Mohs micrographic surgery versus wide local excision for the treatment of atypical fibroxanthoma: a retrospective cohort study

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INTRODUCTION

- Atypical fibroxanthoma (AFX) is a rare pleomorphic, spindle cell neoplasm that typically presents as a solitary pink/red papule on the head or neck in elderly individuals.[1]
- Although they rarely metastasize, it is not uncommon for these tumors to locally recur, highlighting the importance of complete removal with negative surgical margins.
- Current treatment guidelines recommend Mohs micrographic surgery (MMS) or wide local excision (WLE), yet MMS is generally preferred in clinical practice based on the limited data supporting superior recurrence rates.[2,3]
- However, there are very few studies that have compared these two surgical modalities, and some did not find meaningful differences in the rates of recurrence.[4]

OBJECTIVES

The aim of this study was to compare the rates of recurrence and overall survival between MMS and WLE for the treatment of AFX.

METHODS

- We retrospectively analyzed the surgical outcomes of 56 patients with AFX that underwent MMS (n=50) or WLE (n=6) and were seen at the University of California Davis Medical Center.
- Fourteen additional patients were excluded from our study due to having insufficient data available (n=5), a different diagnosis prior to surgery (n=5) or did not undergo treatment (n=4).
- Patients were included if a diagnosis of AFX was documented in the medical chart with sufficient information on the surgical treatment.
- Independent t-tests were used to compare continuous variables, and Fisher's exact tests were used to compare categorial variables between groups.
- Survival was analyzed with Kaplan-Meier curves and log-rank tests.

RESULTS

Characteristics, (%)	MMS (N=50)	WLE (N=6)	Total (N=56)	p-value
Age at diagnosis, yr[a]	75.3 (12.5)	61.0 (18.1)	73.7 (13.7)	.015*
Sex				.289
Male	42 (84.0)	4 (66.7)	46 (82.1)	
Female	8 (16.0)	2 (33.3)	10 (17.9)	
Race				N/A
White	45 (100.0)	6 (100.0)	51 (100.0)	
Not reported	5	0	5	
CCI score[a,c]	7.4 (2.7)	6.7 (3.8)	7.3 (2.8)	.562
Tumor location				.008*
Face	21 (42.0)	1 (16.7)	22 (39.3)	
Scalp	27 (54.0)	2 (33.3)	29 (51.8)	
Neck	0 (0)	1 (16.7)	1 (1.8)	
Trunk	0 (0)	1 (16.7)	1 (1.8)	
Upper extremity	1 (2.0)	1 (16.7)	2 (3.6)	
Lower extremity	1 (2.0)	0 (0)	1 (1.8)	
XT exposure to AFX site	2 (4.0)	3 (50.0)	5 (8.9)	.007*
Immunosuppressed	3 (6.0)	1 (16.7)	4 (7.1)	.373
AFX size at diagnosis, mm[a]	10.0 (7.6)	26.0 (25.7)	11.5 (11.2)	.002*
Tumor ulceration	25 (52.1)	4 (80.0)	29 (54.7)	.362
Not reported	2	1	3	
Time to treatment, mo[a]	40.1 (35.8)	57.5 (55.9)	42.0 (38.2)	.295
Mohs stages	1.4 (0.5)	N/A	1.4 (0.5)	N/A
WLE margins, cm[b]	N/A	1.5 (0.5-2)		N/A
Up-diagnosed	3 (6.0)	1 (16.7)	4 (7.1)	.373
Treatment sequela				.084
Local recurrence	2 (4.0)	2 (33.3)	4 (7.1)	
Metastasis	1 (2.0)	0 (0.0)	1 (1.8)	
No return	47 (94.0)	4 (66.7)	51 (91.1)	
Time to recurrence, mo[a]	13.7 (6.5)	27 (29.7)	19 (17.2)	.322
Follow-up status				1.000
Alive	42 (84.0)	5 (83.3)	47 (83.9)	
Death from other cause	8 (16.0)	1 (16.7)	9 (16.1)	
Follow up time, yrs[a]	4.4 (3.6)	3.3 (2.7)	4.3 (3.5)	.387

Table 1. Patient and tumor characteristics by treatment type for atypical fibroxanthoma. Recurrence rates were lower for MMS compared to WLE (5.4% vs. 33.3%), although not significantly. Metastatic rates were similar between groups. All recurrences occurred within the first two years after receiving treatment. No patients died from their disease, but 9/56 patients died from other causes. Those treated with WLE were associated with larger tumors (26.0 vs. 10.0 mm), prior radiation exposure to the AFX site (50.5% vs. 4.0%), and younger ages of diagnosis (61.0 vs. 75.3 years) compared those treated with MMS. *CCI*, Charlson Comorbidity Index; *XT*, radiation.

