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SARS-CoV-2 not detected in pus from forearm abscess in a COVID-19-infected patient

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Dear Sir,

COVID-19 is transmitted mainly via respiratory droplets, and diagnosis is typically confirmed with polymerase chain reaction (PCR) tests of nasopharyngeal swabs.[1] So far, COVID-19 has been found in fecal, blood and cerebrospinal fluid specimens[2-4] but not in urine, vaginal fluid, or peritoneal fluid.[2,5,6] To our knowledge, there has yet to be any assessment of COVID-19 in limb abscesses. In this report, we present a case of incision and drainage performed for a confirmed COVID-19-infected patient with left forearm abscess and describe his postoperative wound management. Informed consent for publication was obtained from the patient.

A 37-year-old man with no prior comorbidities had been kept under isolation in a known cluster for COVID-19. He had tested positive for SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) serology five days before presentation, following an acute respiratory infection (ARI). The patient presented with left forearm pain and swelling of two days' duration. He was noted to be febrile, and physical examination revealed a proximal forearm abscess. Blood investigations found his inflammatory markers to be elevated (C-reactive protein 37.2 mg/L, white blood cell count 13.61×10^9/L). A nasopharyngeal COVID-19 PCR swab test was performed for the patient, which returned positive.

Three days after admission (eight days after diagnosis of COVID-19), incision and drainage was performed in a dedicated isolation negative-pressure operating room, with controlled traffic and air flow turbulence via interlocking doors with air drop seals. The operative team consisted of one anaesthetist, two surgeons, one scrub and one circulating nurse. All members donned full personal protective equipment, including a CleanSpace® HALO™ (CleanSpace Technology Pty Ltd, Artarmon, New South Wales, Australia) powered air-purifying respirator as well as goggles or face shields. The decision was made for regional

anaesthesia via a nerve block to minimise the risk of aerosolisation, as per published recommendations.[7]

Elliptical incision and drainage of the 4 cm by 4 cm subcutaneous forearm abscess was performed (Fig. 1). The pus that was drained and a separate swab of the pus fluid were sent for COVID-19 PCR testing. SNAP™ Therapy System dressing (KCI, San Antonio, TX, USA), a type of negative pressure wound therapy (NPWT), was applied for ease of postoperative wound care and to minimise the frequency of dressing changes. COVID-19 PCR testing was performed with real-time PCR using the A*STAR Fortitude Kit 2.0 (A*STAR, Singapore).

Both pus fluid and pus swab samples tested negative for COVID-19 on PCR testing. The pus fluid culture grew *Staphylococcus aureus* that was sensitive to cloxacillin, cefazolin, cotrimoxazole, clindamycin and erythromycin. The patient had an uneventful course in hospital and was discharged to a dedicated quarantine facility on Postoperative Day 2. Follow-up wound assessments found that the postoperative wound was clean and granulating well (Fig. 2a & b), and the patient was continued on SNAP dressings (Fig. 2c).

To our knowledge, this study is the first to report the evaluation of the presence of COVID-19 in a limb abscess. The findings suggest that transmission of the virus through contact with pus fluid from an infected wound is unlikely. Hence, in cases where resources and manpower are not overwhelmed, provision of optimal patient care is still possible without increased exposure risk to healthcare workers. We suggest evaluating every surgical indication on a case-by-case basis, with careful weighing of surgical risks and benefits in accordance with local resource availability. It should be noted that the presence of the virus in pus may be affected by the duration from the initial diagnosis of COVID-19. Literature on the temporal detection of COVID-19 in clinical specimens is still lacking, and further research is warranted.

NPWT was our choice of postoperative wound dressing to help provide an occlusive environment to prevent blood contamination, maintain sterility and encourage granulation.[8] It

minimises the frequency of dressing change and hence healthcare workers' exposure to a COVID-19-infected patient. The SNAP Therapy System in particular has the further advantages of being ultraportable, disposable and quiet, allowing better patient convenience and compliance.[9]

In conclusion, this report found that COVID-19 was not detected in pus from a forearm abscess and showed the functionality of NPWT in the management of a COVID-19-infected case. More studies are needed to confirm our preliminary findings and further evaluate transmission of the virus by other routes apart from respiratory droplets.

