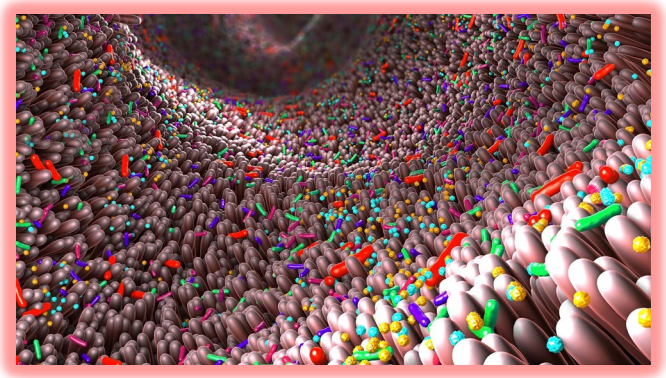
The challenge of drug-resistant infections in advanced chronic liver disease (ACLD): a case presentation



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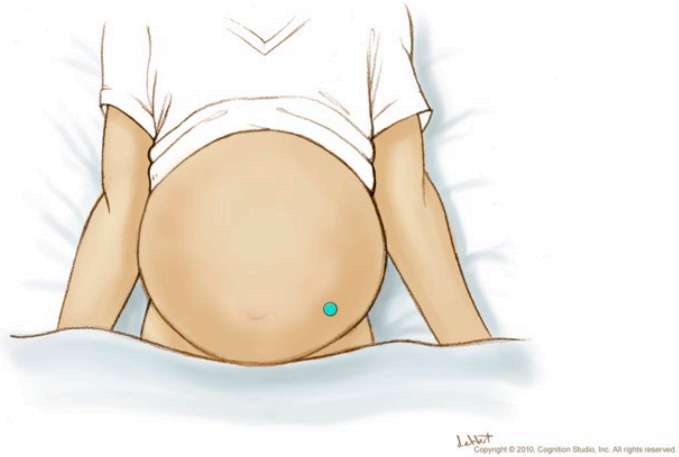
Background

- 41 year old male
- Index presentation in Romania with decompensated liver disease (ascites) in 2020
- Alcohol excess – abstinent from January 2021
- 4 local hospital admissions in 2021
- March 2021: Variceal bleed with banding and propranolol initiated
- Independent of ADLs
- Lorry driver
- Medications: PPI, Propanolol, Spironolactone



Initial admission – Sept 2021

- Admitted with abdominal pain and confusion
- O/E: Grade 2 HE, hepatic hydrothorax, minimal-moderate ascites, sarcopenic, oxygen requirement

Bilirubin	170 (conj 69)	Sodium	137
Albumin	30	Creatinine	141
INR	2.5	Hb	62
Platelet	98		

UKELD 62
Child Pugh C12
MELD 29

- Worsening renal function (creatinine 302)– managed as HRS with Terlipressin and HAS
- Hypotensive and anuric – admitted to ITU.

