Table 1 Histopathological aspects and work practices of Mohs micrographic surgery.[a]

Questions		Yes, *n* (%)	No, *n* (%)
1	Are all lesions biopsied prior to undergoing Mohs?	14 (26.4)	39 (73.6)
2	Do you have an adjacent, dedicated Mohs laboratory?	51 (96.2)	2 (3.8)
3	Do you routinely use toluidine blue when undertaking MMS?	21 (60.4)	32 (39.6)
4	Does the Mohs surgeon issue and store in the medical records a formal pathology report following Mohs surgery?	22 (41.5)	31 (58.5)
5	Does your unit have a designed recovery area with available beds or reclining chairs for patients after Mohs surgery?	34 (64.2)	19 (35.8)
6	Do you have access to a second (backup) cryostat?	36 (67.9)	17 (32.1)
7	Do you use immunohistochemistry with Mohs surgery?	5 (9.4)	48 (90.65)

MMS, Mohs micrographic surgery. [a] Of 71 respondents, 53 completed this section.

clear levels felt to be sufficient when determining tumour clearance, was 2.2 (range 1–6) and for those using size, a mean of 165.6 μm (range 50–300 μm). Common factors taken into account when determining clearance were the morphology of the tumour, presence of scarring, inflammation or perineural invasion and the quality of cryostat slides. Details of the histopathological aspects and work practices are summarized in Table 1.

The survey showed that the great majority (96.2%) of MMS units have a dedicated adjacent MMS laboratory. The recently published multidisciplinary *Service Guidance and Standards for MMS* recommends preoperative assessment for all potential MMS surgery patients, including a discussion of alternative options.[4] This is supported by data from this survey, which showed that 7.9% of patients referred for MMS surgery are subsequently deemed unsuitable for the procedure. The survey data also indicate that the majority of MMS surgeons (62.0%) consult with all potential patients prior to surgery.

This study provides a valuable update to the 2011 national survey outcomes and serves as a benchmark of MMS practice for individual departments.

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Cutaneous thrombosis associated with skin necrosis following Oxford-AstraZeneca COVID-19 vaccination

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Dear Editor,

A 73-year-old man presented with ulceration of his left shin 2 weeks after receiving his first dose of the ChAdOx1 nCov-19 (Oxford-AstraZeneca) COVID-19 vaccine. He had a background of atrial fibrillation with ischaemic cardiomyopathy and had been on several longstanding medications, including apixaban. Within 24 h of vaccination, he had become generally unwell with fever and headache. After resolution of these systemic symptoms, on the third day after vaccination, he developed left shin erythema and blistering, which rapidly ulcerated (Fig. 1).

On physical examination, the patient was found to have two superficial ulcers with a necrotic base and a violaceous edge, which measured approximately 20 × 30 mm, on the lateral aspect of his left shin.

Blood tests revealed normal liver and renal function tests with normal levels for antinuclear antibodies, antineutrophil cytoplasmic antibodies, prothrombin time, activated partial thromboplastin time, fibrinogen and D-dimer. Full blood count showed a normal white cell differential count and mild thrombocytopenia (platelets 112 × 10^9/L; normal range: 150–450 × 10^9/L); the latter had been

