

Prolonged SARS-CoV-2 shedding in a person living with advanced HIV and diffuse large B-cell Lymphoma

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Context

- SARS-CoV-2 led to new infection control procedures across the globe
- Effective case identification and isolation has been key to prevent onward transmission
- Isolation periods are based on mean duration to viral clearance
- Prolonged viral shedding has been observed in immune suppressed individuals
- Our patient with advanced HIV and lymphoma tested positive for SARS-CoV-2 up to 164 days

Case

- 28F Black African ethnicity with vertically acquired HIV
- Multiple ARVs regimens due to side effects and difficulty with adherence
- Never achieved viral suppression or immune reconstitution to a CD4 > 200x10⁶ (nadir 10x10⁶)
- No significant past medical, sexual, reproductive or family history
- Does not smoke, drink alcohol or use recreational drugs

Presentation

- 3-week history of diarrhoea, night sweats and weight loss
- Physical examination was normal apart from diffuse tenderness in the epigastrium. No lymphadenopathy
- 10-month unplanned break from ARV (FTC/TAF/DAR/c) with HIV viral load 354,814 copies/ml and CD4 count 30×10^6
- Admitted for further investigation with no yield on initial investigations for infective causes of presentation
- PET-CT showed diffuse colonic and oesophageal uptake with no fat stranding

Progress

- Colonoscopy – visualised small 8-10mm erosion/ulcer in caecum biopsied confirmed EBV-positive diffuse large B-cell lymphoma, non-germinal subtype
- ARVs restarted (TAF/FTC/DTG) – undetectable within 4 weeks
- Completed 5 cycles R-CHOP chemotherapy and one cycle of intrathecal methotrexate
- Metabolic remission on PET-CT after 4 cycles, sustained 3 months later

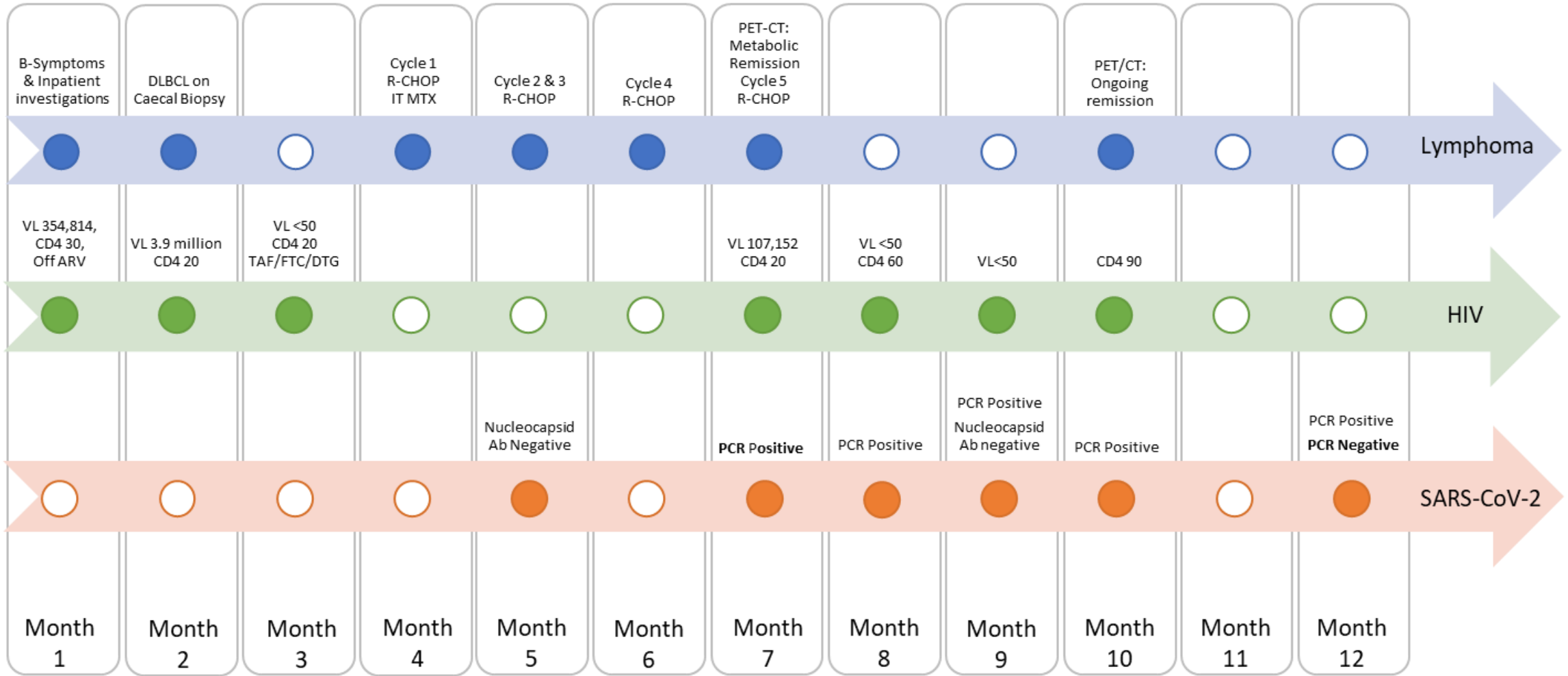
SARS-CoV-2 Tests

- Screening implemented in cancer centres
- First positive test mid-2020
- Remained asymptomatic throughout this period
- Sequencing excluded re-infection
- Isolated while she remained positive

Day	Serology Assay	NAT Assay		Result	Ct Value
-58	Roche ECLIA	-	Nucleocapsid total antibody	Negative	n/a
0	-	Panther Fusion	PCR	Positive	30
15	-	Panther Aptima	TMA	Positive	-
22	-	Panther Aptima	TMA	Positive	-
37	-	Cepheid GeneXpert	PCR	Positive	22
37	-	Panther Fusion	PCR	Positive	32
48	-	Panther Aptima	TMA	Positive	-
64	-	BGI	PCR	Positive	24
64	Roche ECLIA	-	Nucleocapsid total antibody	Negative	n/a
88	-	Panther Aptima	TMA	Positive	-
142	-	Unknown*		Positive	-
164	-	Panther Aptima	TMA	Negative	-

NAT and serum antibody test results conducted during hospital and clinic visits. Days relative to the first positive NAT test taken represented as Day 0.

*Test done via NHS Test and Trace, unknown platform and Ct



Patient's Perspective

- On starting chemotherapy she felt her anxiety decreased and she declined cancer psychology support
- Positive tests and prolonged social isolation led to feeling low in mood and frustrated
- Felt isolated by restricted social contact due to chemotherapy and then positive tests
- Engaged with regular psychology which helped her mood and outlook
- Working again, most recent CD4 720 and undetectable VL until viral blip in late 2021
- Complex journey with HIV, lymphoma and SARS-CoV-2

Discussion

- Prolonged viral shedding reported in advanced HIV [1], solid organ transplant [2] and cancer patients [3]
- Our patient had multiple risk factors for prolonged viral shedding
- There is a need to understand the risks of onward transmission in these cases - viral culture not routine
- Cycle threshold suggested to assess risk for transmission – unclear if applicable to immune suppressed [4]
- ART adherence affected by pandemic changes to service [5] as our patient experienced

Conclusion

- An advanced HIV and lymphoma patient tested positive for SARS-CoV-2 up to 164 days
- Need to evaluate surrogate markers for infectivity in HIV patients with low CD4 counts
- Prolonged isolation impacted her mental and physical health

References

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Thank You for Listening