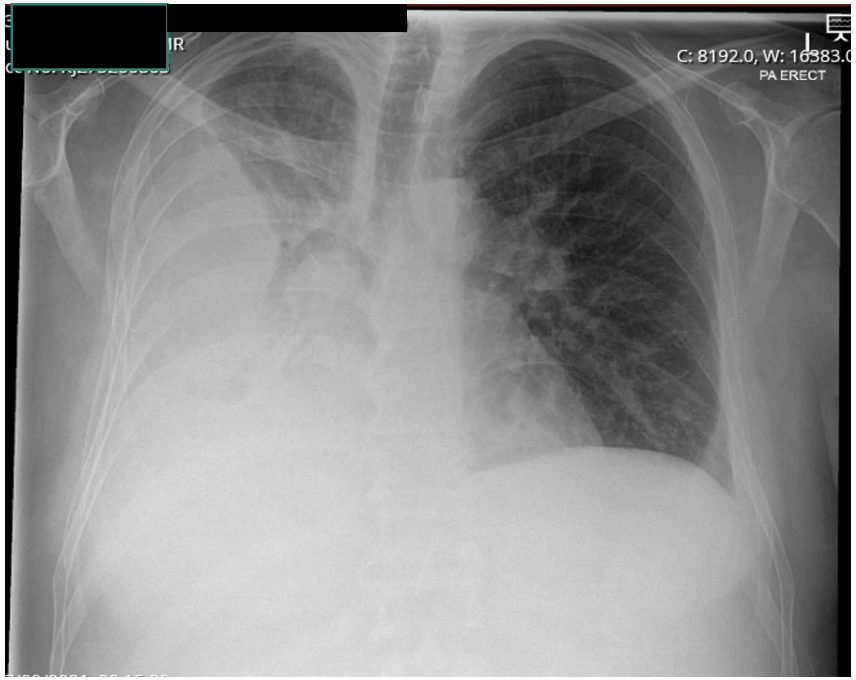
First ITU admission – infection driven

- Ascitic tap, pleural M,C,S: negative
- Blood cultures: E.coli – **fully sensitive**
- Tazocin – 10 day course
- Organ support: vasopressors and filtration
- Days on ITU: 4 days

Another infection…. same culprit

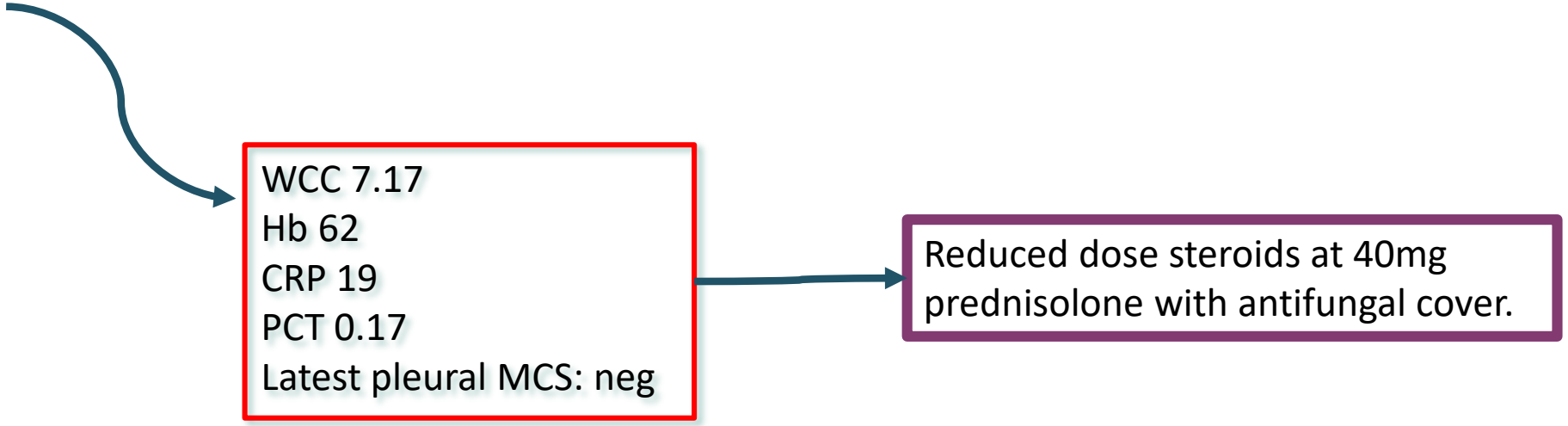
- Increased oxygen requirement
- Pleural USS: loculated effusion
- Pleural fluid pH: 6.8 > Empyema
- M,C & S: E.coli – **fully sensitive**
- Tazocin > ciprofloxacin/metronidazole
- 6 weeks of total antimicrobial therapy and drain in situ with regular flushing

WCC 7.8
Afebrile
CRP 18
Procalcitonin 0.51



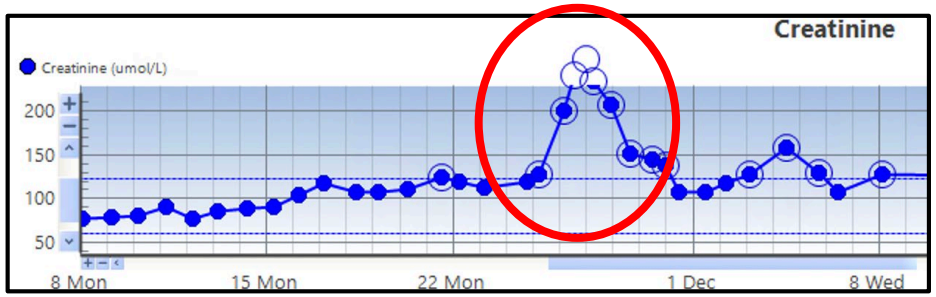
Further conundrums...

