

Factors associated with Mohs micrographic surgery in dermatofibrosarcoma protuberans of the head and neck: A cohort study

Dear Editor,

Dermatofibrosarcoma protuberans (DFSP) of the head and neck is a rare, locally infiltrative, low-grade sarcoma with the incidence in African-American patients being almost twice the rate among Caucasian patients. Prior studies have shown that tumours treated with Mohs micrographic surgery (MMS), when compared with other surgical modalities, have a significantly lower recurrence rate and better aesthetic outcomes in cosmetically sensitive areas, such as the head and neck.¹ However, given the high costs and prior authorization often associated with MMS, it remains unclear which patients are typically eligible to receive MMS for DFSP despite its suggested therapeutic success.

We aimed to study predictors of MMS to determine which factors led to this chosen treatment modality. We queried the National Cancer Database (NCDB) from 2004 to 2016 for all cases of DFSP lesions of the head and neck. The NCDB is the largest cancer database within the United States and gathers information from more than 1500 accredited cancer facilities in the United States and Puerto Rico, collecting roughly 70% of all cancer diagnoses in the United States annually.² We restricted our study to histologically confirmed cases of DFSP using ICD-O-3 histology codes. Only cases with lesions of the head and neck, including the lip, eyelid, external ear, scalp, neck and other unspecified parts of the face were included. After completion of the database review, univariable and multivariable analyses were performed using Microsoft Excel (Microsoft, Seattle, WA) and SAS Software (SAS Studio Release 3.8, Cary, North Carolina). Clinical and demographic characteristics were compared among patients receiving each type of surgery using t-tests, chi-squared and Fisher's exact tests. Multivariable logistic regression was then performed to assess predictors of receipt of MMS based on analysed variables with less than 50% missing data.

A total of 778 patients underwent surgical procedures. Of the included patients, 434 (56.0%) of the patients were male and 344 (44.2%) of the patients were female. The average age of the included patients was 42.2 ± 15.7 years. Patients were divided into surgical treatment groups and 101 (12.9%) were treated with MMS, 371 (47.7%) with wide local excision (WLE) and 306 (39.3%) with other surgeries.

When comparing MMS independently to all other treatments [Table 1], the incidence of MMS in academic centres remained significantly greater than in community or integrated network programmes ($p = 0.0049$). Furthermore, for individuals with higher incomes ($\geq \$63,000$), there was a higher incidence of MMS ($p = 0.0176$, Table 1). On multivariable logistic regression analysis [Table 2] assessing predictors of MMS including all variables in Table 1, higher incomes independently predicted treatment with MMS compared to those with lower incomes ($\leq \$38,000$) when controlling for confounders (Odds ratio: 2.8, 95% confidence interval: 1.3, 6.1, $p = 0.0047$).

On chi-square analysis comparing Caucasians to all other racial groups (African-Americans and others), 86 of 603 (14.3%) Caucasians and 15 of 175 (8.6%) patients of other races received MMS ($p = 0.0486$).

Our analysis shows that MMS was performed more often at an academic centre. The treatment of cutaneous malignancies of the head and neck often requires multidisciplinary care, especially for rarer tumours like DFSP which is more feasible at academic centres due to an increased number of resources and expertise available. Furthermore, higher annual incomes were also independently predictive of MMS. This sheds light on healthcare disparities which occur with regard to accessing MMS. Surveys have shown that providers have asked for advanced deposits and given

How to cite this article: Desai AD, Behbahani S, Soliman Y, Samie FH. Factors associated with Mohs micrographic surgery in dermatofibrosarcoma protuberans of the head and neck: A cohort study. *Indian J Dermatol Venereol Leprol.* 2024;90:233–5. doi: 10.25259/IJDVL_991_2022

Received: November, 2022 **Accepted:** May, 2023 **Epub Ahead of Print:** June, 2023 **Published:** February, 2024

DOI: 10.25259/IJDVL_991_2022 **PMID:** 37436022

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Table 1: Demographic characteristics of MMS and non-MMS modalities

