The patient was treated initially with pulse methylprednisolone followed by tapered oral prednisone, and mycophenolate mofetil but transitioned rapidly with effect after 1 week to rituximab 1 g at day 0 and 14 due to severe oculopharyngeal involvement.

LABD with predominantly mucosal involvement may be considered a variant of mucous membrane pemphigoid and requires a similar approach to treatment.

Reference

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REVIEW OF LYOPHILISATION OF EXTERNAL QUALITY ASSURANCE PROGRAM MATERIAL

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Sample integrity is a critical factor in provision of external quality assurance (EQA) programs. As part of the RCPAQAPs initiative to ensure and improve the quality of our products, a revised stability testing procedure was implemented in 2018. The RCPAQAP's Tryptase program displayed reduced stability when exposed to 37°C for prolonged periods, although this could be mitigated when samples were lyophilised. In 2020, Tryptase EQA material was provided in lyophilised form, to be reconstituted at the time of testing. We reviewed performance within the RCPAQAPs Tryptase program in the 2 years prior to (2018–2019), and the two years following (2020–2021), the introduction of lyophilised material. Data was analysed using a one-way ANOVA with Tukey's multiple comparison test, with no significant change in performance noted (CV% 8.1, 8.3, 7.7 and 7.2 respectively). Lyophilisation of samples had no effect on program performance while providing improved sample integrity.

FRANCISELLA TULARENSIS: A CASE STUDY OF A MISIDENTIFICATION

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Background: *Francisella tularensis* causes Tularemia, a debilitating disease that typically presents as a non-specific acute febrile illness. It is a Security Sensitive Biological Agent (SSBA) and a Risk Group 3 organism.

Case study: A left knee ganglion cyst aspiration fluid was received for culture. Primary cultures were negative and the cooked meat enrichment culture was turbid at 24 hours. Large, grey, irregular colonies were noted aerobically and anaerobically the next day from subculture. Gram stain revealed Gram-negative spore-forming bacilli. Spot tests indicated the bacterium was oxidase and catalase positive. MALDI-TOF MS identification failed. Biomerieux Vitek2 gave an identification of *Francisella tularensis* (99.9%). Further testing at a reference laboratory

identified the possible *F. tularensis* isolate as *Lysinibacillus massiliensis*.

Discussion: Both *F. tularensis* and *L. massiliensis* have non-reactive biopatterns, hence the use of commercial identification systems carries a high probability of misidentification. While the spot tests conducted in this case study did not indicate *F. tularensis*, and growth characteristics were not consistent with this as an identification, all potential SSBA's must be referred for further confirmatory tests.

Transport of SSBA organisms requires triple-packaging and tracking at all steps in transit after reporting by phone. Possible implications for laboratory-acquired infection are discussed.

RAPID ANTIGEN TESTS FOR POSITIVE COVID-19 CONFIRMATION IN THE LABORATORY SETTING

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Introduction: Pooling patient samples for PCR testing increases throughput and has become standard practice during the COVID-19 pandemic. Accurate, rapid and cost-effective methods to determine the actual positive sample from a pooled well are needed.

Aims: To determine the utility of rapid antigen tests for discerning the positive COVID-19 sample from pooled test results that are positive.

Methods: 15 known positive and negative Covid-19 samples were tested using the Abbott Panbio COVID-19 Ag Rapid test device with a modified method suitable for use in the laboratory. Briefly, 150 µL of reaction buffer was mixed with 150 µL of patient sample from liquid swabs and the result was read at 15 minutes.

Discussion: The performance of rapid antigen kits in this study were consistent with results using the standard method with direct inoculation of swabs.¹ Samples yielding a Ct value below 25 were detected successfully, and those above that threshold failed. Thus for pooled positive results with a Ct value below 25, the current method can be used to discern the positive sample in that pool. This method would also lower the cost of further testing on pooled samples and expedite determination of the positive sample. Data collection is ongoing to further assess.

