Mohs surgery spares the orbicularis oris muscle, optimizing cosmetic and functional outcomes for tumours in the perioral region: a series of 407 cases and reconstructions by dermatological surgeons

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Dear Editor, Mohs micrographic surgery (MMS) remains the gold standard in the management of nonmelanoma skin cancers (NMSCs) of the head and neck. Perioral defects pose a particular challenge for the reconstructive surgeon with over 100 procedures described in the literature. We undertook a retrospective review of all perioral cases managed with MMS over a 7-year period from January 2004 to December 2011. Data was collected from our electronic database, medical records and histopathology reports. The information collated included patients' age and sex, anatomical region of the lesion, histological type of tumour, mode of anaesthesia, pre- and postoperative defect sizes, number of stages required to achieve tumour clearance and reconstructive techniques adopted. All surgical defects resulted from MMS for removal of skin cancer. The majority of the procedures were performed under local anaesthetic (LA) using 1% lignocaine with adrenaline (1 : 200 000) and ropivacaine hydrochloride (Naropin®, Astra Zeneca, Auckland, New Zealand) intraoral nerve blocks. The vast majority (98%) of reconstructions were undertaken by dermatological surgeons accredited by the American College of Mohs Surgery. All patients who had undergone MMS under LA were contacted by telephone (J.H.; Tauranga, New Zealand) retrospectively, to ascertain the patients' perception of the tolerability of MMS and subsequent reconstruction under LA. All postoperative clinical images were reviewed independently by another Mohs surgeon working at a different institution (W.H.; Leeds, U.K.) and graded according to a scale (excellent, good, average, poor). This co-author also trained at the same institution in New Zealand and therefore cases that he was directly involved with were excluded from the study.

In total, 407 perioral Mohs surgical cases were performed over the 7-year period. Table 1 shows the summarized data in relation to patient demographics, surgical sites, histological subtypes of the tumours and closure methods adopted. Basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) comprised the majority of the tumours with a female preponderance in the BCC group. There were only two isolated cases of other tumour types (eccrine carcinoma and malignant fibrous histiocytoma). The majority of the NMSCs were primary, and aggressive histological subtypes accounted for 40% of BCCs and 10% of SCCs. The mean Breslow thickness for SCCs was 1·7 mm with perineural invasion being a feature in 1% of cases. Although upper cutaneous lip carcinomas (CLC) were more prevalent than lower CLC, lower vermillion lip carcinomas (VLC) were more common than upper VLC. Tumours which breached the upper and lower vermillion/cutaneous junction were comparable in both regions. There were 20 (5%) full-thickness defects with pre- and postoperative defect sizes being similar between both tumour types. Importantly, histological clearance was achieved in one stage for only half the cases. More than half (58%) of the surgical defects were reconstructed with random pattern flaps, the majority of which were performed under LA; 1% were reconstructed by allied healthcare professionals.

Complications included infection (eight cases, five of which occurred in smokers), six cases of troublesome postoperative anaesthesia which resolved without intervention and 15 cases of postoperative pincushioning which responded well to a combination of triamcinolone acetonide injections and massage. Of the 407 cases, the cosmetic results graded according to the clinical images were as follows: excellent, 320 (79%); good, 60 (15%); average, 22 (5%); poor, 5 (1%). On reviewing the postoperative medical records, no significant long-term functional disability was noted, in particular, no microstomia or saliva drooling was evident. Response to the telephone follow-up survey was good: 380 (93%) responded, of whom the majority (360, 95%) felt the procedure was very comfortable and, if required, would be happy to undergo further MMS in the perioral region under LA; there was no correlation with defect size or complexity of reconstruction in the minority who did not.

In this study the number of full-thickness defects created post-MMS was proportionately very small. To our knowledge, there is currently no data in the literature to suggest how many tumours in this study would have required full-thickness technique reconstruction. Bearing in mind that 35% of the tumours in this study were SCCs, it is conceivable that up to 50% of defects may have ended up with a full-thickness defect without the MMS technique. In addition, the collated demographic data were in line with previous studies with regard to tumour histology and age range, and the sex distribution revealed a greater proportion of BCCs occurring in females in the perioral region in keeping with previous studies.[1]

The retrospective telephone follow-up component of this study, which assessed patients' tolerability of undergoing MMS in the perioral region, supports our view of performing these procedures under LA. There is wide-ranging practice among allied specialists who perform perioral surgery under general anaesthesia, which may in part be due to these specialists having ready access to anaesthetists. This study has shown that the majority of patients do in fact tolerate MMS in the perioral region under LA, thus obviating the need for general anaesthesia and the attendant risks associated with it. This is particularly important in older patients who may have concomitant co-morbidities that may increase the overall risk of the procedure.

