

A close-up photograph of a doctor in a white lab coat. The doctor's hands are gently holding a bright red heart. A stethoscope is visible around the doctor's neck. The background is softly blurred, showing another person in a white lab coat.

Mortality and Morbidity Conference

葉軒



Case Presentation

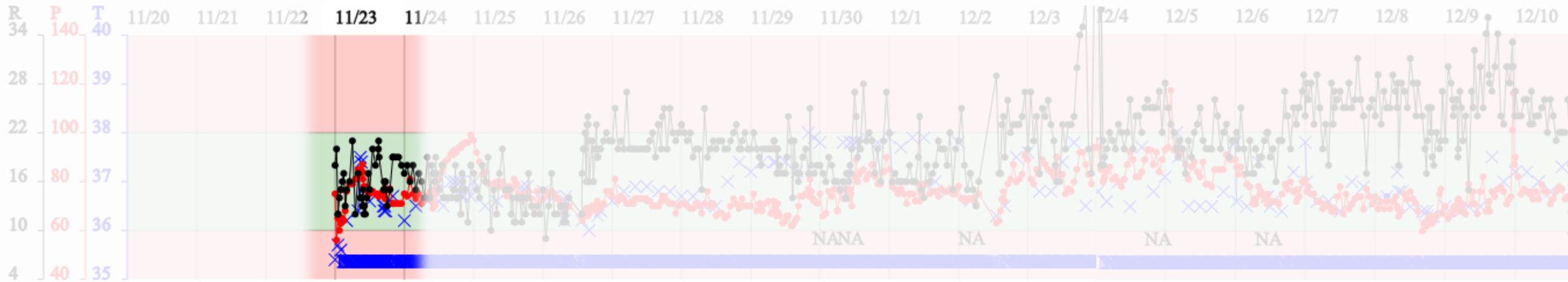
Patient's Information

- Chart No.: HD55526
- 72-year-old
- Lady
- Hospital arrival: 2021/11/23

Initial Assessment

- In-hospital cardiac arrest at 為恭 hospital, s/p CPR
- Multiple small traumatic intra-cerebral hemorrhage
- Multiple right side rib fracture
- Traumatic aortic injury with pseudoaneurysm
- Right side iliac crescent fracture and left sacroiliac posterior dislocation, s/p external fixation
- ISS: 57

Treatment Course



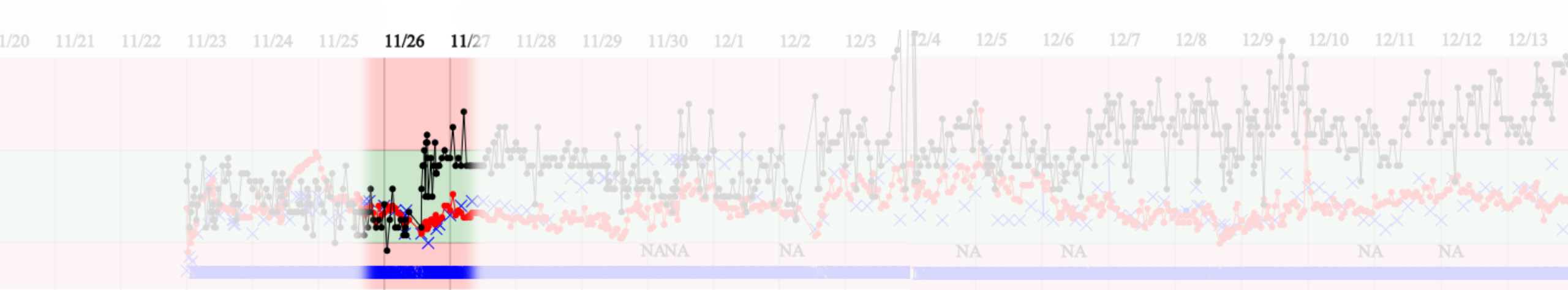
Transferred from 為恭 hospital
Under intubation

Unasyn D1

TAE

Hyperbilirubinemia, mild

Treatment Course

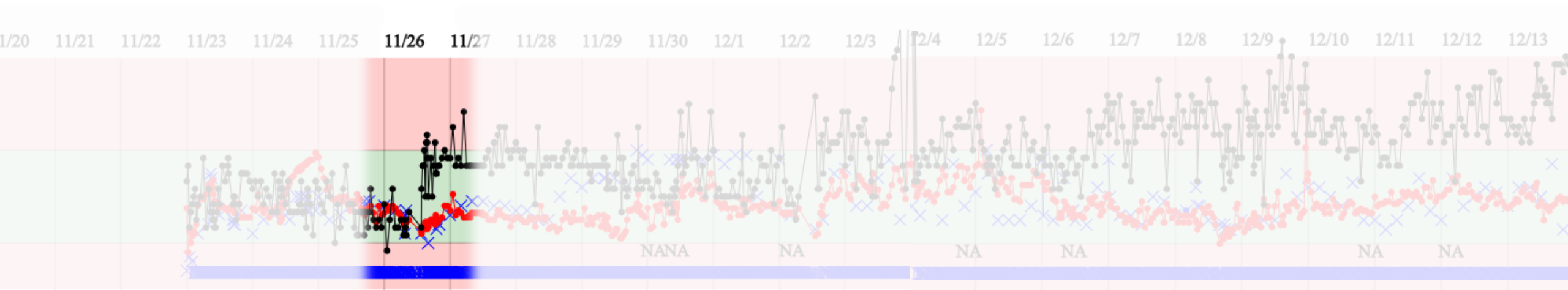


Thoracic endovascular aortic repair
(TEVAR)

Unasyn D4

Acute renal injury
→ CRRT 11/26-11/29

Treatment Course

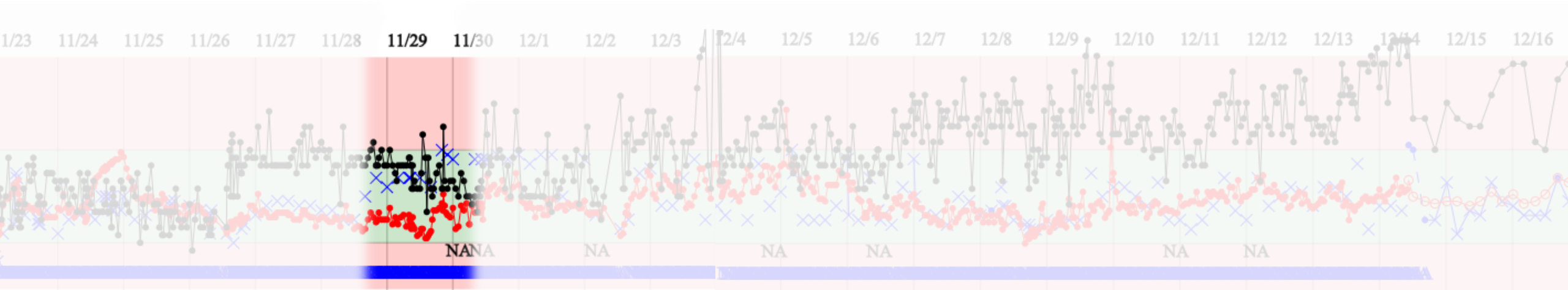


Thoracic endovascular aortic repair
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Treatment Course



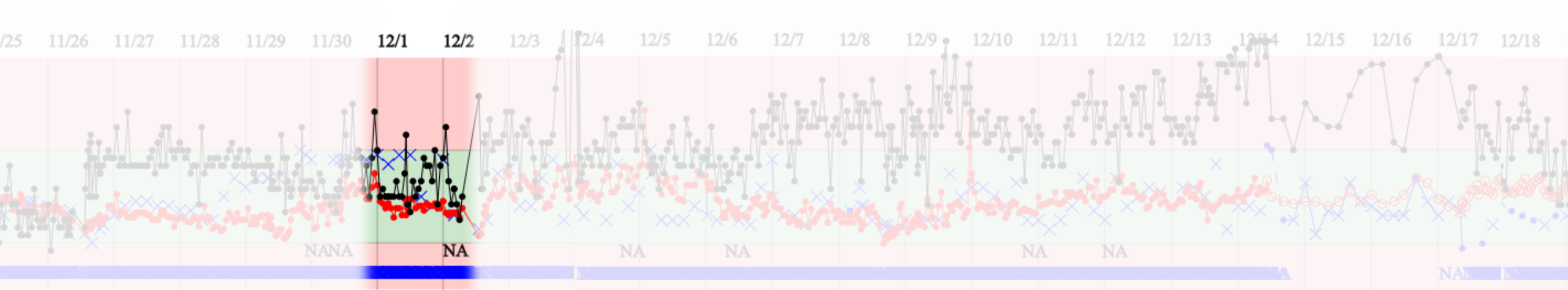
Remove ESF

Pleural effusion with patch??