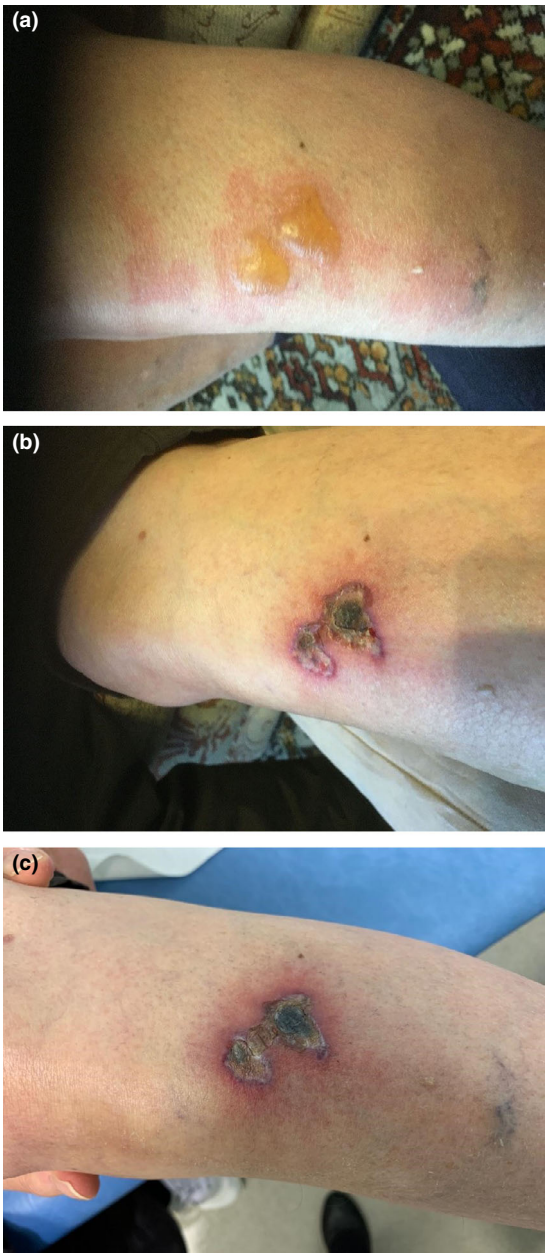

Figure 1 (a–c) Evolution of clinical features on lateral aspect of left shin on (a) Day 3, (b) Day 7 and (c) Day 21 post-ChAdOx1 nCov-19 (Oxford-AstraZeneca) vaccination.

intermittently present at similar levels over the preceding 12 months but had not been previously investigated.

The differential diagnosis included pyoderma gangrenosum, vasculitic ulceration and a cutaneous adverse drug reaction to vaccination.

A punch biopsy was obtained from the edge of an ulcer, which revealed microthrombi within blood vessels, an ischaemic epidermis and fat necrosis of subcutaneous tissue (Fig. 2).

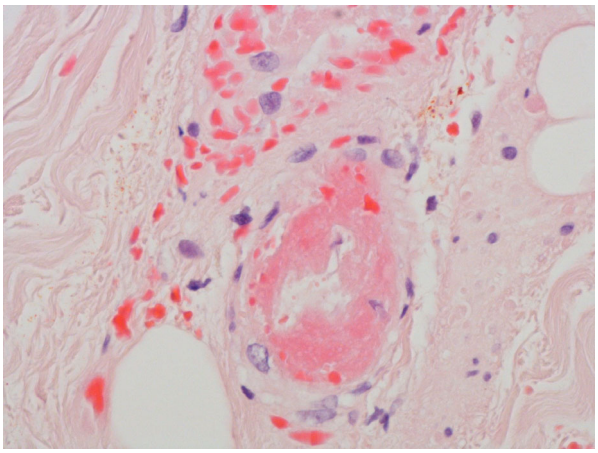

Figure 2 Skin biopsy showing epidermal necrosis with underlying proliferation of blood vessels, many of which show the presence of microthrombi. Fat necrosis also evident in the subcutaneous tissue. Haematoxylin and eosin, original magnification × 400.

The patient experienced slow healing of ulceration with topical clobetasol propionate 0.05%, neomycin sulfate and nystatin ointment, along with compression bandaging treatment. To complete the vaccination schedule, the second dose was switched to the Pfizer COVID-19 vaccine, which the patient received with no complications, 12 weeks after his first vaccination.