NMSCs in the perioral region are managed by a number of specialties including dermatology, plastic surgery and maxillofacial surgery. The approach of fellowship-trained dermatological surgeons towards the management of tumours in the perioral region may well differ from these allied specialties.

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Table 1 Summarized data in relation to patient demographics, surgical sites and closure methods adopted

Patient data	N = 407
Sex, n (%)	
Male	168 (41)
Female	239 (59)
Age (years), mean (range)	64 (30–98)
Anaesthesia, n	
Local	403
General	4
Procedure, n (%)	
One stage	214 (52)
Two stage	155 (38)
Three or more stages	38 (9)
Mean pre- and postoperative defect size (cm)	
SCC	1·0 × 0·8; 1·6 × 1·2
BCC	0·8 × 0·7; 1·4 × 1·2
Nature of tumour, n (%)	
BCC	
Primary	220 (84)
Recurrent	26 (10)
Unknown	16 (6)
SCC	
Primary	125 (87)
Recurrent	11 (8)
Unknown	8 (5)
Histological diagnosis, n (%)	
SCC	144 (35)
BCC	262 (64)
Histological subtype, n (%)	
SCC	
In situ	30 (21)
Microinvasive	17 (12)
Well differentiated	32 (22)
Moderately differentiated	10 (7)
Poorly differentiated	4 (3)
Infiltrative	8 (6)
Desmoplastic	1 (0·7)
Not specified	16 (11)
Unknown	26 (18)
Mean Breslow thickness, mm (range)	1·7 (0·5–6)
BCC	
Superficial	34 (13)
Nodular	49 (19)
Micronodular	20 (8)
Infiltrative	51 (19)
Sclerosing	14 (5)
Basosquamous	3 (1)
Mixed	22 (9)
Not specified	26 (10)
Unknown	43 (16)
Reconstructive techniques, n (%)	
Secondary intention	3 (1)
Primary closure	161 (40)
Full-thickness skin graft	3 (1)
Random pattern flaps	236 (58)
Reconstruction by allied healthcare professionals	4 (1)

BCC, basal cell carcinoma; SCC, squamous cell carcinoma.

Although tumour clearance is of paramount importance to all who manage such tumours, tissue preservation is crucial in order to preserve function and optimize cosmesis, and Mohs surgery allows dermatological surgeons to achieve this goal under local anaesthesia. The National Institute for Health and Care Excellence (NICE) has stipulated that all patients in the U.K. should have access to MMS for the management of high-risk NMSCs.[2] Financial constraints within the National Health Service in the U.K. mandates providing gold-standard treatment in the most cost-effective way. Given that MMS is performed under LA, usually in outpatient or daycase settings, it is likely to provide a more cost-effective option negating the need for inpatient facilities or general anaesthesia. Indeed, an enormous cost difference per patient has been shown for the reconstruction of comparable perioral defects with plastic surgery under general anaesthesia compared with fellowship-trained dermatological surgeons under LA, with the former costing $126 413 and the latter $3013, accounting for < 2·4% of the costs of the care delivered.[3] Therefore, not only is MMS the gold standard in the management of NMSCs in the head and neck region but it is likely to be a cost-effective, efficient model of managing such tumours.

There are several limitations of this study. Histological data was incomplete owing partly to the fact that not all tumours were biopsied prior to MMS and documentation regarding the primary/recurrent nature of tumours was variable. Furthermore, although the telephone follow-up calls attempted to assess patient tolerability of MMS under LA, the retrospective nature of this component of the study will naturally introduce recall bias, which would have been minimized only with a prospective study. Despite the limitations of this study, we believe our retrospective review reinforces the benefits of MMS in managing tumours in the perioral region, with patients tolerating closure of large surgical defects under LA. Mohs surgery spares the obicularis oris muscle, resulting in favourable functional and aesthetic outcomes with few complications.