Unasyn D7

→ Tazocin D1

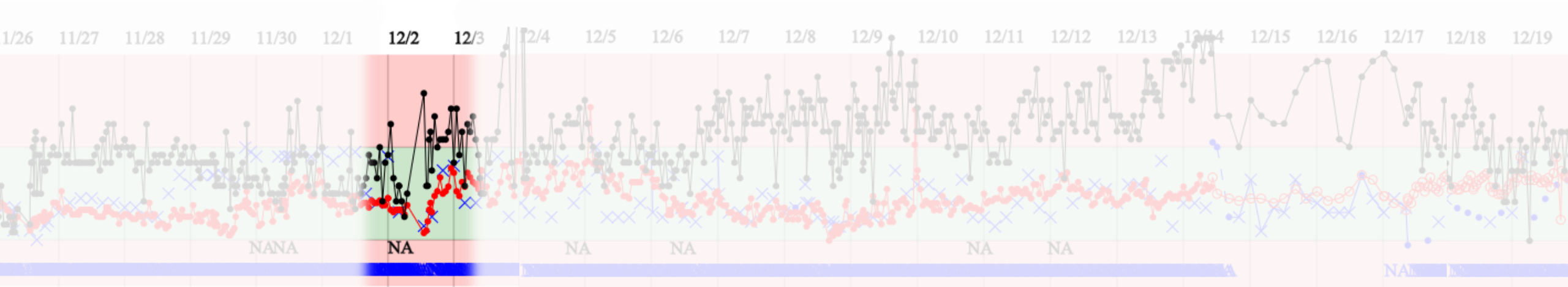
Treatment Course



Pig-tail drainage for pleural effusion
Bronchoscope

Tazocin D3

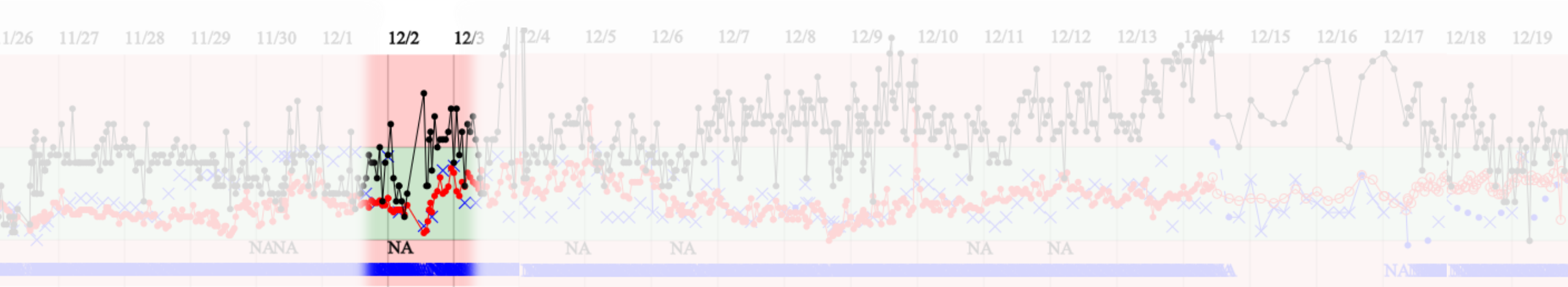
Treatment Course



ORIF for pelvic fracture
(Post-traumatic D10)

Tazocin D4

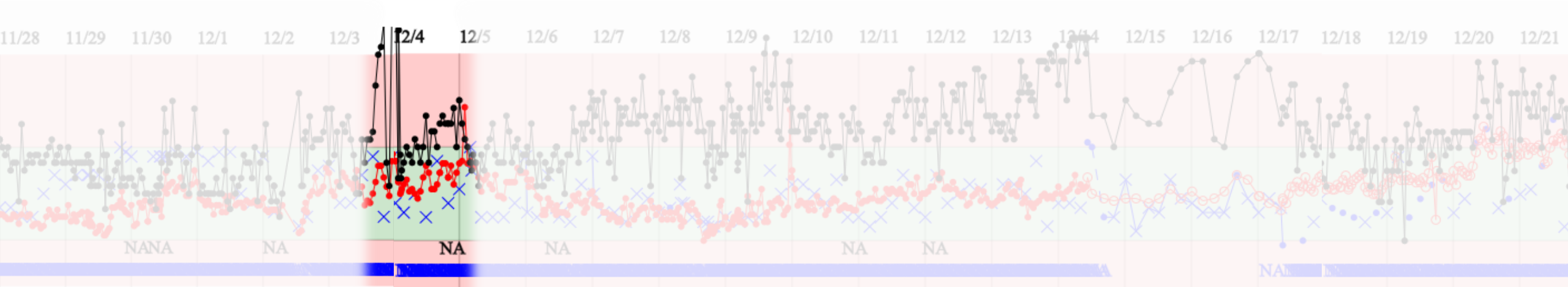
Treatment Course



ORIF for pelvic fracture
(Post-traumatic D10)



