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Introduction: The gold standard for diagnosing SARS-CoV-2 infection remains RT-PCR; however serological testing has an important role in epidemiology and assessment of vaccine responses. We expressed the receptor binding domain (RBD) of the spike (S) protein as a glycosylphosphatidylinositol (GPI)-anchored protein on CHO cells transfected with a generated construct and determined binding of RBD specific antibodies by immunofluorescence (IF) and flow cytometry (FACS) assays.

Methods and results: IF and FACS demonstrated cell surface RBD expression using anti-S RBD mAb and macaque immune sera. GPI anchored expression was confirmed through loss of positive cells on FACS post GPI anchor cleavage with phosphoinositide phospholipase C (PI-PLC). Binding of antibodies from COVID-19 convalescent sera to RBD- and mock-transfectants was performed by FACS. Positive results on serial dilutions of patient sera down to 1:3200 were observed and compared to in-house RBD ELISA which lost positivity at a 1:800 dilution. Soluble recombinant ACE2 bound to RBD-CHOs and binding was inhibited by COVID-19 convalescent sera indicating the RBD was expressed in a functional conformation and that neutralising antibodies were detected.

Conclusion: Mammalian cells expressing GPI-anchored RBD can successfully be used to detect previous SARS-CoV-2 infection and likely indicate the presence of neutralising antibodies in COVID-19 survivors.

IMPACT OF A DIAGNOSTIC STEWARDSHIP INITIATIVE OF BACTERIAL 16s rRNA SEQUENCING REFERRALS FROM A REGIONAL LABORATORY

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Introduction: 16s rRNA PCR (16s) has emerged as a useful tool for the identification of bacterial pathogens in clinical samples¹. Due to its increased cost and limited availability, this technology is also a suitable target for diagnostic stewardship initiatives.

Aim: To assess a diagnostic stewardship initiative impact on key laboratory quality indicators for specimen referrals for 16s PCR from the John Hunter Hospital Laboratory.

Methods: From 01/07/2019 to 31/12/2019, all referred specimens for 16s received by our laboratory were held for review by a Microbiologist (or Registrar). Key laboratory quality indicators were collected and compared to a retrospective audit of 16s referrals from the preceding 6 months.

Results: 192 referrals were examined, with 77 referrals made in the pre-intervention phase and 115 in the post-intervention phase. 9 referrals were cancelled in the post-intervention phase. The cost per positive 16s was \$580.04 in the pre-intervention period and \$375.40 in the post intervention period. The average turn-around time was 14.61 days in the pre-intervention period, and 13.47 days in the post-intervention period, with no significant difference between the two periods ($p=0.122$).

Conclusion: Diagnostic stewardship is an economical endeavor for laboratories without increase in turnaround time.

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FUNGAL LIVER ABSCESES IN AN IMMUNOCOMPETENT PATIENT POST CHOLECYSTECTOMY – A CASE REPORT

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Candida albicans is known to colonise the biliary tract but rarely causes invasive candidiasis post gastrointestinal or hepatobiliary surgery in the absence of host immunosuppression. This case study reports a 33-year-old immunocompetent female with a past surgical history of sleeve gastrectomy, omega loop (mini) gastric bypass and gastric ulcer repair. Two weeks post laparoscopic cholecystectomy and intraoperative cholangiogram (IOC) the patient presented with right upper quadrant abdominal pain, rigors, nausea, vomiting, fevers (39.5 degrees) and tachycardia. Liver function tests were mildly deranged, the white cell count was $10 \times 10^9/L$ and the C-reactive protein was elevated at 327 mg/L. Computed tomography (CT) revealed multiple right lobe liver abscesses and mild splenomegaly. The patient underwent ultrasound guided drainage and *Candida albicans* was subsequently grown from the aspirate sample. After a 4-week course of oral fluconazole, a repeat CT abdomen and pelvis showed good resolution with 3-4 remaining small liver collections. An abdominal ultrasound 8-weeks post initial presentation showed complete resolution and subsequent gastroscopy, echocardiogram and ophthalmological examination were unremarkable. Although liver abscesses caused by *Candida albicans* rarely occur in immunocompetent patients, it should be included in the differential diagnosis in such patients presenting with suspicious features post laparoscopic cholecystectomy and IOC.

