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Shock and sepsis

pathophysiological analysis of cases

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C1

- man 72 yo, up to now healthy, used no medication
- admitted the day before to the urology department of local hospital for abdominal and back pain - suspected renal colic
- partial improvement after analgetic treatment
- abdominal US
  - normal kidneys
  - AAA of diameter 8 cm
- immediately angioCT of abdomen
  - AAA 8 cm with signs of rupture, hematoma in surroundings
- immediately transported to the vascular surgery of FNUSA, direct to the operating theatre

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- on arrival stabil, P 105/min, BP 105/60
- Hgb 90 g/l, no coagulopathy
- lactate 3.2

- in the OP theatre
  - CV and arterial catheter inserted, crystalloids infused
  - OTI, mechanical ventilation
  - 1 min after OTI severe BP drop, asystoly, CPR initiated
  - after 2 mins ROSC, high dose of NA
  - immediately operating field prepared and laparatomy performed
  - again asystoly, CPR, after 2 mins ROSC
  - aortic clamp above the aneurysm
  - fliuds, blood transfusions, huge dose of NA, with this „stable“

C1

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- in the ICU
  - **on admission** hypothermia, high dose of NA, lactate 12
  - further fluids, correction of coagulopathy, active warming
  - bleeding does not continue krvácení, hypovolemia corrected with help of US
  - persistent extreme dose of NA, very slow decrease of lactate
  - need of high FiO_2, anuria

  - **on the next day** still high, but acceptable dose of NA, lactate 2.5
  - return of diuresis, lower ventilatory support
  - urea 20, crea 250, thrombocytes 50, fever 38.5, CRP 320

  - **in the following days** improvement of renal functions, decrease in CRP
  - persistent coma – after CRP, SIRS encephalopathy, influence of sedation?

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- in the ICU
  - **from the 6th day** fever again, new increase in CRP, need of NA
  - on abdominal CT suspected retroperitoneal abscess
    - surgical solution impossible
    - ATB
  - very slow improvement

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- **on the 10th day** extubation
- on the same day, however, need of re-intubation because od progressive hypercapnia
- tracheostomy and slow weaning from mechanical ventilation

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C1

- **summary**:
  - hemorrhagic shock
    - initially compensated
    - decompensation after OTI
  - SIRS + MODS
    - after hemorrhagic shock and cardiac arrest
    - ischemia-reperfusion injury
  - septic shock (role of immunosupression?)
  - critical illness polyneuromyopathy

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- man 50 yo, 4 weeks ago a fall with fracture of 2 ribs, used ibuprofen
- progressive weakness and black stool for about 3 days
- ambulance called for vomitting of blood (hematemesis)

- at the first contact BP 80/50, P 130/min, CGS 15
- given crystalloids 1000 ml, transport to the ER FNUSA

C2

- on arrival BP 100/50, P 115/min
- immediately gastroscopy
  - duodenal ulcer bleeding Forrest 1b
  - stopped after adrenaline injection into ulcer
- Hgb **41 g/l**, lactate 2.5

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- admitted to the ICU of the Department of internal medicine
- 4 transfusions, fluids, stabilisation

- on the 3rd day abrupt deterioration, prompt decrease in BP, need of NA
- relapse of hematemesis
- indicated immediate surgery

C2

- during OP extremely unstable, huge dose of NA
- given 8 TU, fibrinogen, 6 TU of plasma, tranexam acid, 2 IU thrombocytes
- bleeding was stilled with suture of duodenal ulcer