Yours sincerely,

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REFERENCES

1. Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA 2020; 323:1061-9.
2. Wang W, Xu Y, Gao R, et al. Detection of SARS-CoV-2 in different types of clinical specimens. JAMA 2020; 323:1843-4.

3. Moriguchi T, Harii N, Goto J, et al. A first case of meningitis/encephalitis associated with SARS-Coronavirus-2. Int J Infect Dis 2020; 94:55-8.
4. Li YC, Bai WZ, Hashikawa T. The neuroinvasive potential of SARS-CoV2 may play a role in the respiratory failure of COVID-19 patients. J Med Virol 2020; 92:552-5.
5. Qiu L, Liu X, Xiao M, et al. SARS-CoV-2 is not detectable in the vaginal fluid of women with severe COVID-19 infection. Clin Infect Dis 2020; 71:813-7.
6. Ngaserin SH, Koh FH, Ong BC, Chew MH. COVID-19 not detected in peritoneal fluid: a case of laparoscopic appendicectomy for acute appendicitis in a COVID-19-infected patient. Langenbecks Arch Surg 2020; 405:353-5.
7. Wax RS, Christian MD. Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV) patients. Can J Anaesth 2020; 67:568-76.
8. Nather A, Chionh SB, Han AY, Chan PP, Nambiar A. Effectiveness of vacuum-assisted closure (VAC) therapy in the healing of chronic diabetic foot ulcers. Ann Acad Med Singap 2010; 39:353-8.
9. Landsman A. Analysis of the SNaP Wound Care System, a negative pressure wound device for treatment of diabetic lower extremity wounds. J Diabetes Sci Technol 2010; 4:831-2.

FIGURES

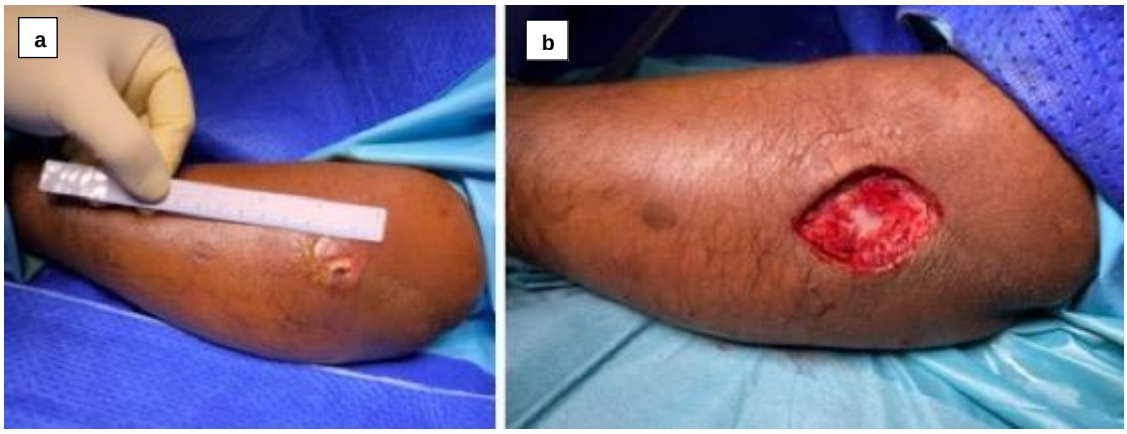

Fig. 1 Intraoperative photographs of the left forearm abscess (a) before and (b) after incision and drainage.

Fig. 2 Photographs of the left forearm abscess on (a) Postoperative Day 2, (b) Postoperative Day 6 and (c) with the SNAP Therapy System.