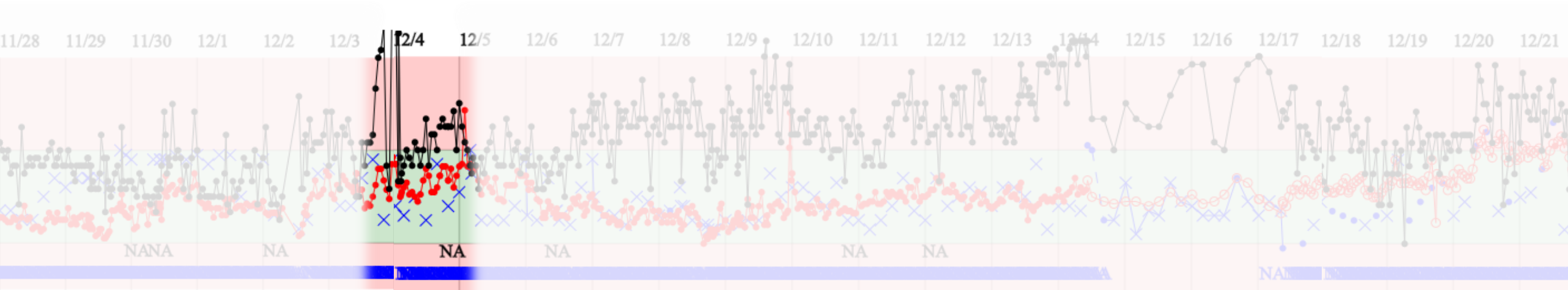
Treatment Course



Follow up brain CT

Tazocin D6

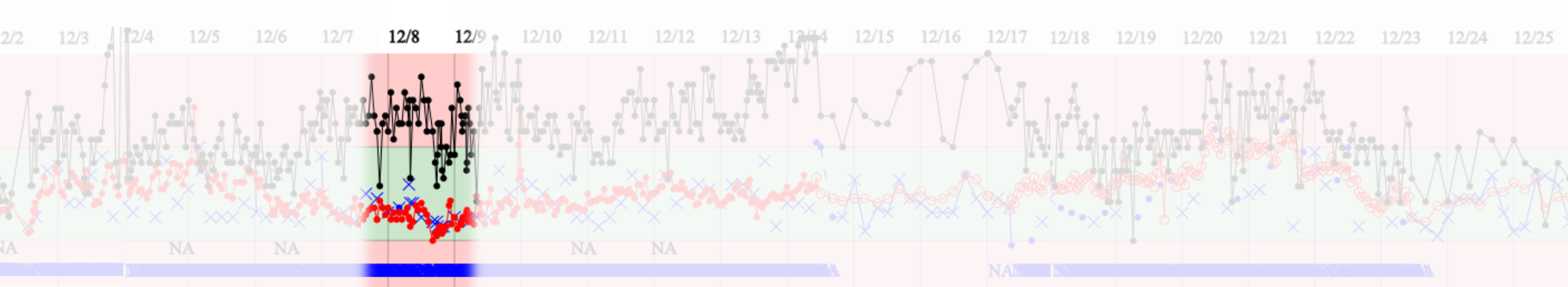
Treatment Course



Follow up brain CT



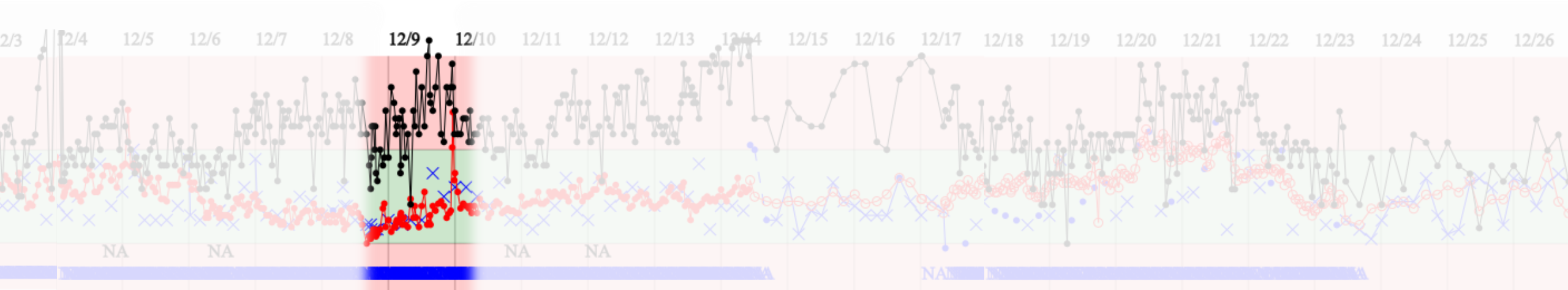
Treatment Course



Debridement for pelvic op wound

Tazocin D10

Treatment Course

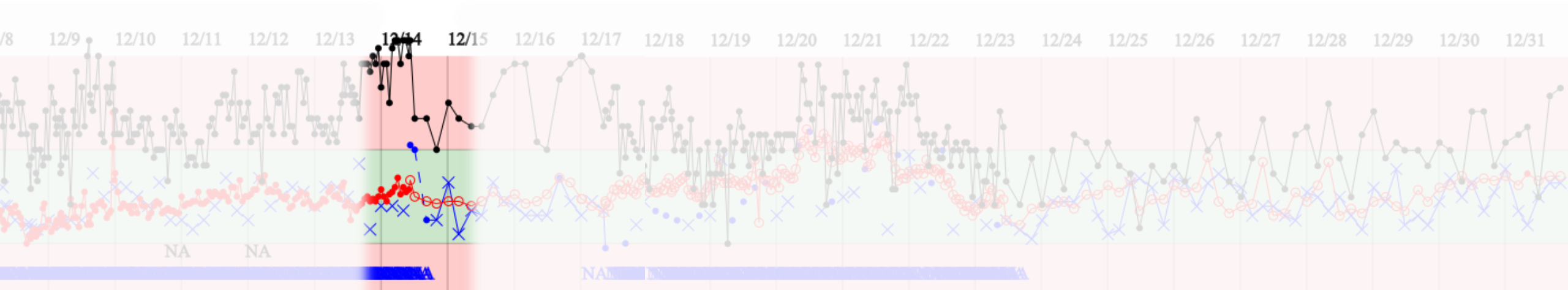


For possible MASA

Tazocin D11

Targocid D1

Treatment Course

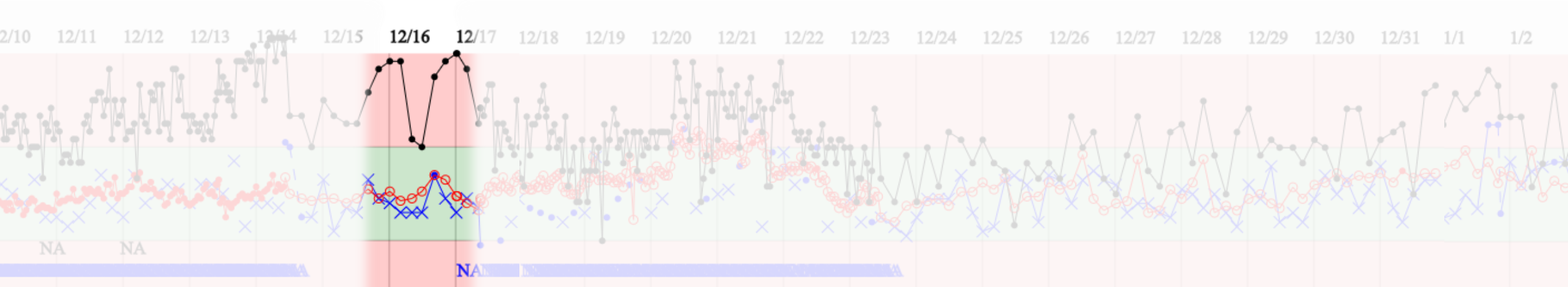


Transfer to RCC

Tazocin D16
Targocid D6

→ Doripenem D1

Treatment Course

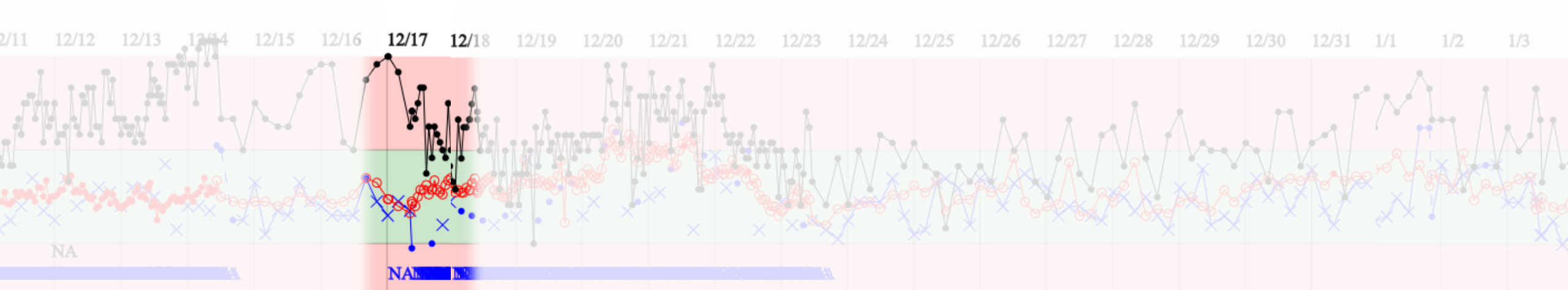


Urine culture: CRKP

Doripenem D3

+ Tygacil D1

Treatment Course



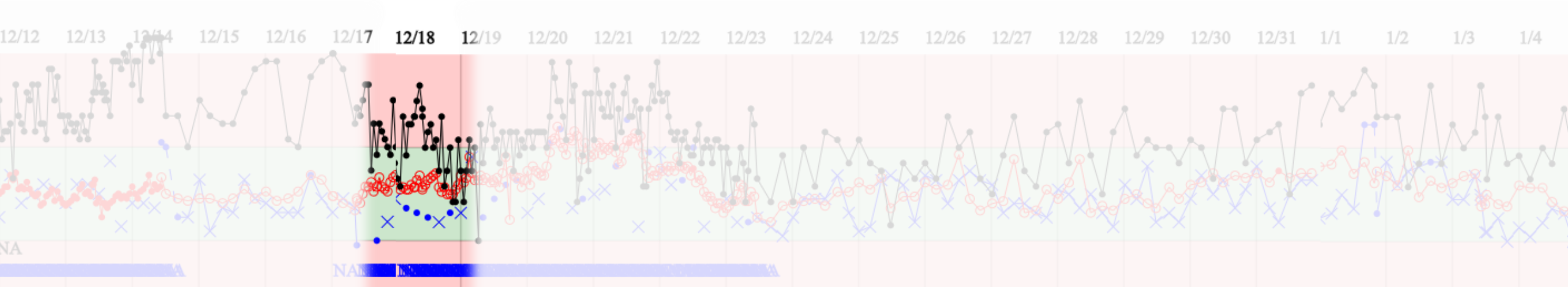
Urosepsis
Acute kidney injury
Hyperkalemia
→ Back to SICU for CCRT

Doripenem D4
Tygacil D2

→ Zavicefta D1
ZYVIX D1

Sputum culture: CRKP
Poor digestion → N/D placement

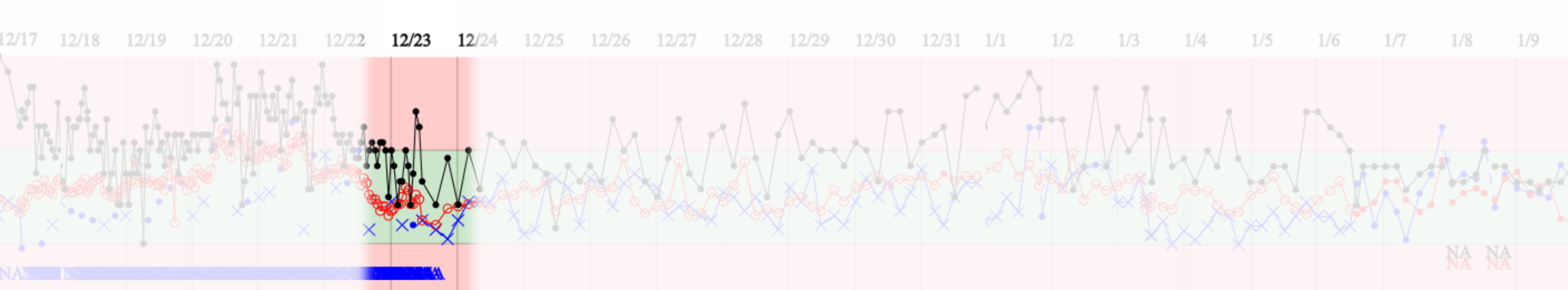
Treatment Course



Abdominal wound discharge
→Open wet dressing

Zavicefta D2
ZYVIX D2

Treatment Course



CRP: 26.36 → 8.27

Abdominal ECHO:

No abnormal finding

To RCC

Sputum culture:

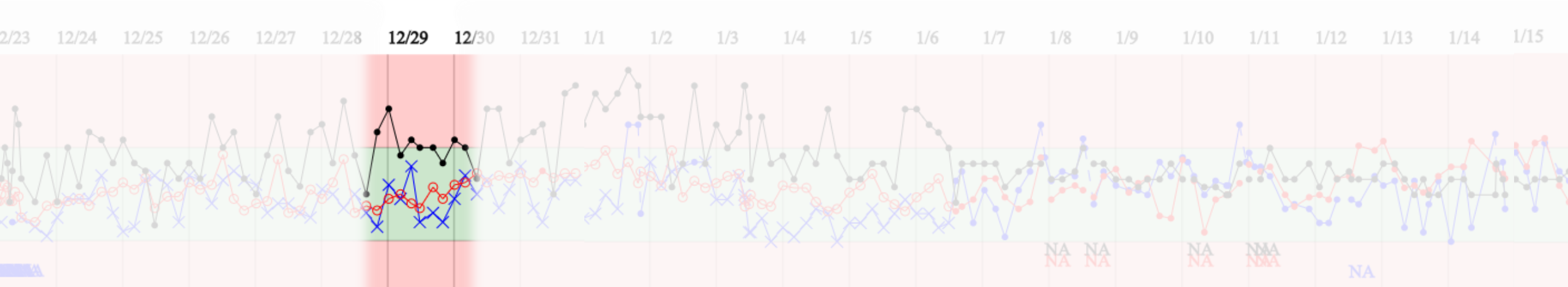
Stenotrophomonas maltophilia

Zavicefta D7

ZYVIX D7

→ Cravit D1

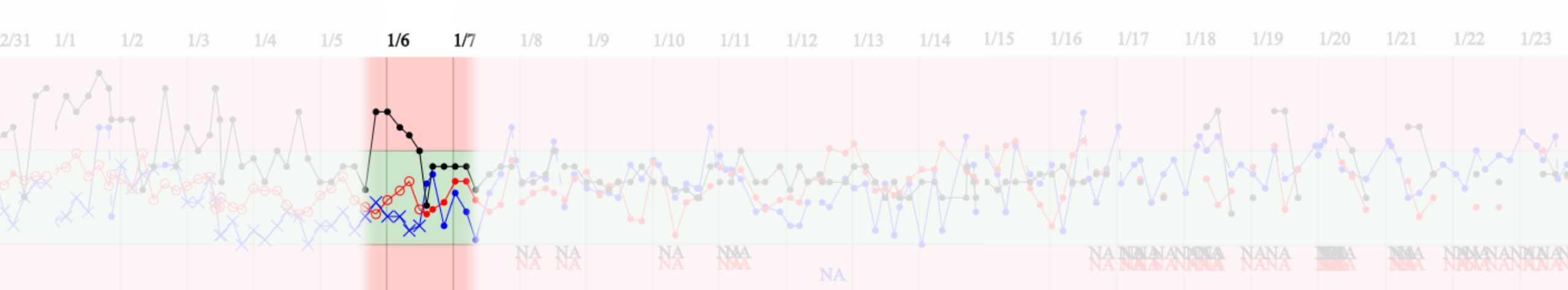
Treatment Course



Thoracocentesis
Extubation

Zavicefta D13
Cravit D7

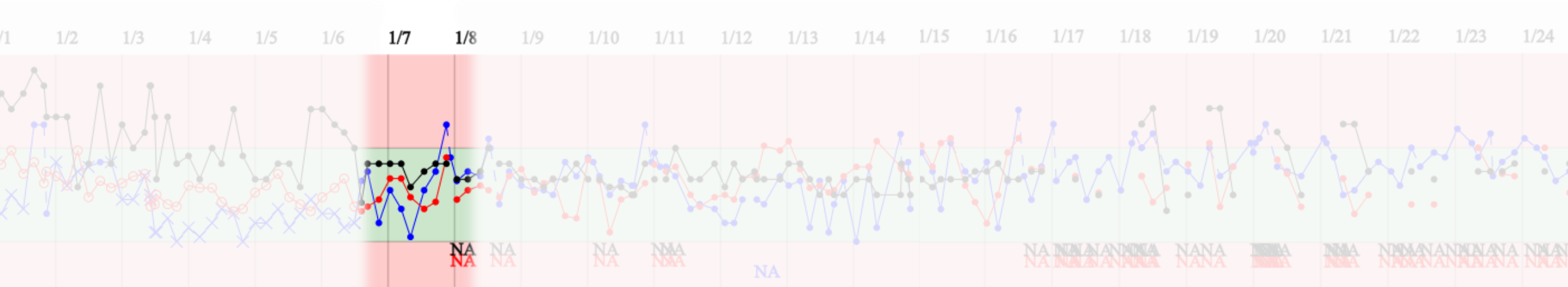
Treatment Course



To 6C Ward

No antibiotic

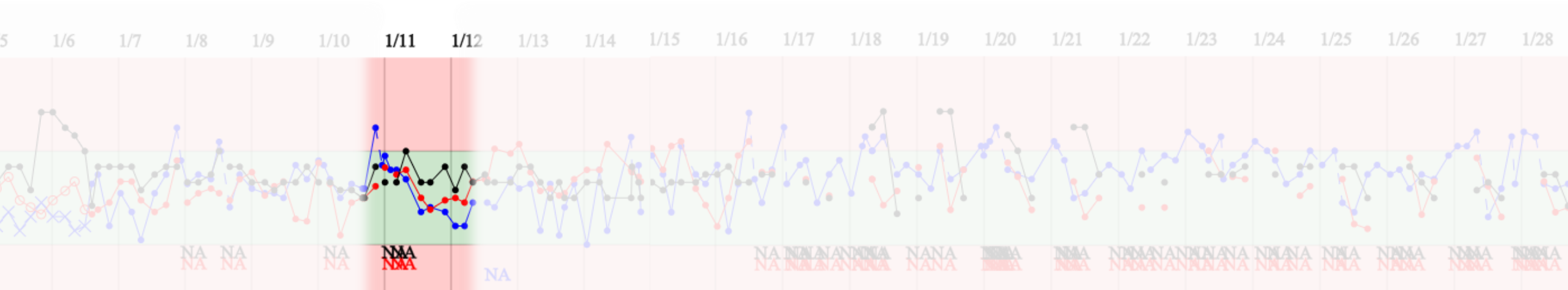
Treatment Course



Fever workup

Tazocin D1

Treatment Course



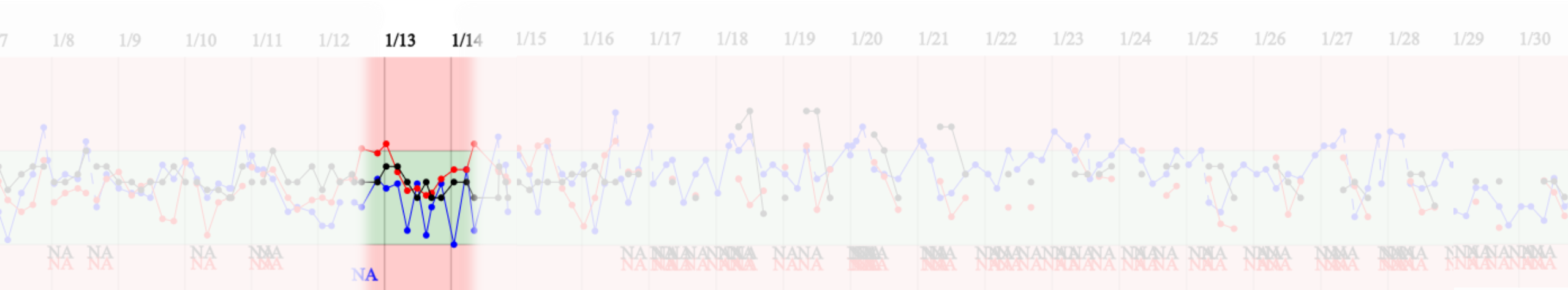
Wound culture: Enterococcus

Urine culture: CRKP

Tazocin D5

→ Unasyn D1
Amikacin D1

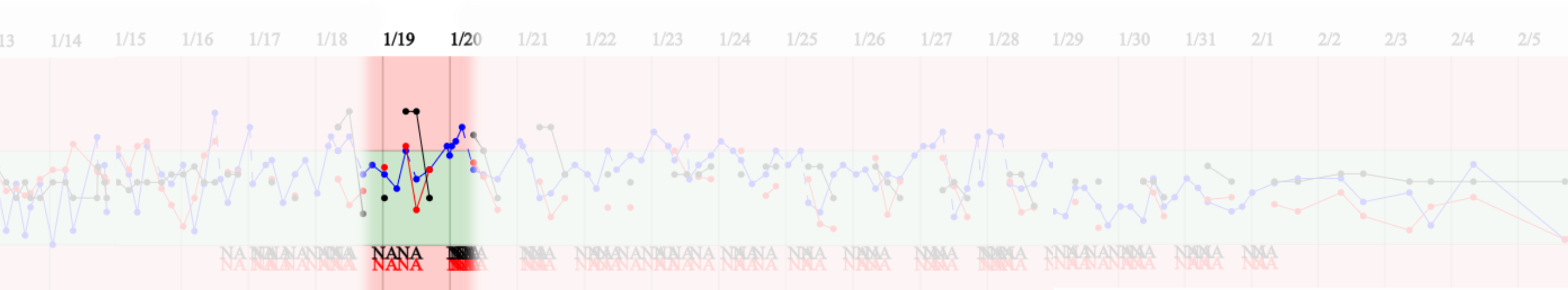
Treatment Course



To 2B Ward

Unasyn D3
Amikacin D3

Treatment Course



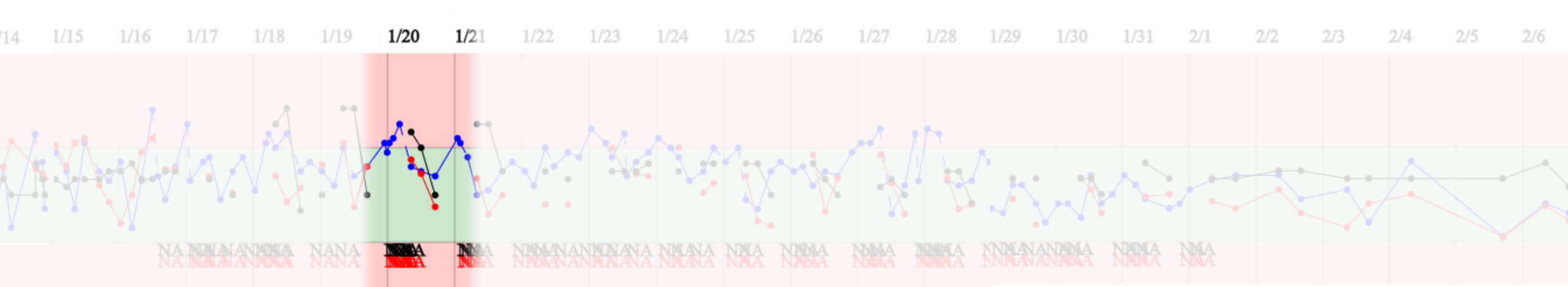
Wound culture: CRAB

Urine culture: CRKP

Unasyn D19

→ Zavicefta D1
Tygacil D1