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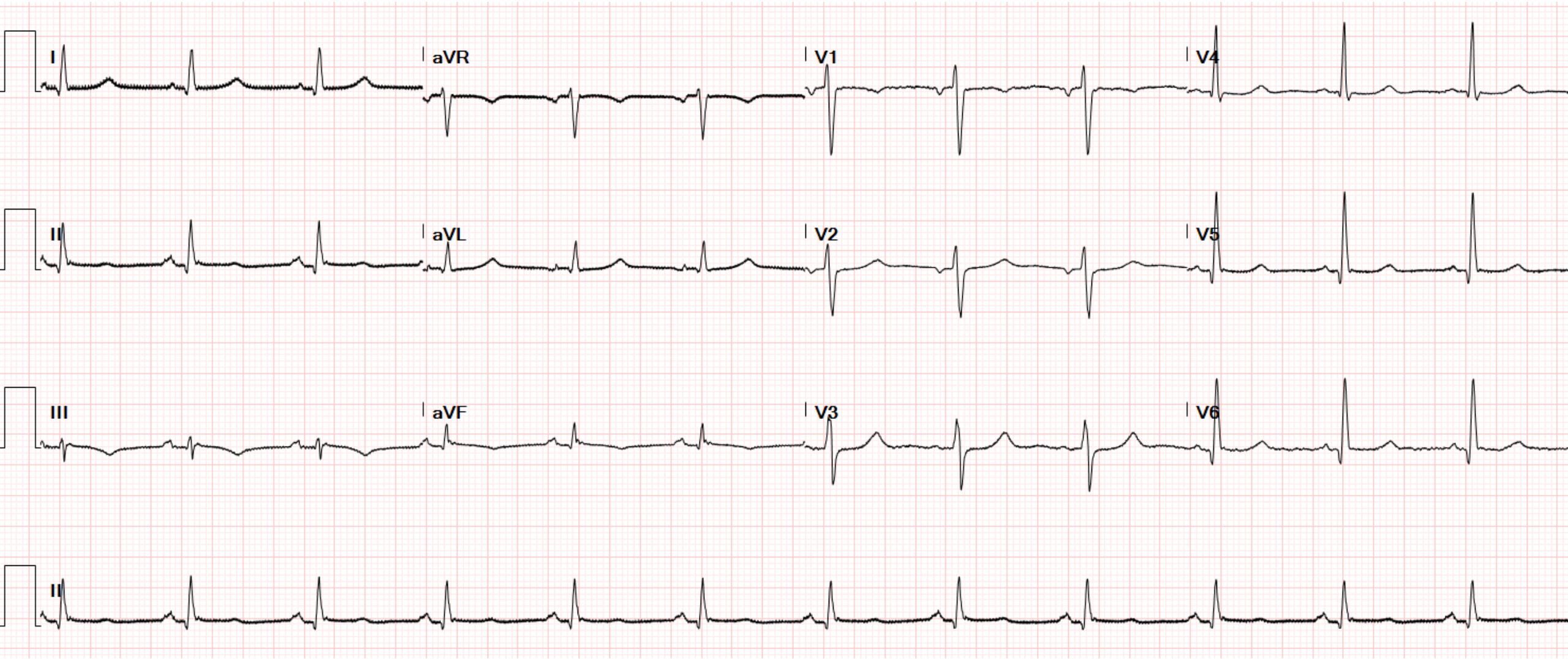
- return to ARK ICU at 4:30 am
- further fluids, 4 TU, plasma, fibrinogen, correction of coagulopathy
- gradual stabilisation, minimal dose of NA

C2

- 9:00 suddenly ventricular fibrillation, cardiac arrest, CPR initiated
- 1x defibrillation resulting in asystoly, given 1 mg adrenaline
- after 5 mins ROSC
- afer ROSC shortly hypertension up to 280/140 (reaction to adrenaline)

- etiology unclear
- no blood from nasogastic tube
- ECG, echocardiography – EF LV 50%, inferior wall hypokinesis
- cardiologist did not indicate coronarography

ECG 4:30



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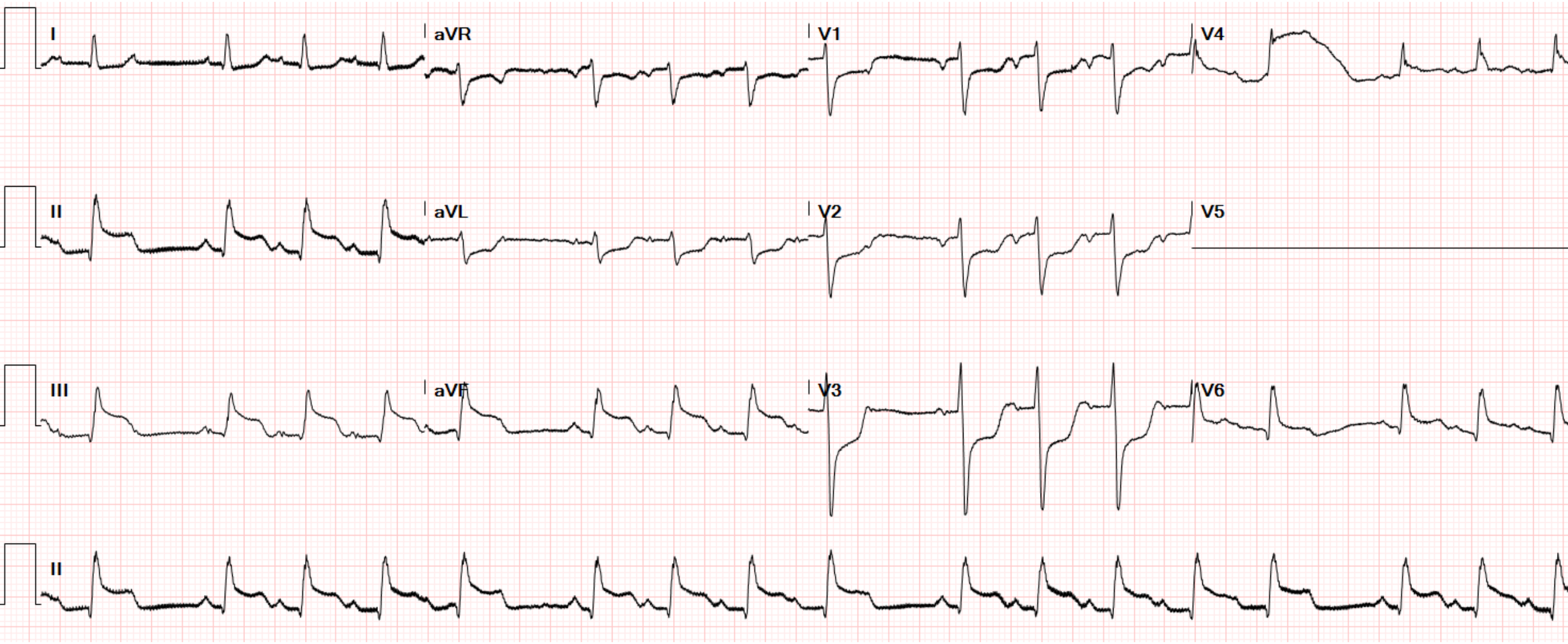
ECG 8:15



