnormal result ?**

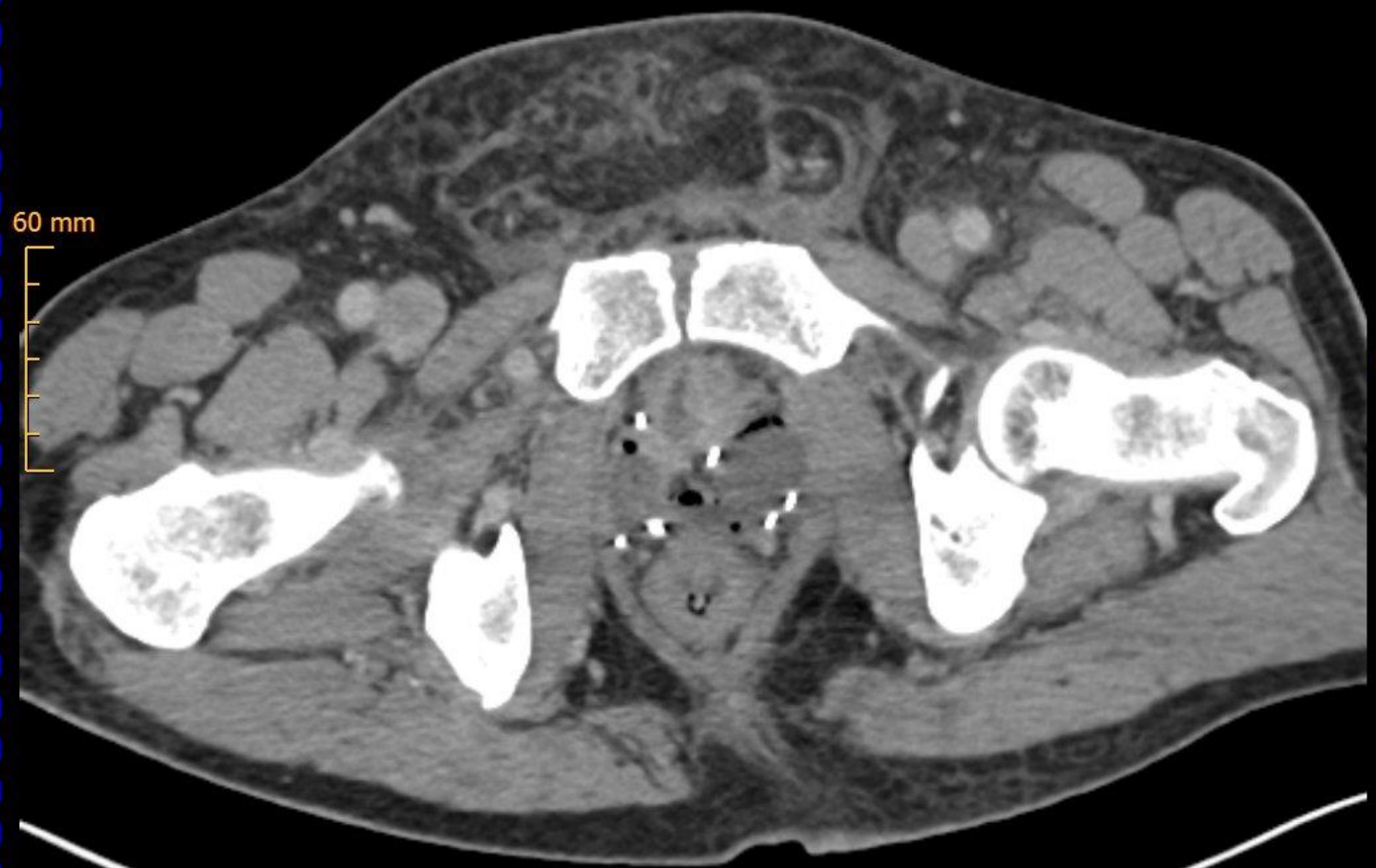
E  
S  
C  
N  
M





02.07.1948 (M 65)

CT TH ABD KM 1.5 B26F  
02.12.2013 18:07  
Serie 11 Bild 480  
FFS  
Pos. -844.30



60 mm

Ultravist 370, KM  
W 400/40, 611 mAs, 120 kV  
KANTONSSPITAL LUZERN

1.50 mm

512x512

SOMATOM Definition Flash



## ***Live Content Slide***

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# **Poll: Management Priority**