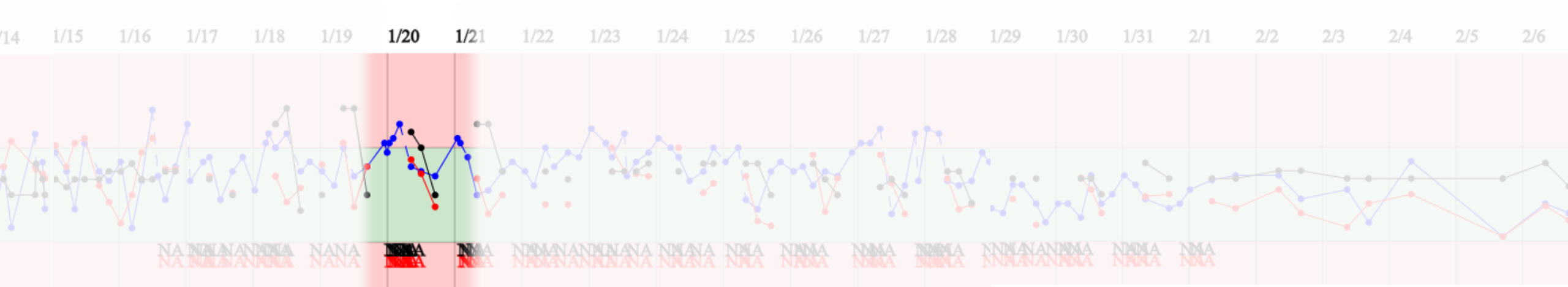
Treatment Course



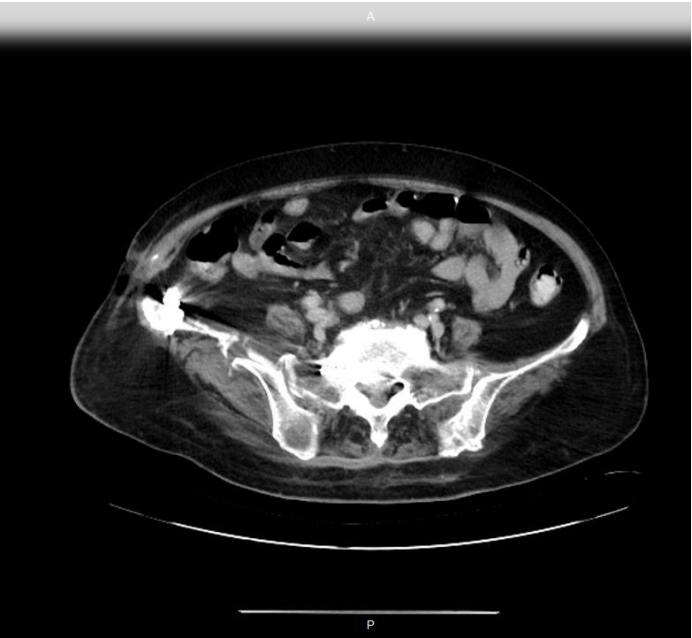
CT

Zavicefta D2
Tygacil D2

Treatment Course

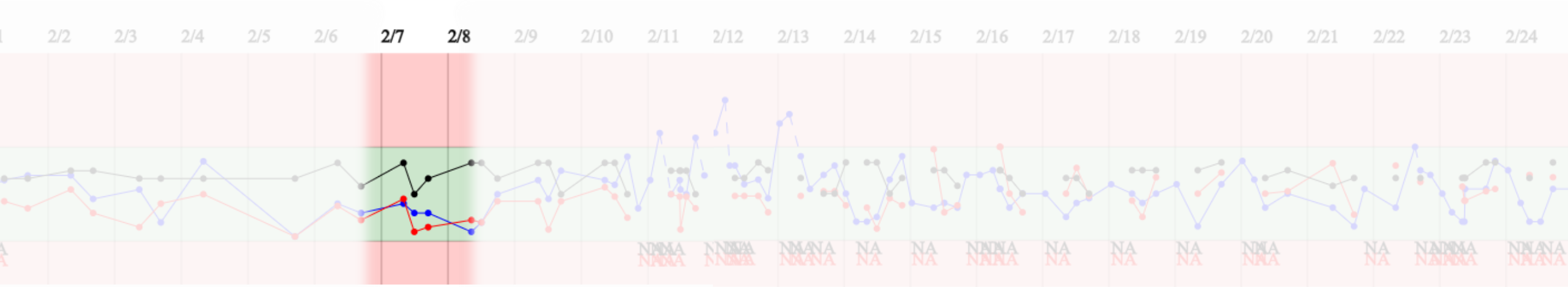


CT



Zavicefta D2
Tygacil D2

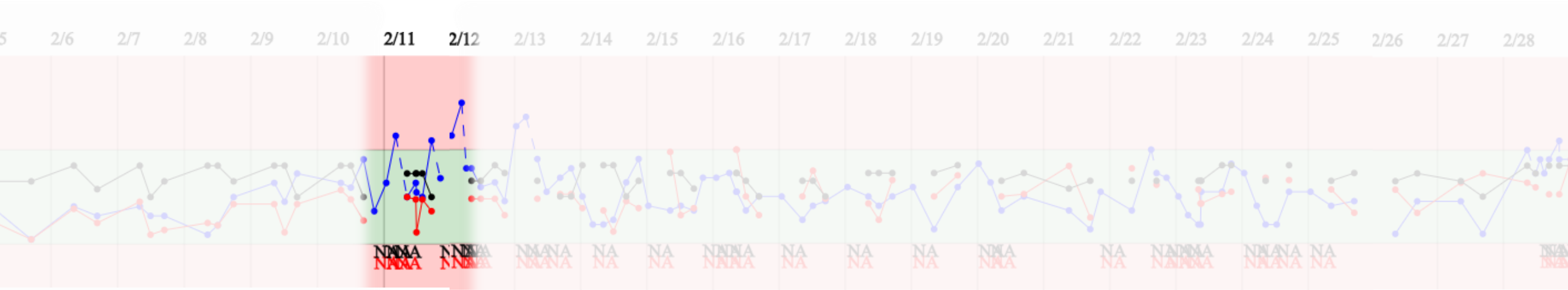
Treatment Course



Diuretic associated dehydration
→ Hyponatremia (Na: 169)

Tygacil D20

Treatment Course



CT

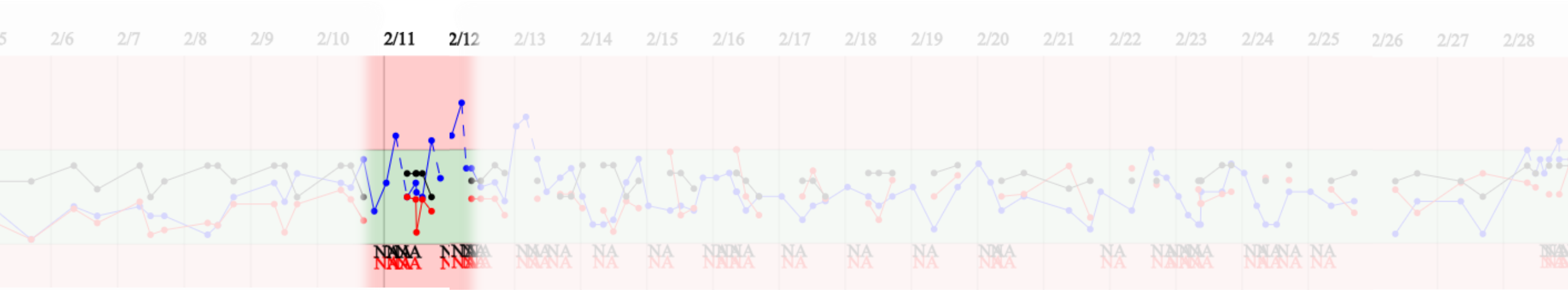
Acute cholecystitis

T-Bil	2.40
D-Bil	1.82
AST	1242
ALT	649
ALP	871
r-GT	345

Tygacil D24

→ Brosym D1

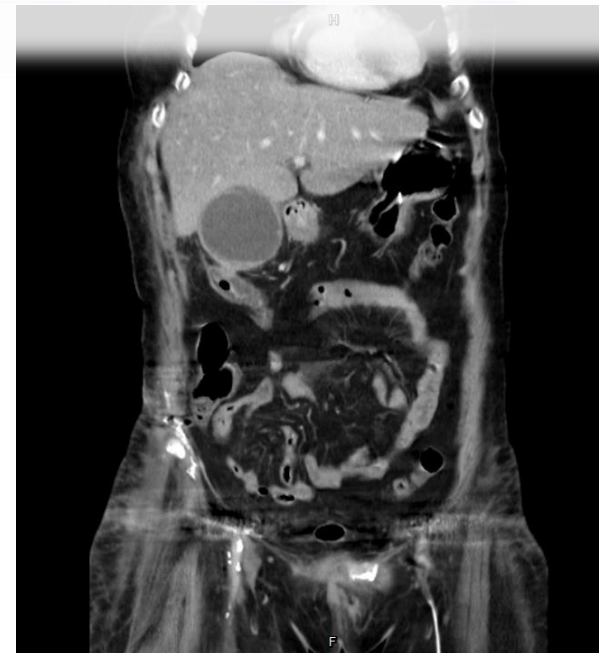
Treatment Course



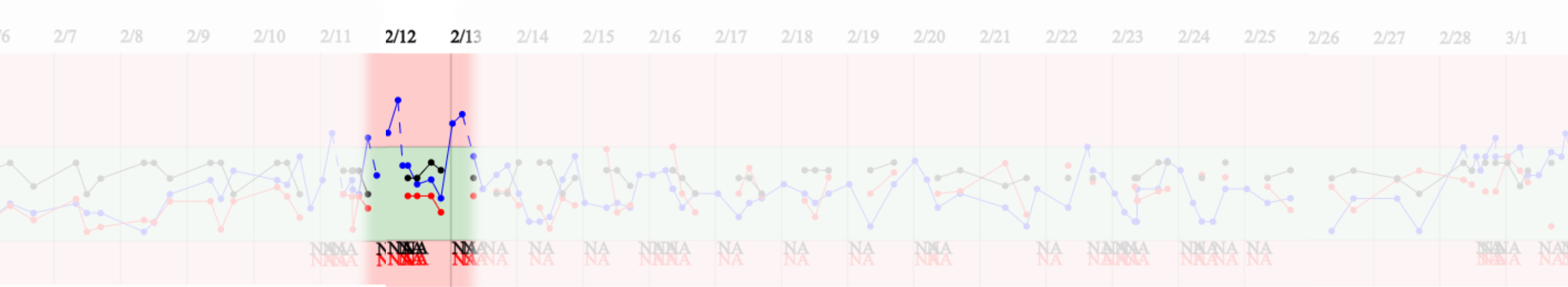
CT

Acute cholecystitis

T-Bil	2.40
D-Bil	1.82
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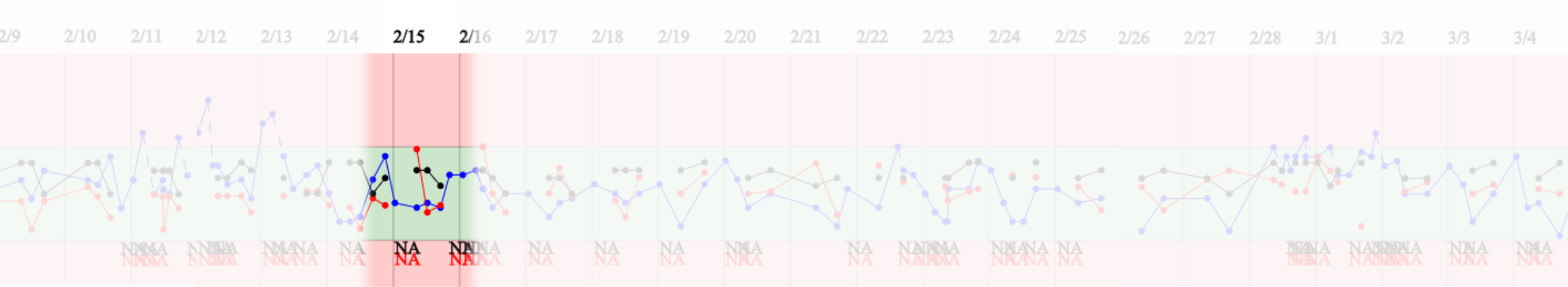
Treatment Course