	Other ^a (n = 677) (87.0%)	Mohs (n = 101) (13.0%)	p-value
Age			0.8322
<30	149 (22.0)	22 (21.8)	
30–39	155 (22.9)	29 (28.7)	
40–49	159 (23.5)	22 (21.8)	
50–59	123 (18.2)	15 (14.9)	
60–69	58 (8.6)	10 (9.9)	
70–79	20 (3.0)	2 (2.0)	
80+	13 (1.9)	1 (1.0)	
Sex			0.3511
Male	382 (56.4)	52 (51.5)	
Female	295 (43.6)	49 (48.5)	
Race			0.185
Caucasian	517 (78.0)	86 (86.0)	
African-American	105 (15.8)	10 (10.0)	
Other	41 (6.2)	4 (4.0)	
Insurance Status			0.6852
Not Insured	60 (9.3)	7 (6.9)	
Private Insurance/ Managed Care	451 (69.6)	74 (73.3)	
Medicaid	69 (10.7)	8 (7.9)	
Medicare or other government	68 (10.5)	12 (11.9)	
Income Status ^b			0.0176
<\$38,000	134 (19.9)	10 (9.9)	
\$38,000–\$47,999	151 (22.5)	21 (20.8)	
\$48,000–\$62,999	163 (24.3)	22 (21.8)	
≥\$63,000	224 (33.3)	48 (47.5)	
Facility Type			0.0049
Academic/Research Program	197 (52.8)	38 (76.0)	
Community Program	131 (35.1)	11 (22.0)	
Integrated Network Program	45 (12.1)	1 (2.0)	
CDCS ^c			0.2177
0 or 1	672 (99.3)	99 (98.0)	
2 or 3	5 (0.7)	2 (2.0)	
Tumour Size			0.661
<15 mm	61 (16.3)	10 (17.2)	
15–30 mm	118 (31.6)	20 (34.5)	
30–45 mm	106 (28.3)	12 (20.7)	
45–60 mm	34 (9.1)	8 (13.8)	
60+ mm	55 (14.7)	8 (13.8)	
Chemotherapy			0.409
No	613 (94.9)	92 (96.8)	
Yes	33 (5.1)	3 (3.2)	
Radiation Therapy			0.4294
No	567 (85.0)	88 (88.0)	
Yes	100 (15.0)	12 (12.0)	

^aOther: includes wide local excision, local tumour excision with electrocautery or laser excision, biopsy (shave/punch) followed by gross excision, or surgery not otherwise specified/major amputation

^bBased on NCDB pre-defined income quartiles (i.e. <\$38,000 is the lowest income quartile)

^cCharlson-Deyo Comorbidity Score

Table 2: Multivariable logistic regression analysis for predictors of MMS

Variable	Estimate	OR	95% CI	p-value
Intercept	-1.95			0.0008
Age				
<30	REF			
30–39	0.64	1.48	0.76 2.86	0.0378
40–49	0.40	1.16	0.58 2.34	0.2132
50–59	0.23	0.98	0.46 2.09	0.5000
60–69	0.32	1.08	0.43 2.68	0.3772
70–79	-0.71	0.38	0.38 0.07	0.3245
>80	-1.13	0.25	0.02 2.73	0.2575
Sex				
Male	REF			
Female	0.18	1.20	0.76 1.87	0.4344
Race				
Caucasian	REF			
African-American	-0.04	0.73	0.36 1.50	0.9041
Other	-0.24	0.59	0.20 1.74	0.5184
Insurance Status				
Not Insured	REF			
Medicaid	-0.13	1.09	0.34 3.52	0.71
Medicare or other Government insurance	0.35	1.74	0.60 5.09	0.2335
Private Insurance	-0.01	1.22	0.50 3.00	0.9597
Income				
<\$38,000	REF			
\$38,000–47,999	0.08	1.81	0.78 4.19	0.7242
\$48,000–\$62,999	-0.07	1.56	0.67 3.63	0.7353
≥\$63,000	0.51	2.79	1.28 6.10	0.0047
CDCS*				
0 or 1	REF			
2 or 3	0.50	2.74	0.50 15.07	0.2463
Radiation				
No	REF			
Yes	-0.12	0.89	0.46 1.73	0.7318
Chemotherapy				
No	REF			
Yes	-0.53	0.59	0.17 1.99	0.3931