E  
S  
C  
N  
M

# Laparotomy

- Drainage of the perivesical abscess
- Evaluation of bowel viability and continuity
  
- Bowels viable, no leakage
- Back to the ICU

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# Postop in the ICU

- Continuing fluid resuscitation (10 L cumulative)
- Increasing dosage of noradrenalin (1 mcg/kg/min)
  - BP 75/50 mmHg, HR120-130 x/min, sinus rhythm
- Worsening oxygenation ( $\text{FiO}_2$  90%), anuric
- Pulmonary artery catheter: CI 3.3 l,  $\text{SvO}_2$  68%
- Intra-abdominal pressure 17-18 mmHg
  - (Grade II intra-abdominal hypertension)

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# Lab results perioperatively

	Preop	12h later
Hb	106	103
WBC	3.5	24
pH	7.2	7.30
BE	-8	-11
Lactate	4.4	6.4
CRP	294	282
Creatinine	158	205

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## *Live Content Slide*

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**Poll: What is the problem now ?**

E  
S  
C  
N  
M

## ***Live Content Slide***

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# **Poll: Management Priority**

E  
S  
C  
N  
M

# Relaparotomy on the same day

- Lavage
- Inspection: no visual ischemia, no leakage
- Rectoscopy: no ischemia, no perforation
- Loop stoma (descending colon)
  
- Back to the ICU still in shock (unchanged vasopressors, lactic acidosis, anuria)

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# 36 h after admission

- Shock managed with high-dose noradrenaline
- Ventilated 100% FiO<sub>2</sub>
- Anuric
- Slowly improving lactic acidosis
- E. coli in all blood cultures -> Imipenem, because ESBL not excluded (results not available yet, later: not ESBL)

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## ***Live Content Slide***

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**Poll: Should we now start nutrition?**

E  
S  
C  
N  
M

# Hours 36 to 60

- No nutrition
- Further stabilization of hemodynamics
- FiO<sub>2</sub> reduced to 90%, PEEP 12 cmH<sub>2</sub>O
- Anuria

	36 h	60 h
Lactate	4.8	2.2
CRP	458	443
Creatinine	393	579

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# Day 4

- Abdomen distended
- Gastric residuals low
- No bowel sounds on auscultation
- Lactate normal
- Noradrenaline in low dose (0.08  $\mu\text{g}/\text{kg}/\text{min}$ )
- Anuria

Voting system : [espen18.cnf.io](http://espen18.cnf.io)

[www.espen.org](http://www.espen.org)



[www.espencongress.com](http://www.espencongress.com)

## ***Live Content Slide***

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**Poll: Should we now start nutrition?**

E  
S  
C  
N  
M



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# Day 4

- EN 10 ml/h via ng-tube started
- Continuous hemofiltration started
- Noradrenaline further reduced



# Day 5

- Noradrenaline stopped
- Negative fluid balance under hemofiltration
- Oxygenation slowly improving
- EN increased to 20 ml/h



# Days 6-10

- EN further increased, full EN on day 7
- Hemofiltration continued
- Problems with ventilation (obstruction)
  - Bronchoscopy -> hemorrhagic tracheobronchitis
  - Aspergillus fumigatus -> Caspofungin





# Day 11-20

- Ventilation and oxygenation improving
- Partial thrombosis of left internal jugular vein
  - full anticoagulation with heparin
  - polyuric renal insufficiency
- Full EN
- Patient awake and stable
- Tracheostomy due to ICU-acquired weakness



# Day 21-24

- Hb levels gradually decreasing down to 70 g/L
- Transfused (4 pRBCs in total)
- Lactate increased to 2-2.5 mmol/l
- CRP 20 ->100
- Platelets 150, increasing
- Bleeding out of loop stoma
- Endoscopy through stoma