PTGBD

Brosym D2

Treatment Course

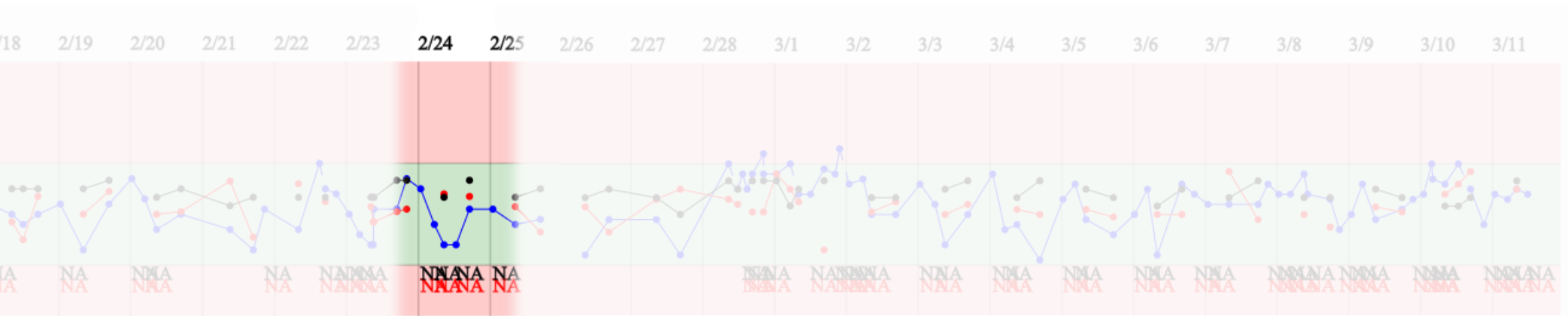


Bile culture: CRKP

Brosym D5

→Zevicfta D1

Treatment Course



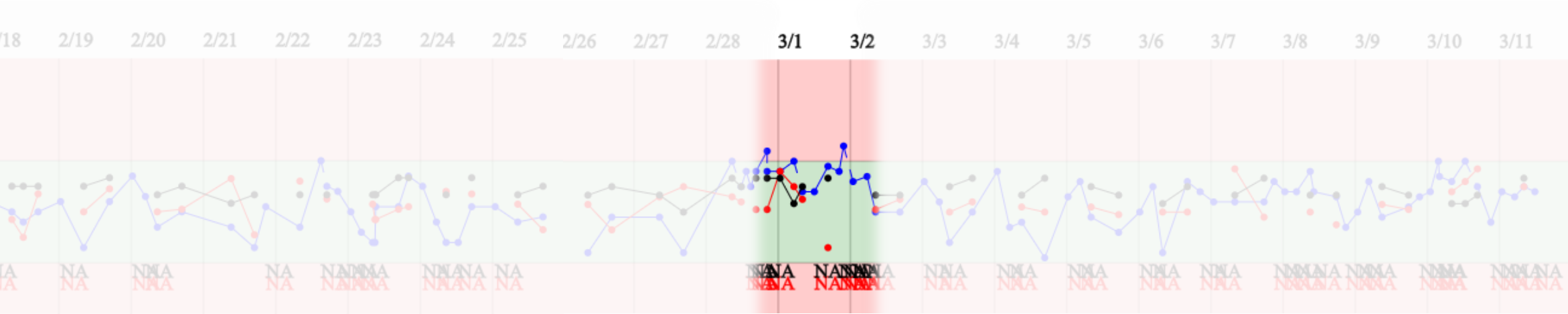
Blood culture: candidemia

Zevicfta D10

Remove PTGBD

+ Difflucan D1

Treatment Course

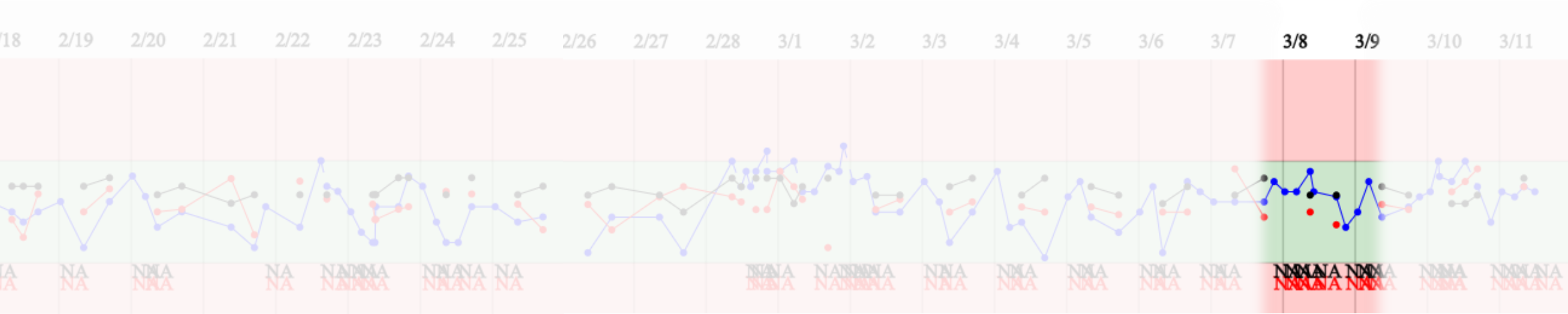


Recheck blood culture

Zevicfta D14/DC

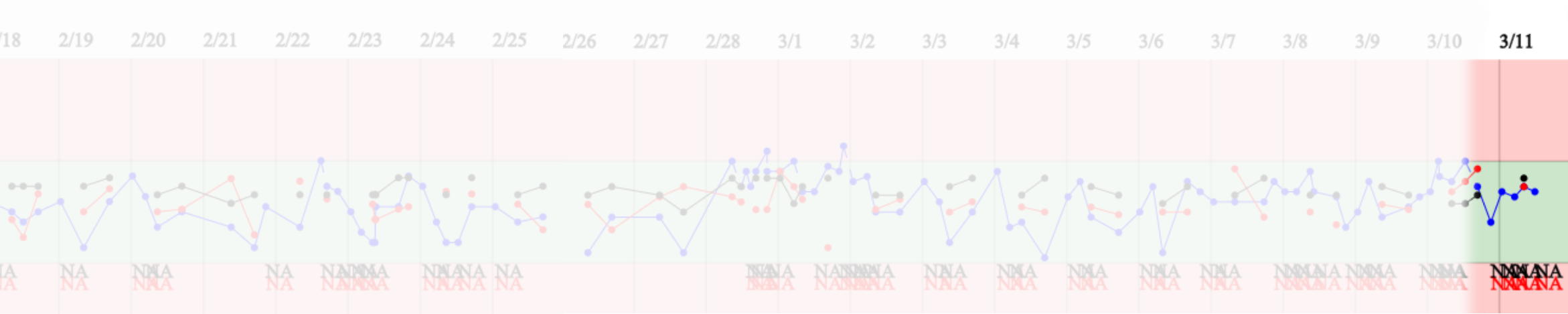
+ Difflucan D6

Treatment Course



Difflican D13/DC

Treatment Course



Nutrition status:
feeding V.S diarrhea

Wound dressing care

Rehabilitation

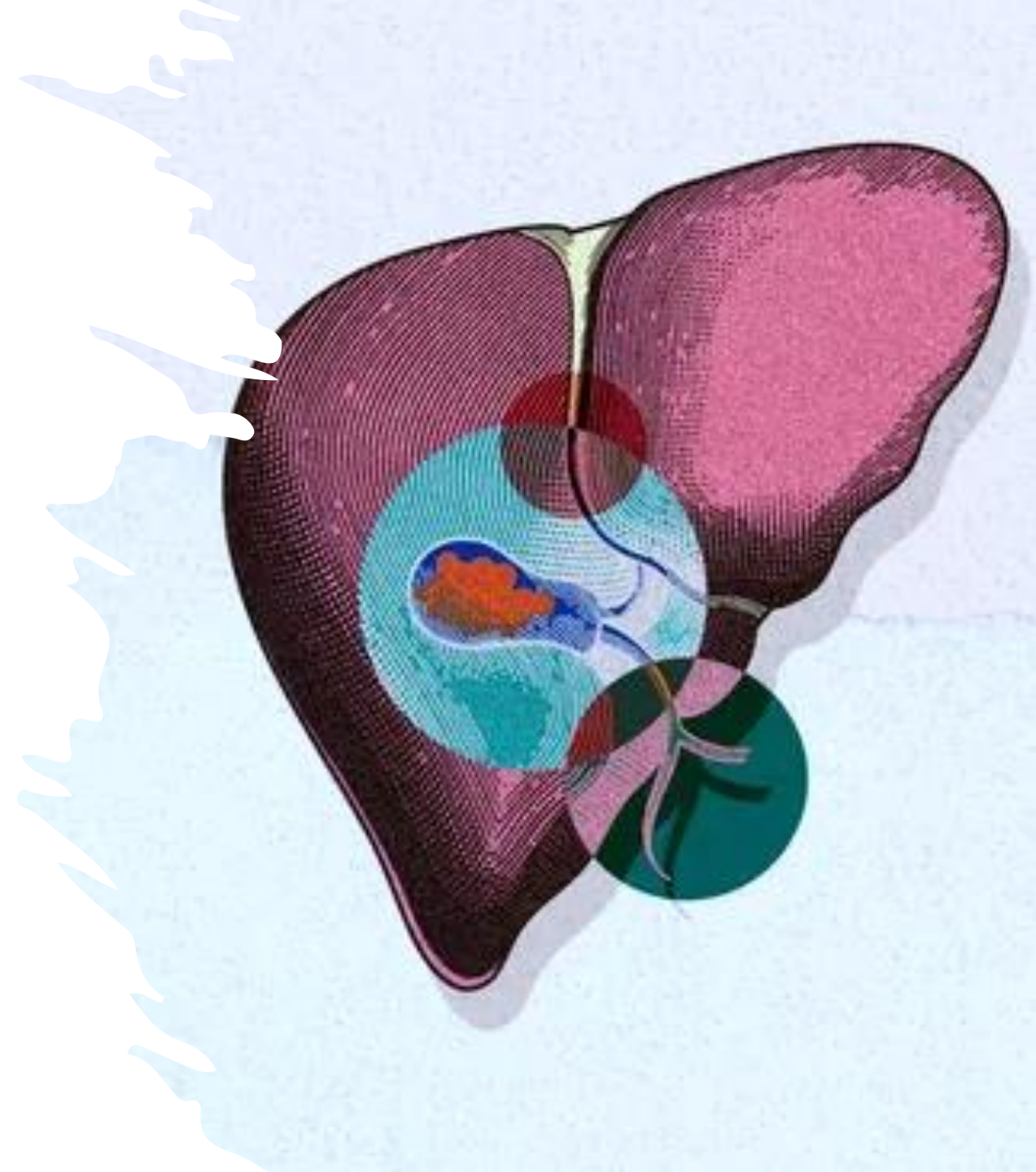


Discussion

Acute “Stress-induced” Cholecystitis

Introduction

- Acute necroinflammatory disease
- Acute **acalculous** cholecystic (AAC)
V.S. calculous
- 10%
- High M&M rates
- Critical ill patient
- 1990s



Pathogenesis

- Risk factor
 - Shock
 - Sepsis
 - Positive ventilation
 - Total parenteral nutrition
 - Massive transfusion
 - Narcotic agents
- Twice ISS score

Kelm C, Muhrer KH, Zimmermann T, Padberg W. [Acute stress-induced cholecystitis]. *Langenbecks Arch Chir.* 1991;376:143–146

Kalliafas S, Ziegler DW, Flancbaum L, Choban PS. Acute acalculous cholecystitis: incidence, risk factors, diagnosis, and outcome. *Am Surg.* 1998;64:471–475.

