MISSED OPPORTUNITIES: A CASE REPORT HIGHLIGHTING LENGTHY DELAYS IN HIV DIAGNOSIS

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INTRODUCTION

Since the availability of effective antiretroviral therapy (ART) in the developed world almost 20 ago, many people living with HIV/AIDS enjoy improved & longer-lasting health. In contrast, late HIV diagnosis has detrimental effects on both morbidity and mortality. It also poses a public health concern, with potential transmission risk. Strategies are being implemented to address these issues.

This case reports a 42-year-old man who, despite multiple encounters with the Australian health system experienced a significantly delayed HIV diagnosis. At the time of diagnosis, he was suffering from multiple AIDS defining conditions along with many additional clinical conditions highly suggestive of immunosuppression. His $CD4^+$ T cell count was zero on admission to our service.

BACKGROUND

We report a 42-year-old heterosexual-identifying male with a longstanding history of HLAB27-positive psoriatic spondyloarthropathy, for which he was treated with Non-Steroidal Anti Inflammatory Drugs (NSAIDs) and physiotherapy, and mild asthma, for which he took twice daily fluticasone/salmeterol inhalers. He had never taken immunosuppressive agents, including oral prednisone.

He lived with his wife - his only stated sexual partner for over a decade - and their 7-year-old daughter. He denied ever having male sexual contact or using IV drugs. He had a distant history of alcohol excess. He worked in the construction industry, claiming to have had multiple needle stick injuries over time.

The patient was brought to our attention after a protracted history of HIV-related symptoms. He had experienced persistent fevers, night sweats, intermittent rigors and weight loss for 2 years, along with chronic leukopenia which had been investigated by a haematologist. No bone marrow biopsy was undertaken.

He suffered from severe oral candidiasis, compounding his anorexia and weight loss, and chronic diarrhoea; no microscopy had been performed. He had an episode of shingles and increasingly severe, refractory psoriatic skin disease and was prescribed acitretin (retinoid) 50mg per oral daily as well as topical Vitamin D and steroid ointment by his dermatologist.

In addition, he experienced recurrent pneumonia, managed by his respiratory physician and requiring multiple admissions to a local private hospital. His most recent admission prompted bronchoscopy revealing *Pneumocystis jiroveci* Pneumonia (PJP). Treatment was commenced with sulfamethoxazole/trimethoprim 800/160mg 1 tablet twice daily. At this time HIV antibody testing was performed.

These results were not available prior to his discharge from the private facility, thus he learned of the diagnosis via his general practitioner 3 days later. At this time he was referred to our service.

PRESENTATION

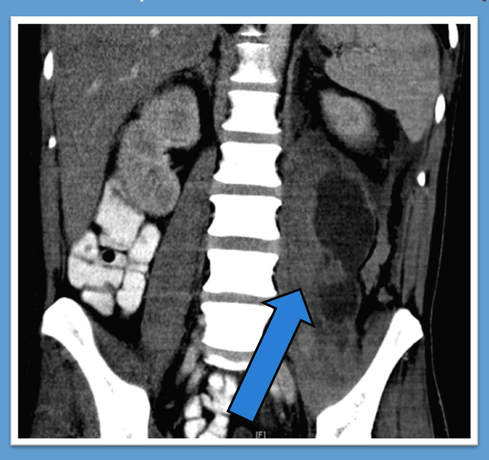
On admission to hospital he was cachectic, dehydrated and in septic shock. Initial investigations revealed acute renal failure, deranged liver function, an elevated lactate dehydrogenase (LDH) and pancytopenia with a $CD4^+$ T cell count of **0(zero)** cells/µl.

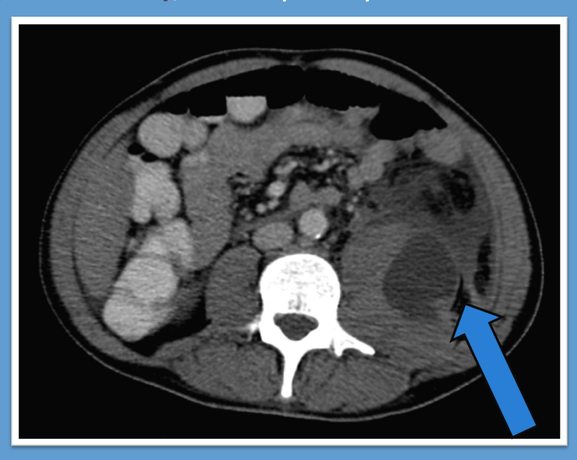
The patient required transfer to the high dependency unit for fluid resuscitation and early management including fluconazole & ceftriaxone along with continuation of sulfamethoxazole/trimethoprim for PJP. He was also commenced on ganciclovir, followed by valganciclovir after cytomegalovirus (CMV) viraemia was identified in serum by DNA PCR. Results are summarised in **table 1**.