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- concluded as STEMI

- prompt increase in NA
- re-echocardiography – still good function of LK
- mild decrease in Hgb, increase in lactate

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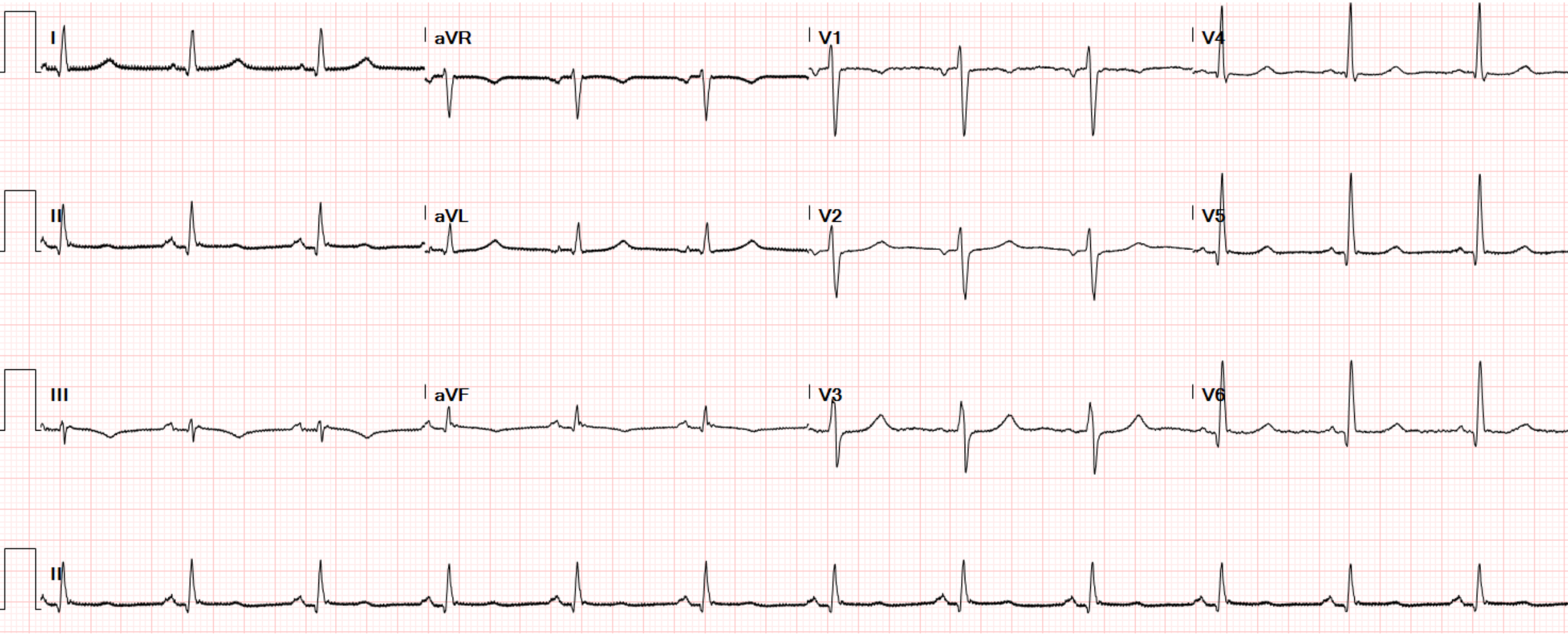
- sharp increase in NA dose
- increase in abdominal volume
- US – growing collection (character of hematoma) 12 cm in diameter in area of duodenum

- acute surgical consultation – indicated oper. revision
- after purge of NG tube large amount of blood is being drained
- massive dose of NA

ECG on the next day



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- during OP strong arterial bleeding in the area of previous suture found
- re-suture, bleeding was stopped
- return to ARK ICU
- gradual stabilisation

- anuria, on the 2nd day dialysis was initiated
- lower ventilatory support

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- On the 7th day increase in CRP, fever, higher NA
- new production of purulent sputum, susp. new infiltrate on chest-X ray
- ATB administered

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- **summary**:
  - hemorrhagic shock
    - initially compensated (slow anemisation)
    - decompensation with bleeding renewal
  - cardiogenic shock??
    - why STEMI?

C2

- cause of the 2dn re-bleeding??

- nosocomial ventilator pneumonia – sepsis (immunosupression)