Flancbaum L, Majerus TC, Cox EF. Acute posttraumatic acalculous cholecystitis. *Am J Surg.* 1985;150:252–256

Pathogenesis

- Ischemia
 - Local inflammatory response
 - Necrosis of the gallbladder tissue
 - Secondary infection: enteric pathogens
- *Escherichia coli*
Enterococcus faecalis
Klebsiella spp
Pseudomonas spp

Epidemiology

- Not well-defined incidence
- Male preponderance
- Medical severe illness
- 0.5% of cardiac surgery
- 4% of bone marrow transplantation

Clinical Presentation

- Insidious; masked in trauma patient
- Similar to calculous cholecystitis
- Sepsis, shock, and peritonitis
- Laboratory tests
 - Leukocytosis
 - Abnormal liver tests
 - Hyperbilirubinemia
- Complications: Perforation

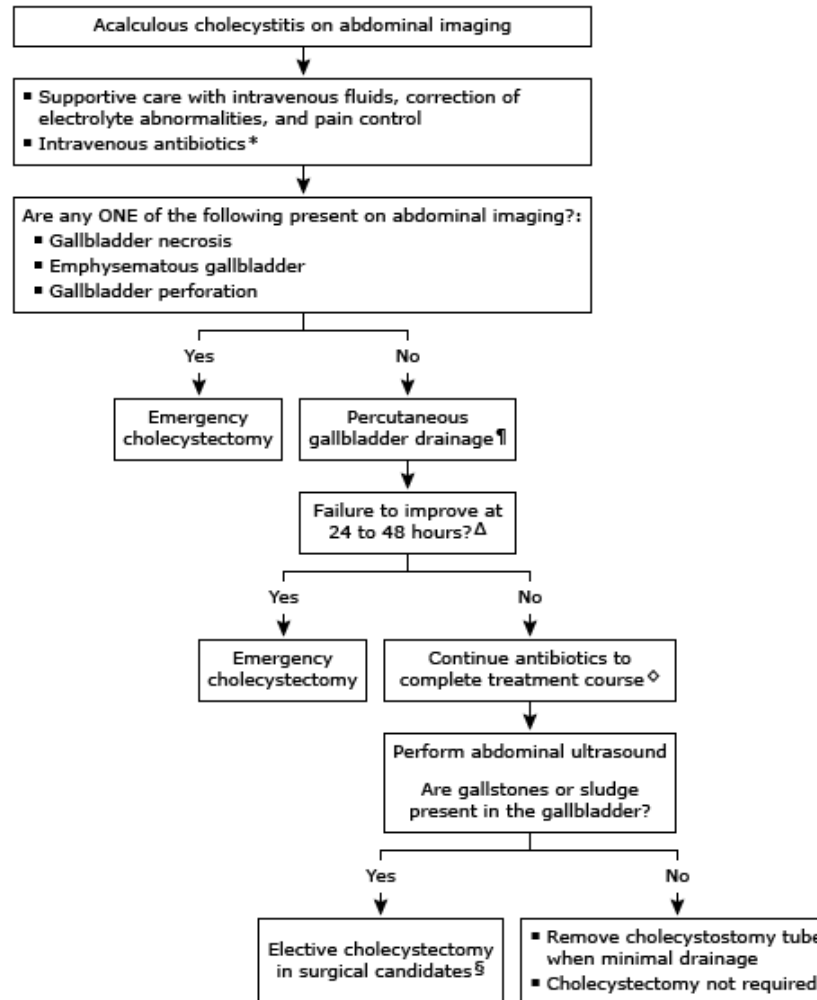
Diagnostic Approach

- Lab examination
- Ultrasonography
 - > 3.5- mm thick wall
 - Sonographic Murphy's sign
 - Hydrops
 - Pericholecystic fluid (halo)/subserosal edema
- Contrast-enhanced abdominal computed tomography (CT)

Molenat F, Boussuges A, Valantin V, Sainty JM. Gallbladder abnormalities in medical ICU patients: an ultrasonographic study. *Intensive Care Med.* 1996;22:356–358.

Puc MM, Hoang ST, Philip WW, Ross SE. Ultrasound is not a useful screening tool for acute acalculous cholecystitis in critically ill trauma patients. *Am Surg.* 2002;68:65–69.

Management



Acalculous cholecystitis on abdominal imaging



- Supportive care with intravenous fluids, correction of electrolyte abnormalities, and pain control
- Intravenous antibiotics*



Are any ONE of the following present on abdominal imaging?:

- Gallbladder necrosis
- Emphysematous gallbladder
- Gallbladder perforation



Acalculous cholecystitis on abdominal imaging

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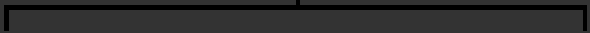
Yes

Emergency cholecystectomy

No

Percutaneous gallbladder drainage[†]