Several types of vaccination have been developed against the SARS-CoV-2 virus as part of public health strategies in the current COVID-19 pandemic. The ChAdOx1 nCov-19 vaccine delivers the SARS-CoV-2 spike protein DNA within a nonreplicating recombinant chimpanzee adenovirus vector system.[1] Recently there have been concerns related to rare reports of thrombotic events at atypical sites (including cerebral and splanchnic vascular beds) associated with thrombocytopenia following ChAdOx1 nCov-19 vaccination (termed 'vaccine-induced immune thrombotic thrombocytopenia').[2]

The mechanism of thrombotic events secondary to ChAdOx1 nCov-19 vaccination remains unknown. SARS-CoV-2 infection itself is associated with hypercoagulability, with a high incidence of venous thromboembolism.[3] Vaccine-induced thrombotic cases exhibit similarities to those with heparin-induced thrombocytopenia, notably the presence of serum antibodies against platelet factor 4.[2] This is hypothesized to cause platelet activation and stimulation of the thrombotic cascade to create a prothrombotic state.[4] Whether these changes are initiated by the presence of free DNA in the vaccine, factors related to the viral vector system, or the spike protein triggered immune response are yet to be elucidated. Furthermore, it is also currently unclear why this immunogenic thrombotic phenomenon preferentially manifests at certain sites.

To our knowledge, this is the first reported case of cutaneous thrombosis associated with skin necrosis following ChAdOx1 nCov-19 vaccination. These findings extend the range of atypically located thromboses associated with COVID-19 vaccination. This case reinforces the necessity for physicians to be vigilant for signs and symptoms related to thromboses at atypical sites in recently vaccinated patients.

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Lasting response after discontinuation of cemiplimab in a patient with locally advanced basal cell carcinoma

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Dear Editor,

Basal cell carcinoma (BCC) is the most common skin malignancy in humans. Most cases can be cured through complete surgical excision as recommended by international guidelines; however, a minority of BCCs progress to locally advanced or metastatic BCC and in these late stages, surgery is not indicated as it is not effective. In such cases, targeted therapy with hedgehog pathway inhibitors (HPIs) is indicated. In these complex scenarios, two HPIs have been approved for use: vismodegib and sonidegib. However, when HPIs fail or are no longer tolerated due to HPI-induced adverse events, options for further treatment are limited: the only way to proceed is with some form of treatment via clinical trials or palliative therapies. We describe the case successfully treated with cemiplimab, with continued response even after drug cessation.

A 78-year-old fisherman had previously been diagnosed with locally advanced BCC of the left ear and the entire scalp, and had undergone multiple surgeries over approximately 15 years. He had been given targeted therapy with the HPI vismodegib 150 mg/day for 33 months; however, despite partial response, the drug had to be discontinued due to adverse events (AEs), including muscle spasms, altered taste, anorexia and constipation (all grade 2). Cessation resulted in progression of the BCC (Fig. 1a). As HPI therapy was no longer an option and because no other therapeutic options were currently available, the patient was enrolled in an experimental phase II study of cemiplimab monotherapy for patients with advanced BCC after HPI therapy (NCT03132636).[1] Per-protocol screening procedures, including staging computed tomography scans, revealed no evidence of metastasis, thus the patient was enrolled and received intravenous cemiplimab every 3 weeks from October 2018 to July 2020. During therapy, a progressive improvement in the lesion was observed with the absence of any significant AEs. There was clinical improvement and reduction in exudate, and re-epithelialization took place progressively until the final cycle 9 administration as dictated by the study protocol (Fig. 1b). However, during the second follow-up visit, about 8 weeks after stopping cemiplimab, the patient was found to have progressive disease and presented with a temporary slight worsening of the lesion morphology, with an increase of around 30% in erythema and crusted lesions (Fig. 1c). As the weeks progressed, however, an unexpected continuous spontaneous improvement with clinical healing in the lesion occurred until the most recent assessment, approximately 32 weeks after discontinuation of cemiplimab therapy (Fig. 1d).

Cemiplimab is a human programmed death receptor (PD)-1 monoclonal antibody that belongs to the family of immune checkpoint inhibitors (ICIs).[2] Cemiplimab is approved for the treatment of metastatic or locally advanced cutaneous squamous cell carcinoma (SCC)[3] and has also recently been approved in the USA for locally advanced and metastatic BCC after HPI treatment, or for patients in whom HPI is not appropriate, or as monotherapy in patients with first-line nonsmall-cell lung cancer