- Significant haemolysis (unconjugated bilirubinaemia, low haptoglobin, DAT+)
- Requiring RBC transfusions almost daily without increment in Hb
- OGD: Grade 1 varices, previous banding ulcers. No blood in GI tract.
- Bone marrow biopsy: Pure red cell aplasia
- Treatment options: high dose steroids and ideally, long-term ciclosporin.



A period of stability

- Consideration of timing for transplant assessment
- Treatment of red cell aplasia - multiple cross-specialty discussions
- Ciclosporin initiated following completion of antibiotics for empyema + chest drain removal.
- Prednisolone to be weaned over a period of time
- Discharged at beginning of December.

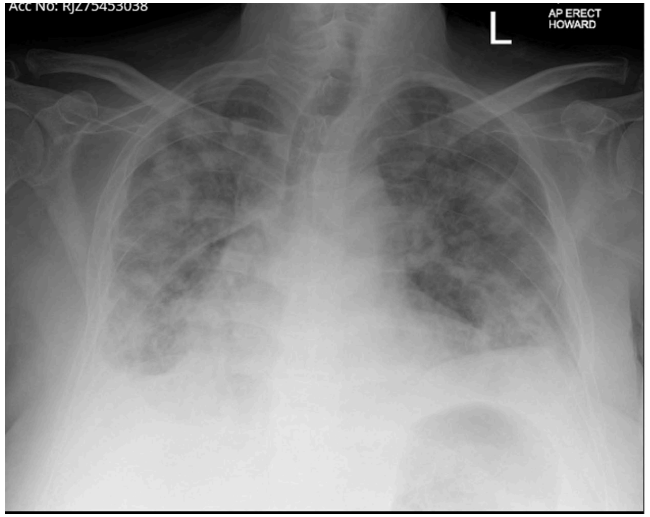


Antimicrobial use

- Tazocin: 2 courses
- Ciprofloxacin and Metronidazole: 5 week course
- Nitrofurantoin (UTI)
- Anidulafungin

3 weeks later…

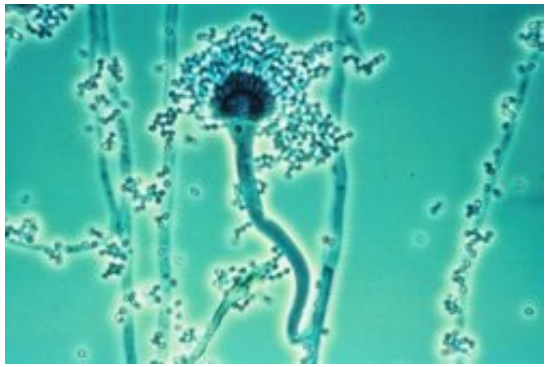
- Admitted with lethargy and tremor, worsening sarcopenia.
- COVID positive on swab – asymptomatic
- Hypotension, increasing O2 requirement
- Tazocin + anidulafungin, ciclosporin held.
- ITU admission for worsening respiratory failure on 11/1/22
- Blood cultures: E.coli **resistant to co-amoxiclav, tazocin, ciprofloxacin, amikacin, gentamicin**.
- No ascites/ pleural fluid amenable to tap



Bilirubin 82	→	123
Creatinine 118	→	135
Na 130	→	131
INR 1.4	→	1.4
Plt 43	→	27
Albumin 22	→	25

2nd ITU admission in 3 months

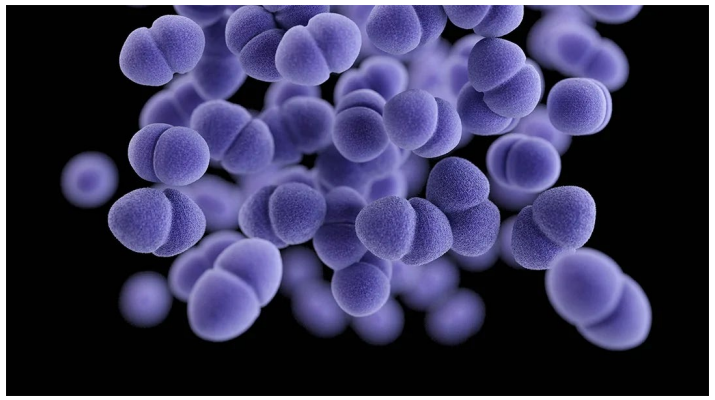
- I+V for respiratory failure, filtration for anuric AKI, vasopressors for circulatory failure
- Rising BDG >> ambisome
- Bronchial washings: Candida parapsilosis, Aspergillus Fumigatus
- Course of dexamethasone for COVID-19.
- Ward step down on 1/2/22
- ITU stay: 22 days