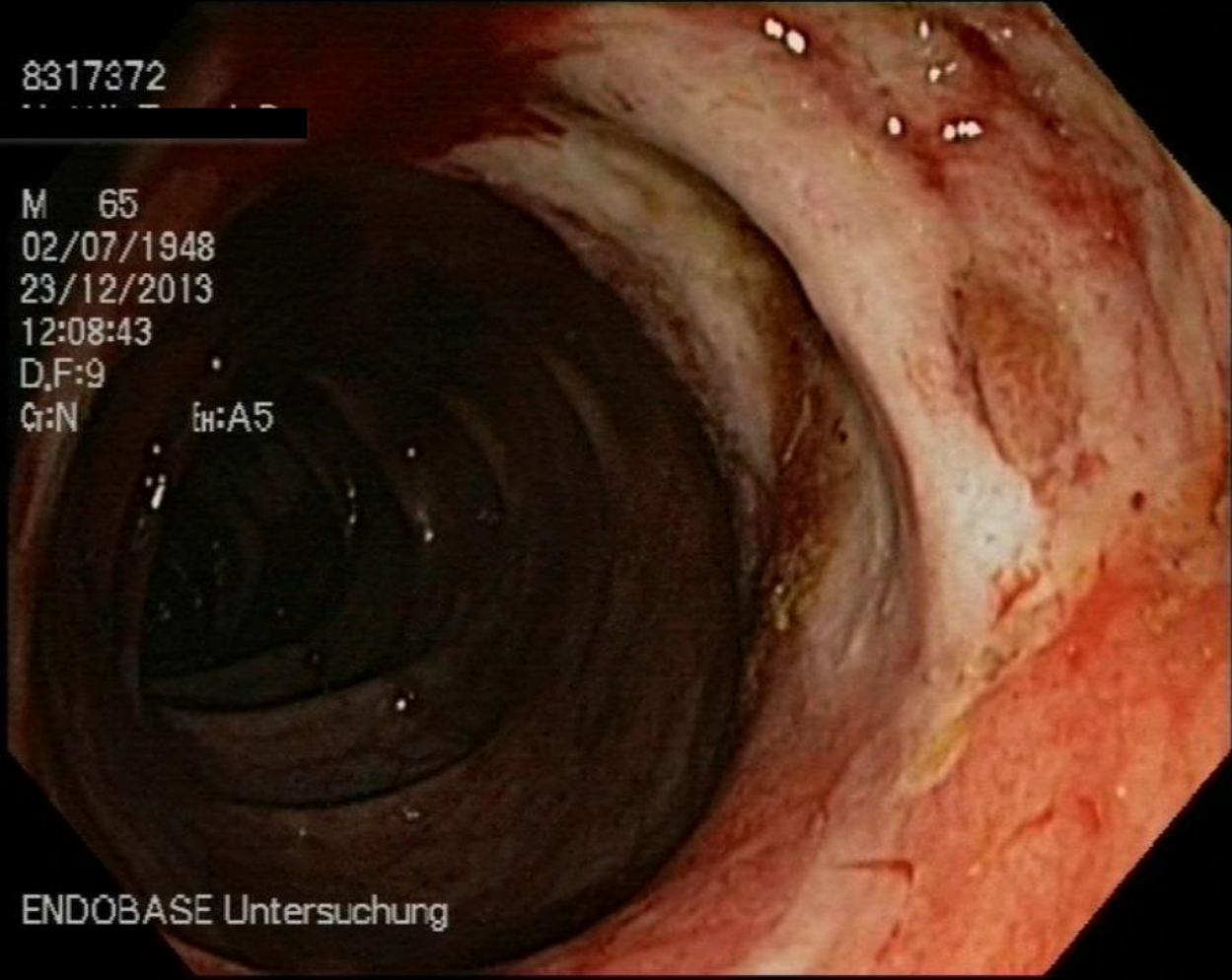


02.07.1948 (M 65)

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23.12.2013 11:44  
Serie 1507 Bild 817

8317372

M 65  
02/07/1948  
23/12/2013  
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D,F:9  
Gr:N      [H:A5



ENDOBASE Untersuchung





02.07.1948 (M 65)

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23.12.2013 11:44  
Serie 1507 Bild 809

8317372

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02/07/1948  
23/12/2013  
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D,F:1  
Gr:N      Em:A5

ENDOBASE Untersuchung





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# How to continue? (Pannel discussion, no voting)

- Surgery for bowel resection needed?
- Full anticoagulation with heparin?
- Prophylactic / low dose heparin?
- Enteral nutrition and medications?



# Days 24-29

- EN temporarily reduced to 20 ml/h, increased again to full within 3 days
- Prophylactic heparin
- Bleeding stopped after 5 days
- No perforation
- 1 week later CT scan:
  - Bowel wall thickening (long segment) in transverse colon





# Long term Outcome

- Discharge
  - to the ward after 29 days
    - spontaneously breathing with tracheostomy
  - to rehabilitation clinic after 44 days
- Long-term outcome
  - Alive and independent 4 years later
  - Stoma closed without complications





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# Learning objectives

- Management priorities
- Timing of nutrition support
- EN vs PN
- Mesenteric ischemia assessment
- Assessment of GI function in the ICU