TABLE 1: MICROBIOLOGY RESULTS

CSF	Normal cell count; no growth
CMV	PCR positive (4 $\log_{10}$)
HSV-1	PCR positive (serum)
EBV	Negative
Hepatitis	Viral serology negative
Toxoplasma	Serology negative
Cryptococcus	Antigen negative (serum & CSF)

In spite of this treatment and instigation of antiretroviral therapy he developed progressive haemolysis (normal bilirubin, LDH 5179U/L (<250), fibrinogen 1.3g/L (2.2-4.3), coagulopathy (INR 1.6), worsening pancytopenia and a markedly elevated serum ferritin level of 112,920µg/L (20-300) consistent with macrophage activation syndrome. He was managed successfully with intravenous immunoglobulin (IVIg). On day 7 of admission he was pale with a tender abdomen. His haemoglobin dropped from 80 to 62g/L. CT scanning confirmed psoas muscle collection **(figures below)**; subsequently drained.





Clinically, he improved over the 4 week admission. His renal and liver function normalised. He was discharged on *Atripla* (tenofovir 300mg/emtricitabine 200mg /efavirenz 600mg) daily, sulfamethoxazole/trimethoprim 400/80mg daily, azithromycin 1.2g weekly & valganciclovir 900mg daily.

DISCUSSION

This case highlights many missed opportunities for HIV testing. By the time of diagnosis the patient was suffering from multiple clinically suspicious or AIDS-defining conditions **(table 2)**. This will affect his long term health[1,2].

TABLE 2: MISSED OPPORTUNITIES

1	Worsening psoriasis
2	Weight loss
3	Chronic diarrhoea
4	Fevers
5	Night sweats
6	Chronic leukopenia
7	Candidiasis
8	Recurrent pneumonia
Test	*Pneumocystis jiroveci*

The mortality & morbidity benefits of immediate commencement of ART have been recently published with data from the START HIV Treatment study. This major RCT was concluded early due to the strength of the data. Prompt treatment with ART also confers public health benefit by lowering viral load which leads to subsequent reduction of transmission risk[2].

Strategies to promote earlier HIV testing include

- National & Statewide[3-5].
  - Innovative targeted messages to at-risk populations
    - Gay men and MSM
    - Aboriginal
    - Sex workers
    - People who inject drugs
    - People from culturally & linguistically diverse backgrounds
  - Increased free, confidential, access to, and uptake of voluntary testing in partnership with local health districts
  - Rapid testing & phone results to remove perceived barriers to testing
  - 'EndingHIV' initiative - 'test more, treat more, stay safe'
    - Website with blogs & celebrity endorsement
    - Social media campaigns & community advertising
- Local health district
  - Pop-up testing vans in both traditional & non-traditional locations
  - Hospital promotion & HIV case presentation to promote non-HIV based clinician awareness

In spite of intensive state & nationwide publicity campaigns and strategies, the proportion of people diagnosed with a $CD4^+$ T count less than 200 cells/µl in Australia has remained stable at ~20% for the past 10 years. Patients who did not identify as MSM were more likely to receive late diagnoses[6]. This suggests current strategies are not entirely successful, especially outside the MSM arena. We need to employ new approaches if we are to improve diagnosis rates & health outcomes in the future.

OUTCOME

Two years on, his health continues to improve, although with only partial immune reconstitution due to the profound thymic depletion at diagnosis. He attends follow up regularly and is adherent and virally suppressed with a $CD4^+$ T cell count of 250cells/µL (18%) on *Atripla*. His previously widespread psoriasis is now localised to a small plaque on his leg requiring only topical corticosteroid. His wife and daughter both tested negative for HIV. His wife has recently given birth to their second child, after undertaking IVF treatment last year.

REFERENCES

1. ASHM (2014). *National HIV testing policy.* <Access via testingportal.ashm.org.au/hiv>
2. NIH (2015). *START trial, news release.* <Access via nih.gov/news/health/may2015/niaid-27.htm>
3. NSW Ministry of Health (2012). *NSW HIV strategy 2012-2015 – A new era.*
4. Australian Department of Health (2014). *Seventh National HIV strategy 2014-2017.*
5. ACON (2015). *Ending HIV.* <Access via endingHIV.org.au>
6. The Kirby Institute (2015). *HIV, viral hepatitis & STIs in Australia Annual Surveillance Report 2014.*