Recurrent MDR infections

- 1 week later, worsening HE with fever
- Blood cultures: **E.coli – Multidrug resistant**
- Urine M,C,S: **E.coli – Multidrug resistant**
- Restarted on meropenem – 7 day course
- Continues on ambisome for fungal infection
- Weaning of prednisolone

- 3 days following antibiotic termination
- Fever and tachycardia
- Peripheral + PICC cultures: **VRE**
- No ascites amenable to tap at the time
- Initially started **on linezolid, then daptomycin following sensitivities 48 hours later.**

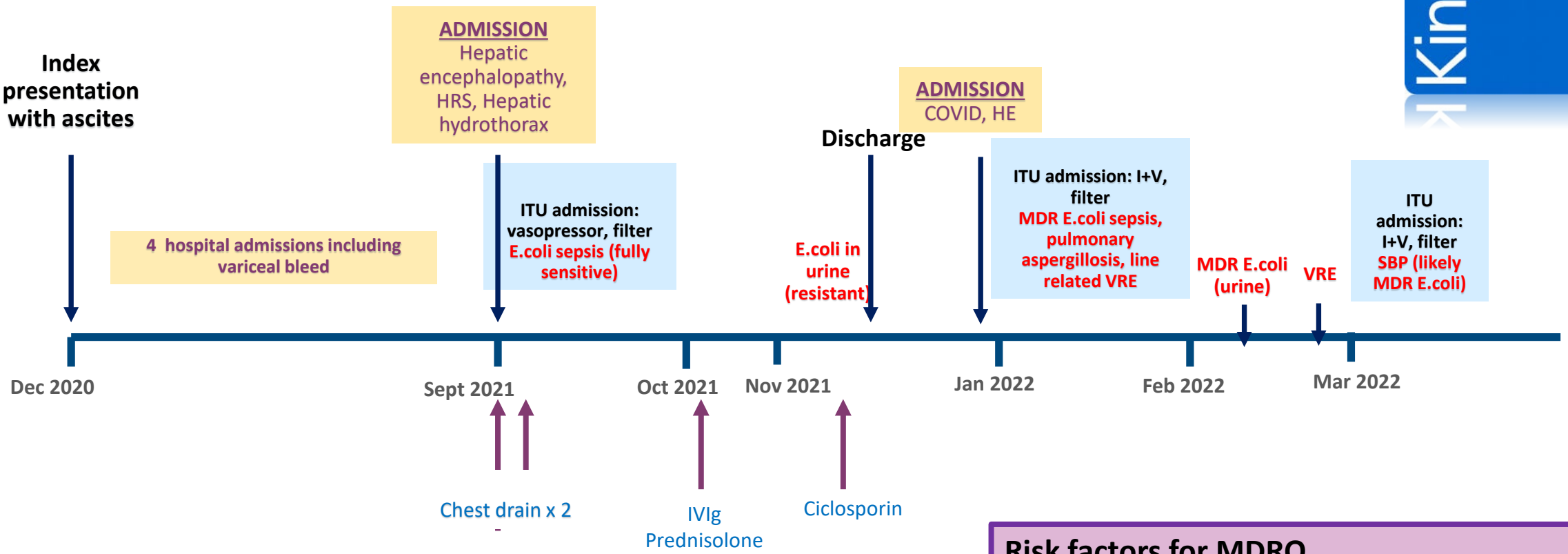


Presumed infection resolution

- Daptomycin stopped
- 10 days following antibiotic termination, HE and AKI
- Prompt start of antibiotics: Meropenem
- >>>> 3rd ITU admission

Multiorgan failure

- Persistent fungal infection despite ambisome > isavuconazole
- STEMI – managed conservatively
- Not suitable for transplantation under ACLF criteria due to recent cardiac event, active bacterial and fungal infection
- Failure to improve despite treatment of infection with persistent multi-organ failure
- Died on 11/3/22



Risk factors for MDRO

- Recurrent Abx use (especially b-lactams)
- Invasive procedures
- Recurrent hospital and ICU admissions
- Immunosuppression
- Steroid-induced diabetes
- ACLD/ACLF