*Charlson-Deyo Comorbidity Score

financial disclosures prior to MMS, possibly disadvantaging low-income patients. MMS has been perceived to be an expensive modality of treatment; however, previous studies have demonstrated its cost-effectiveness, especially when compared to other surgical procedures.¹ For example, in typical surgical excision, 32–39% of cases require a follow-up procedure following initial surgical resection to ensure clear margins.³ These follow-up surgeries also lead to a greater volume of tissue removed and significant cosmetic consequence.^{1,4} In addition, our study showed a lower percentage of African-American patients with DFSP of the head and neck (8.7%) treated with MMS compared to Caucasian patients (14.3%), similar to previous studies showing greater MMS utilization in Caucasian patients as

compared to non-Caucasian patients¹, exacerbating higher incidence of DFSP and worse survival in African-American patients.⁵ To fully explore impact of racism on surgery received, future studies should be performed in single-ethnic nations. Limitations include the self-reported nature of NCDB and lack of specific information as to which centres MMS was available.

In summary, ensuring equitable access to MMS for treatment of DFSP is essential to disease outcome and patient quality of life. We underscore income status as a significant independent predictor of MMS receipt when controlling for insurance status, race, age, sex and other confounders.

Declaration of patient consent

Patient's consent not required as patients' identity is not disclosed or compromised.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Amar D. Desai, Sara Behbahani¹, Yssra Soliman²,
Faramarz H. Samie²**

Department of Dermatology, Rutgers New Jersey Medical School, Newark, NJ, ¹Department of Dermatology, Brigham and Women's Hospital, Boston, MA, ²Department of Dermatology, Columbia University Irving Medical Center, NY.

Corresponding author:

Prof. Faramarz H. Samie,
Department of Dermatology, Columbia University Irving Medical Center, 161 Fort Washington Avenue, New York, United States.
fs2614@cumc.columbia.edu

References

1. Asgari MM, Olson JM, Alam M. Needs assessment for Mohs micrographic surgery. *Dermatol Clin* 2012;30:167–75.
2. Desai AD, Behbahani S, Samie FH. Predictors of Time to Definitive Surgery and Survival in Merkel Cell Carcinoma: Analysis of National Cancer Database. *Clin Exp Dermatol* 2022;47:1275–1282.
3. Tierney EP, Hanke CW. Cost effectiveness of Mohs micrographic surgery: review of the literature. *J Drugs Dermatol* 2009;8:914–22.
4. Cook JL, Perone JB. A prospective evaluation of the incidence of complications associated with Mohs micrographic surgery. *Arch Dermatol* 2003;139:143–52.
5. Kreicher KL, Kurlander DE, Gittleman HR, Barnholtz-Sloan JS, Bordeaux JS. Incidence and Survival of Primary Dermatofibrosarcoma Protuberans in the United States. *Dermatol Surg* 2016;42:S24–31.

Comparison of self-estimated and clinician-measured SALT score in patients with alopecia areata: Patients with alopecia areata perceive themselves as more severe than dermatologists

Dear Editor,

Alopecia areata (AA) has a global prevalence of 2% and causes non-scarring hair loss due to autoimmunity.¹ Hair loss in AA affects the patient's quality of life (QoL) and causes psychosocial problems. In addition, several studies have found that psychosocial and psychiatric comorbidities significantly worsen in patients with AA, and they perceive themselves more severely than dermatologists.^{2–4} Based on these studies, we attempted to determine whether patients with AA in our hospital also evaluated themselves more

severely and whether this had a more significant effect on QoL.

This study was conducted retrospectively on patients who visited Yonsei University Wonju Severance Christian Hospital from April 2019 to May 2021. In our clinic, we routinely administer a questionnaire measuring the Hair Specific Skin Scale-29 (HSS-29), which consists of three domains (function, symptoms and emotions) and a self-estimation of alopecia severity tool (SALT) score to all patients with AA [Figure 1].^{5,6} We reviewed the patient's medical records and

How to cite this article: Lee JY, Lee JW, Lee WS. Comparison of self-estimated and clinician-measured SALT score in patients with alopecia areata: Patients with alopecia areata perceive themselves as more severe than dermatologists. *Indian J Dermatol Venereol Leprol.* 2024;90:235–7. doi: 10.25259/IJDVL_439_2022

Received: May, 2022 **Accepted:** September, 2023 **Epub Ahead of Print:** January, 2024 **Published:** February, 2024

DOI: 10.25259/IJDVL_439_2022 **PMID:** 38314976

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.