[a]Mean (standard deviation)
[b]Mean (range)
[c]CCI, or Charlson Comorbidity Index, represents the number of comorbid diseases in a patient and predicts the ten-year mortality. Higher scores represent a greater number and/or more severe comorbid diseases.

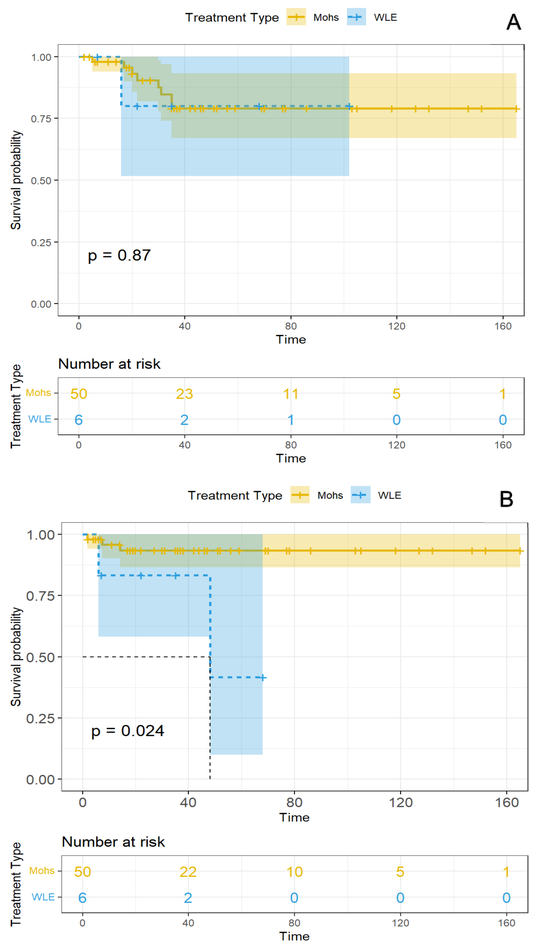

Figure 1. Atypical fibroxanthoma survival by treatment type. A, Kaplan-Meier estimate of survival to recurrence of patients with AFX treated with MMS or WLE, with log-rank test. **B,** Kaplan-Meier estimate of survival to death of patients with AFX treated with MMS or WLE, with long-rank-test. The shaded regions represent the 95% confidence bands for the survival function. Those treated with MMS had better recurrence free survival than did the WLE group (p=0.024); no differences were observed in the survival to death between WLE and MMS (p=0.87).

LIMITATIONS

- Small sample size for the WLE group (n=6)
- A retrospective, single center study design
- We also included patients that did not have biopsy reports available (n=2), so it is possible that these were not confirmed AFX diagnoses.

CONCLUSIONS

- Our results did not find significant differences in the local (5.4% vs. 33.3%) or metastatic (2.0 vs. 0.0%) recurrence rates between MMS and WLE for AFX, which is likely due to the small sample size in the WLE group.
- Conversely, a recent systematic review of 907 patients with AFX found significantly lower recurrence rates with MMS than with WLE (2.0% vs. 8.7%), yet no differences in the rates of metastases (1.9% vs. 1%) were observed.[2]
- All recurrences occurred within two years of removal; therefore, screening for AFX recurrence should take place within this time frame.
- Although no patients died from their disease, those with MMS had better recurrence free survival than those with WLE which may be explained by the larger sized tumors observed in the WLE group.
- Our univariate analysis showed that higher comorbidity scores were associated with AFX recurrence, while patient age, sex, time to treatment, and prior radiation exposure were not.
- Although MMS may offer improved recurrence rates for AFX, additional comparative studies with larger sample sizes are warranted to make definitive conclusions.

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