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Antidesmocollin 1 autoantibody negative subcorneal pustular dermatosis-type IgA pemphigus associated with multiple myeloma

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Dear Editor, IgA pemphigus is subdivided into intraepidermal neutrophilic IgA dermatosis, whose antigen is not yet described, and subcorneal pustular dermatosis (SPD) type whose target antigen is desmocollin (Dsc) 1.[1] Several disorders have been rarely associated with IgA pemphigus.[1]

A 32-year-old man presented with a 2-year medical history of erythematous and pruritic lesions with crusting, and isolated flaccid sterile blisters, on his trunk, limbs and skin folds (Fig. 1). The oral mucosa was unaffected. Histological examination of the skin lesions revealed subcorneal acantholysis with infiltration of neutrophils in the dermis and epidermis (Fig. 2a,b). Direct immunofluorescence (DIF) demonstrated IgA, but not IgG, cell surface deposits in the upper epidermis (Fig. 2c). Indirect immunofluorescence (IIF) on normal human skin sections showed IgA anticell-surface antibodies (titre 1 : 160; negative for IgG; Fig. 2d). IIF of 1 mol L^{-1} NaCl-split human skin section was negative for IgG/IgA on both dermal and epidermal sides. Enzyme-linked immunosorbent assay (ELISA) of recombinant baculoproteins of desmoglein (Dsg) 1/Dsg3 and of recombinant eukaryotic proteins of Dsc1–3 for IgG/IgA were negative. The COS-7 cell transfection method of cDNA of human Dsc1–3 did not show specific IgA antibodies. Immunoblotting of normal human epidermal extracts for IgA/IgG antibodies did not show any specific antigens (Dsg1/Dsg3, BP180, BP230, envoplakin, periplakin).

Protein immunoelectrophoresis revealed an IgA-κ monoclonal component (total serum IgA of 480 mg dL^{-1}). Using immunohistochemistry, pericellular IgA-κ deposits in the epidermis were found (negative for IgA-λ; Fig. 2e,f). Renal and hepatic functions as well as peripheral blood cell counts were within normal limits. A bone marrow aspirate revealed the presence of 38% plasma cells, and a bone marrow biopsy confirmed infiltration by monoclonal plasma cells restricted to the κ chain. A bone marrow immunophenotypic study showed 21% plasma cells with a typical myelomatous phenotype. Thus, the diagnosis of an IgA-κ multiple myeloma (MM) associated with IgA pemphigus was made. The patient started treatment with cyclophosphamide, bortezomib and dexamethasone for three courses without response, and was changed to the VRD combination (bortezomib, lenalidomide, dexamethasone). As no response was obtained after three cycles, it was decided to switch to melphalan, cyclophosphamide, adriamycin and carmustine

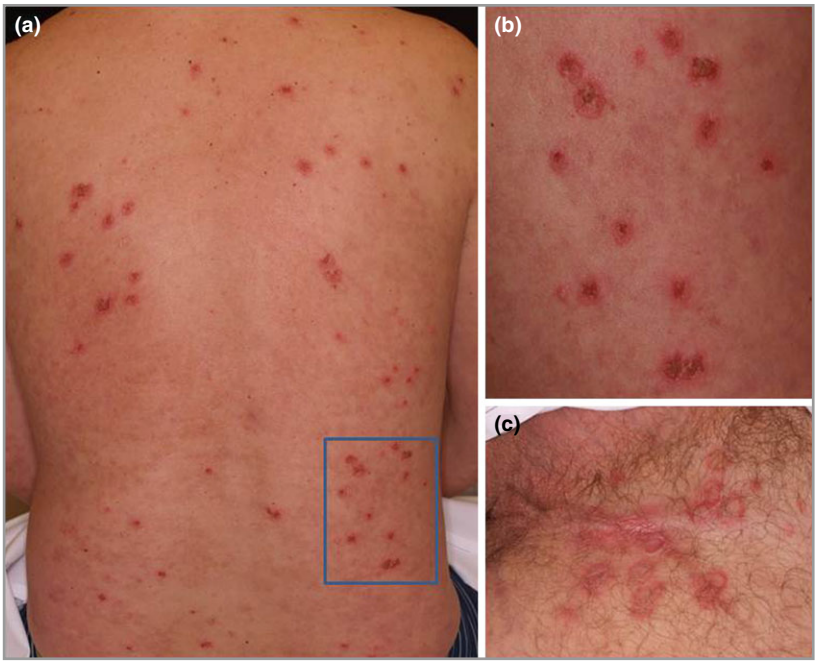

Fig 1. Clinical findings. (a) Erythematous and crusted lesions were localized mainly on the trunk. (b) Close-up view showing these lesions in detail. (c) Elevated erosive erythematous lesions developed on the groin folds.

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