Failure to improve at 24 to 48 hours?^Δ

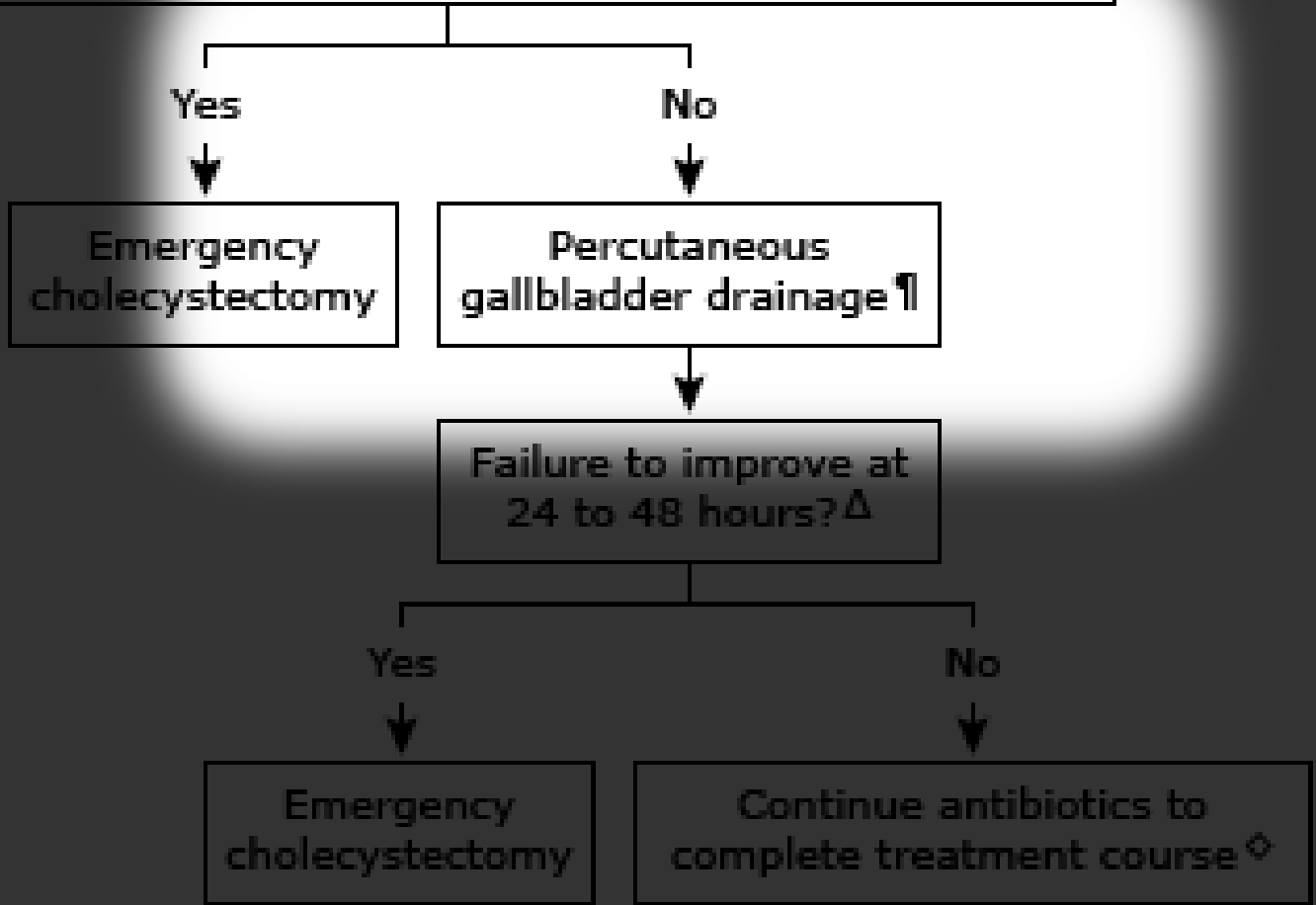


electrolyte abnormalities, and pain control

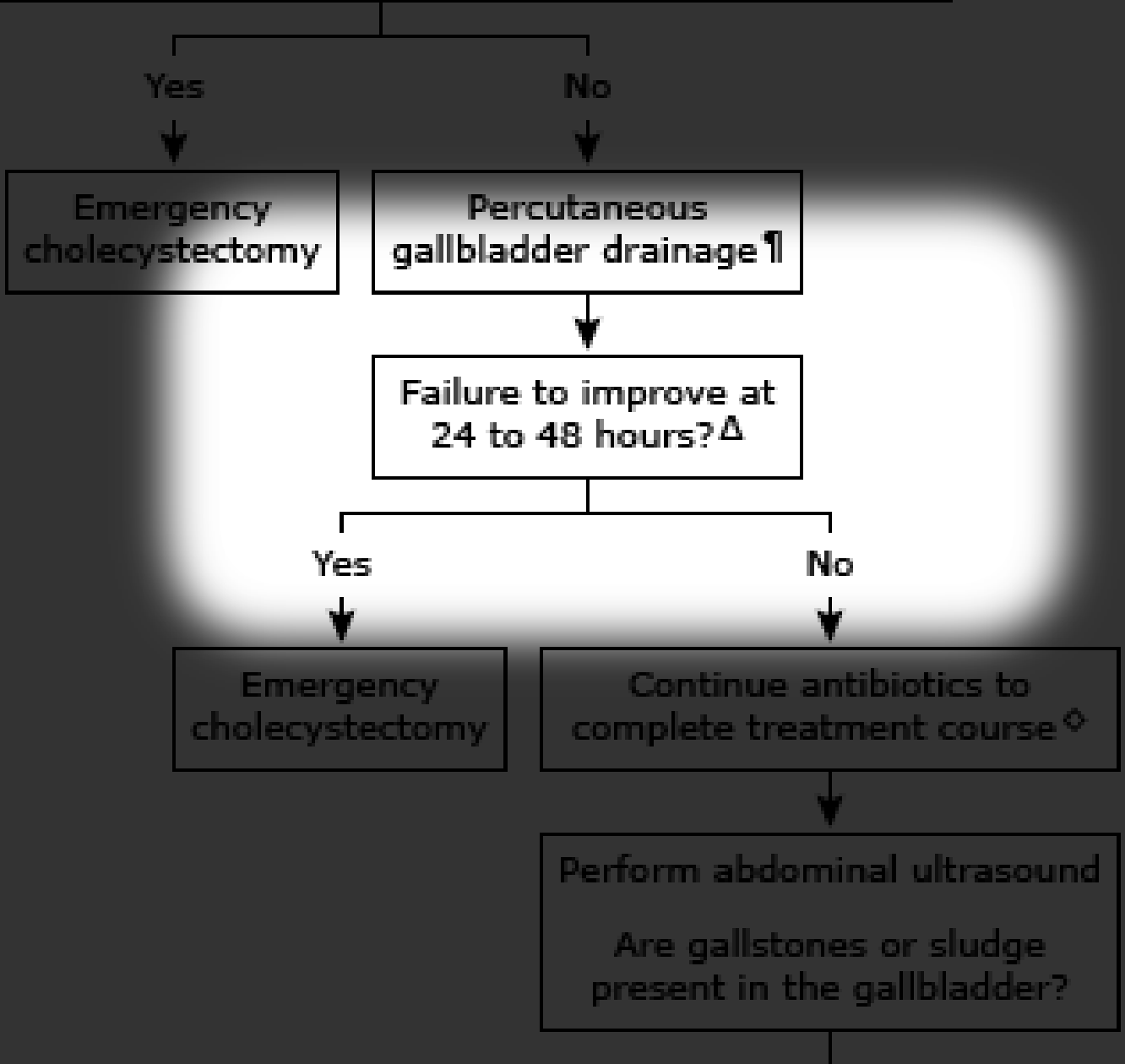
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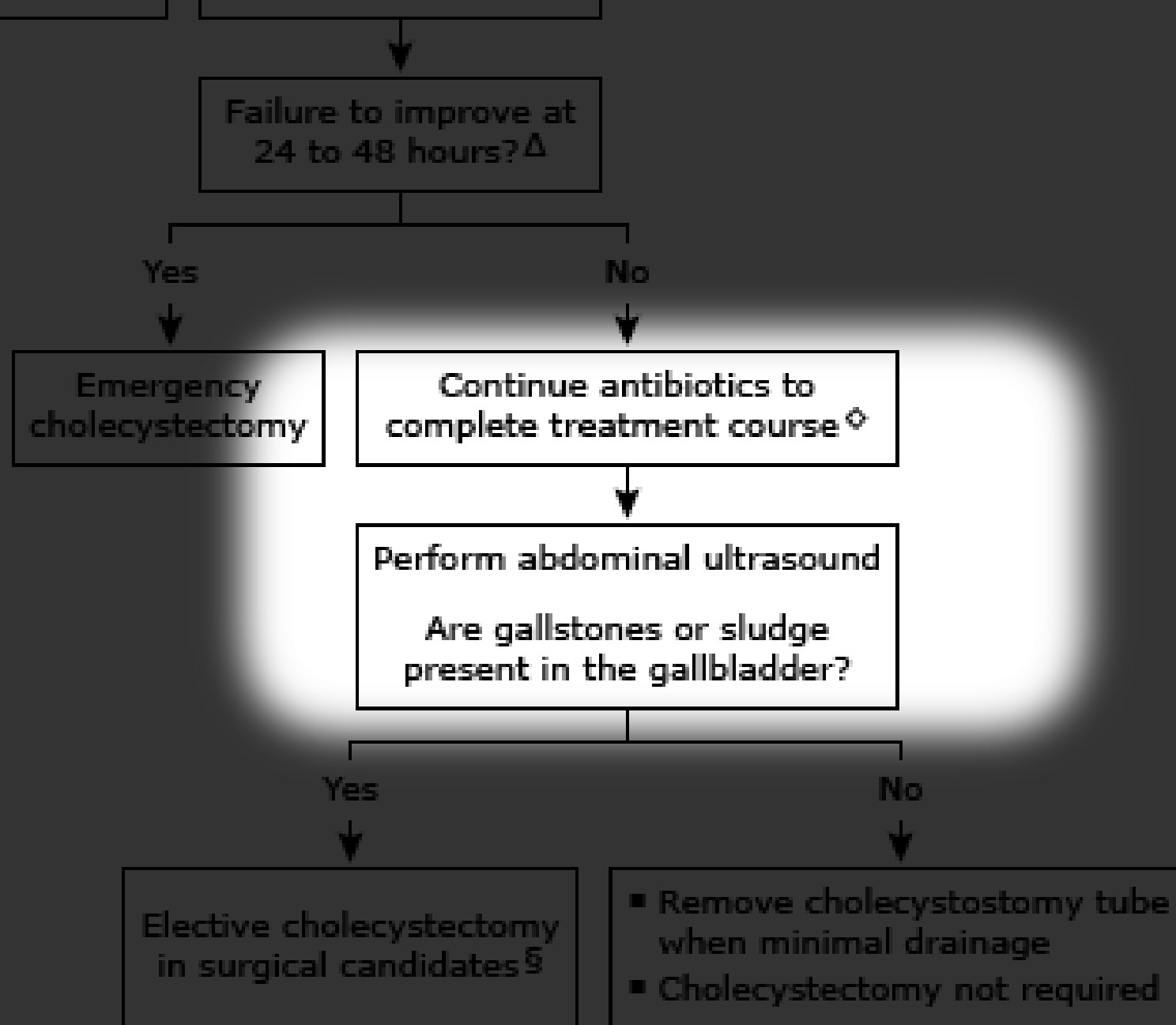
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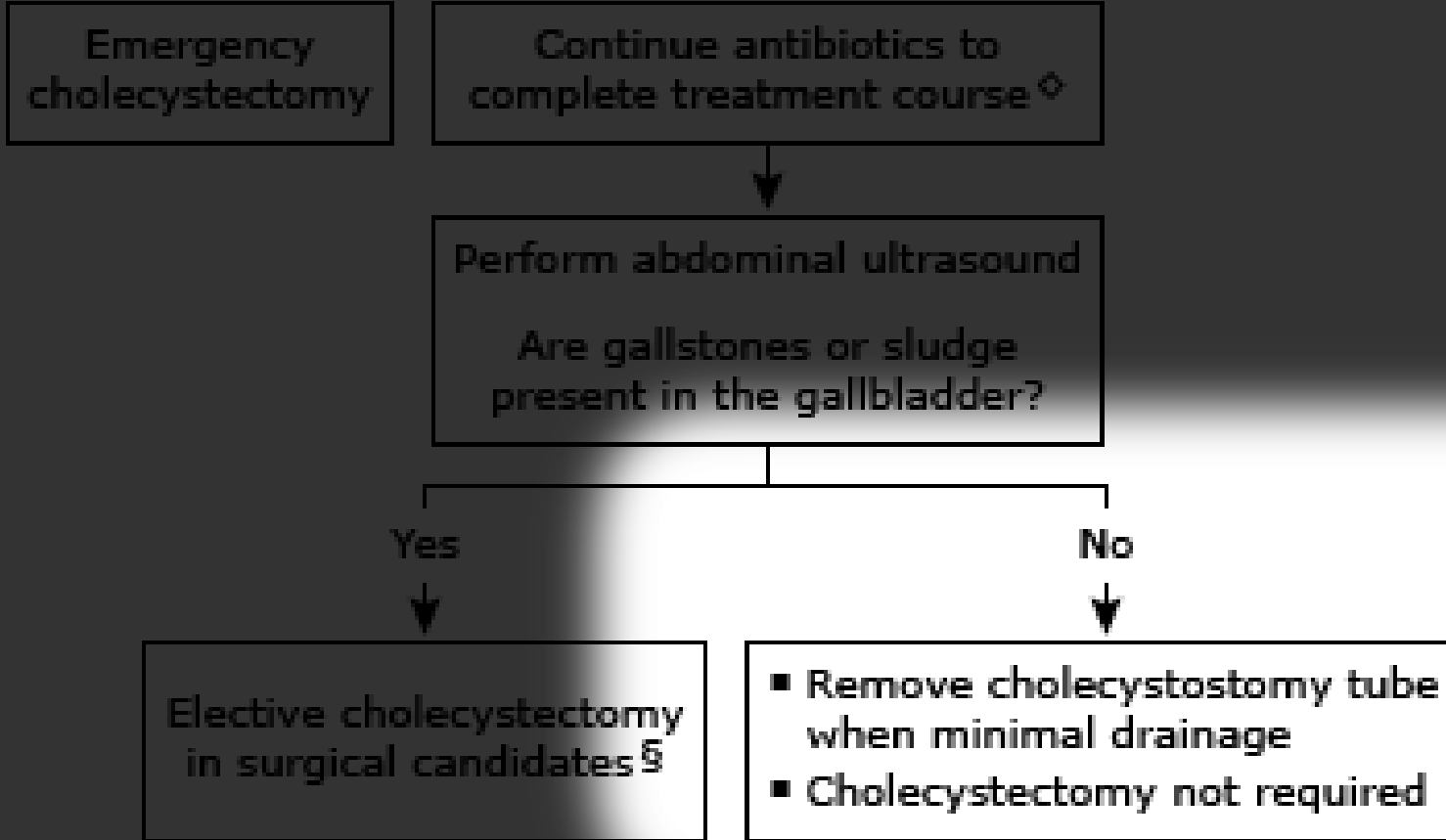
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- Gallbladder necrosis
- Emphysematous gallbladder
- Gallbladder perforation







Prognosis

- High mortality rate
- Coexistent conditions
- Rapidity of diagnosis



Back To The Patient

- Much earlier ASC detection?



Take Home Message

- Acute necro-inflammatory disease
- More critical, more possible!
- Awareness of clinical status