Reference

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A CASE OF PROLONGED SARS-COV-2 VIRAL SHEDDING FOR 150 DAYS

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Case report: A previously well 34-year-old man with mild COVID-19 symptoms tested positive by SARS-CoV-2 RT-PCR on 14/08/2020 (Ct 17.6). He was epidemiologically and genomically linked to the Auckland August 2020 cluster. He represented with acute breathlessness 150 days later on 11/01/2021, and tested positive on two different SARS-CoV-2 RT-PCR assays (Ct 36.9/38.4). At this time, excluding two discrete community clusters, COVID-19 transmission had been eliminated in New Zealand since May 2020.

The patient denied infective symptoms and could not be linked to any imported COVID-19 cases or high risk exposures. His breathlessness was due to bronchial obstruction from sarcoidosis mediastinal lymphadenopathy. Genome sequencing of the 11/01/2021 result failed to yield analysable sequence, but re-infection was unlikely, and with an alternative diagnosis for his breathlessness the result was attributed to prolonged upper respiratory tract viral shedding. He was discharged without further isolation. He had tested negative twice in the interim since his initial positive result.

In individuals with previous COVID-19, sporadic positive RT-PCR results may be obtained many months after initial infection, even with multiple negative results in the interim. This represents one of the longest shedding durations reported, and has important implications for interpretation of RT-PCR results in previously infected individuals.

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SARS-COV-2 VIRAL LOAD DYNAMICS AND REAL-TIME RT-PCR CYCLE THRESHOLD INTERPRETATION IN SYMPTOMATIC NON-HOSPITALISED INDIVIDUALS IN NEW ZEALAND: A MULTICENTRE CROSS-SECTIONAL OBSERVATIONAL STUDY

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Aims: To describe population-level SARS-CoV-2 upper respiratory tract (URT) viral load dynamics by stratifying PCR positivity rates and Ct values by days since symptom onset (DSSO), and to explore utility of Ct values in determining infectivity.

Methods: Multicentre cross-sectional observational study of laboratory, public health and hospitalisation data for PCR-confirmed COVID-19 cases, New Zealand 12/02/2020–08/06/2020.

Results: Of 123,124 SARS-CoV-2 PCR tests, 579 tests from 368 symptomatic non-hospitalised COVID-19 cases were included. Positivity rate was 93.2% (317/340) for symptomatic infectious period (SIP=0-10 DSSO) samples, and 36.3% (82/226) for post-infectious period samples. URT viral load peaked shortly after symptom onset. Of positive samples with Ct <20.00, 96.1% were collected during the SIP. However, of positive samples with Ct ≥30.00 and ≥35.00, 46.9% and 18.5% respectively were also collected during the SIP.

Conclusion: At or soon after symptom onset represents the optimum time to test for SARS-CoV-2 in the URT. In asymptomatic individuals or those with unknown symptom onset, Ct values <20.00 imply recent onset/potential infectivity, but Ct values ≥30.00/≥35.00 do not exclude recent onset/potential infectivity. Individual sample Ct values should not be used as a marker of time post-infection or to exclude infectivity where date of symptom onset is unavailable.

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CAN MASS SPECTROMETRY BE USED TO IDENTIFY BURKHOLDERIA PSEUDOMALLEI DIRECTLY FROM SPIKED BLOOD CULTURES?

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Background: Melioidosis, caused by *B. pseudomallei*, frequently presents with bacteraemia. This study assessed the safety and sensitivity of the Vitek® mass spectrometer (MS) for identification of *B. pseudomallei* from spiked positive blood cultures.

Methods: MS target spots were scraped into an enrichment broth to assess organism inactivation. Direct from blood culture experiments included both a manufacturer and in-house method. MS analysis after incubation on Chocolate agar for 4-, 6-, and 8-hours was performed.

Results: Standard α -cyano-4-hydroxycinnamic acid (CHCA) matrix inactivated all 70 MS spots. The manufacturer's blood culture extraction method identified 0/26 (0%) *B. pseudomallei* samples compared with 38/38 (100%) using an in-house method. MS analysis of a blood culture broth drop on Chocolate agar following a 6-hour incubation identified 30/32 (94%) samples.

Conclusion: Early diagnosis of melioidosis bacteraemia is likely to improve patient outcomes. This study demonstrates the utility of MALDI-TOF MS identification of *B. pseudomallei* both directly from positive blood culture broth and an abbreviated plate incubation. Finally, the use of a standard MS matrix solution inactivates the organism and therefore additional safety precautions are not required.