OSTEOMYELITIS CAUSED BY AGGREGATIBACTER APHROPHILUS – A CASE REPORT

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Osteomyelitis in children is often secondary to haematogenous dissemination of bacteria into long bone metaphyses. Organisms causing osteomyelitis vary with age, and the virulence of different pathogens influences clinical presentation.¹ Aetiological diagnosis is important in determining appropriate antibiotic therapy.

This case involves an 11-year-old girl with 4 months worsening left knee pain and difficulty weight bearing. She had no fever, preceding trauma or recent dental procedures. Inflammatory markers were unremarkable, with radiological evidence of a Brodie's abscess. She was trialled on oral cephalexin; despite transient clinical improvement, she re-presented with worsening symptoms.

She was afebrile, with distal femoral point tenderness, no evidence of knee joint involvement and 1/6 mid-systolic murmur at the pulmonic area. Intravenous flucloxacillin was commenced, with debridement and washout of the distal femoral lesion. Surgical specimens grew *Aggregatibacter aphrophilus* sensitive to ampicillin, with negative blood cultures. Transthoracic echocardiography showed no valvular abnormalities. Her mobility improved, and she was transitioned to amoxicillin, with planned duration of 3 months.

Aggregatibacter aphrophilus is a low virulence HACEK group bacterial pathogen with potential to cause osteomyelitis.² This case of an uncommon, low-virulence pathogen causing osteomyelitis shows the importance of aetiological diagnosis to guide appropriate management, especially in cases with indolent presentations.

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CLINICAL FEATURES OF SEPTIC ARTHRITIS WITH AND WITHOUT *KINGELLA KINGAE* DETECTION BY REAL-TIME PCR

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Aim: To evaluate the clinical features of *Kingella kingae* osteoarticular infections.

Method: We performed a retrospective audit of all children from whom we received a specimen for *K. kingae* real-time PCR (targeting *rtxA* and *cpn60*), as well as children with positive culture results from joint specimens, between May 2019 and April 2021. Microscopy and culture was performed according to standard protocols.

Results: Fifty-six children with features of osteoarticular infection subsequently confirmed by imaging, were included. The median age of children with *K. kingae* detected, compared to other pathogens, was 19 months versus 9 years. 53% versus 17% had recent respiratory infection. Median CRP was 32 versus 62 mg/L. Organisms were seen on fluid microscopy in 0% versus 67% of patients. 0% versus 28% grew the pathogen from blood cultures. Cefazolin was chosen for inpatient directed therapy in 82% versus 16% of cases. *K. kingae* was cultured from joint aspirates in only 2 cases.

Discussion: Patients with *K. kingae* septic arthritis have distinct clinical features, and molecular tests are important to confirm the diagnosis and direct targeted therapy. Molecular tests appear much more sensitive than routine culture for detection of *K. kingae* infection.¹

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A RARE CASE OF PERIPROSTHETIC *TRUEPERELLA BERNARDIAE* FOLLOWING A TOTAL HIP ARTHROPLASTY AND ANTIMICROBIAL STEWARDSHIP

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Trueperella bernardiae is a rare, anaerobic Gram-positive bacillus. Very few published clinical reports¹ of *Trueperella* infections, eludes its true incidence and pathogenicity. We share a case of a 70-year-old woman with recurrent peri-prosthetic joint infection (PJI) following a total hip arthroplasty.

A month after hip replacement, she presented with PJI, which was treated with extensive debridement and oral Ciprofloxacin in community for ESBL Enterobacteriaceae from peri-prosthetic samples. Five months later, she represented with peri-prosthetic collection which grew *Trueperella bernardiae*, during stage 1 hip revision. This was treated in hospital with six-weeks intravenous (IV) benzyl penicillin. A month after the second stage revision, she presents with hip re-collection that grew ciprofloxacin resistant *Escherichia coli*. She was managed in community with a 6-week IV carbapenem. However, 12 months later she developed a psoas abscess and subsequently elected for cessation of active management, leading to her demise.

This report emphasises on the emergence of antimicrobial resistance² Enterobacteriaceae due to constant antibiotic pressure, possibly causing a prosthetic joint infection by a rare *Trueperella bernardiae*, which was treated effectively by a narrow spectrum penicillin. This case report calls the need for antimicrobial stewardship³ while elucidating the existence of rare pathogens.

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