

Abstract

Introduction

Management of lacrimal sac malignancies remains a challenge, in part due to lack of data from large series. Lymph node positivity has been shown to worsen overall survival, but the optimal management of lymph node basins is often decided on a case-by-case basis. This study focuses on the peri-operative management and recurrence patterns of lacrimal sac malignancies to help guide management decisions regarding lymphadenectomy.

Methods

A retrospective database review from two high volume institutions identified 54 patients with lacrimal sac malignancies treated with primary surgical resection. Preoperative imaging, pathology reports and recurrence patterns were reviewed to evaluate the impact of lymph node status. The primary endpoint was tumor recurrence.

Results

Preoperative imaging had a positive predictive value of 60% and negative predictive value of 100% for involved lymph nodes, with intraparotid, level I and level II being the most commonly involved levels. Nearly all patients who developed recurrences (11/16) had regional lymph node or parotid involvement, 9 of whom had negative preoperative imaging and no neck dissection or parotidectomy. Performing neck dissection and/or parotidectomy at the time of surgery trended towards fewer regional recurrences (OR 3.1, p = 0.18), and parotidectomy was associated with a trend towards increased disease-free survival.

Conclusions

Proper management of lymph nodes may improve disease free survival for lacrimal sac malignancies. Regional recurrence is the most common mode of failure, and ipsilateral neck dissection, parotidectomy and/or adjuvant radiation to the neck may be considered.

Introduction

- Due to tumor heterogeneity and scarcity, the optimal management of lacrimal sac malignancies remains undetermined. The prevailing consensus for management for a majority of lacrimal sac malignancies revolves around upfront surgical resection followed by radiation, or upfront radiation.
- The local recurrence rates with this management is reported as 0-42%, however the overall recurrence rate approaches 50% when regional and distant metastasis are included.
- The importance of nodal disease spread and nodal recurrence for lacrimal sac malignancies is unclear. There are no broad recommendations for or against neck dissection or neck radiation targeting, leaving the decision up to the treatment team on a case-by-case basis.

- The nodal failure rate has been described as high as 28-32%.

- Positive nodal disease was the only factor associated with decreased overall survival and disease-free survival in the largest series.

- Proper lymph node management has potential to improve oncologic outcomes for patients with lacrimal sac malignancies, however there is a paucity of data on which to base decision-making regarding the nodal basins.

- The goal of this study is to characterize the oncologic outcomes of our series of lacrimal sac malignancies, with a descriptive focus on the management of lymph node basins and nodal recurrence.

Methods

- Retrospective database review across two tertiary care institutions
- Inclusion criteria: Lacrimal sac malignancies treated with upfront surgical resection
- 54 total patients between 2002-2019
- Univariate analysis with odds ratio and student-T test

Results

Table 1: Patient Characteristics

Patient Characteristic	N	% of Cohort
Male	29	54
Preoperative Imaging of Neck	47	87
Preoperative Lymph Node Involvement	10	19
Surgical Resection	54	100
+ Parotidectomy	10	19
+ Neck Dissection	16	30
Pathology		
Squamous Cell Carcinoma	26	48
Mucoepidermoid Carcinoma	6	11
Transitional Cell Carcinoma	6	11
Adenoid Cystic Carcinoma	4	7
Other Pathologies	12	22
Positive Lymph Nodes in Parotid	6	11
Positive Lymph Nodes in Neck	3	6
Level I Nodal Basin	2	4
Level II Nodal Basin	2	4
Adjuvant Radiation	43	80
Adjuvant Chemotherapy	22	41

Table 2: Pathologically Involved Lymph Nodes by Level

Nodal Level	Pathologically Confirmed Positivity Rate (%) of Nodal Level		
	Amongst all Patients	Amongst Patients who Underwent Neck Dissection or Parotidectomy	Amongst Patients who had Pathologically Positive Nodes
Any	24	39	100
I	4	11	29
II	4	11	29
III - IV	0	0	0
Parotid	11	33	86

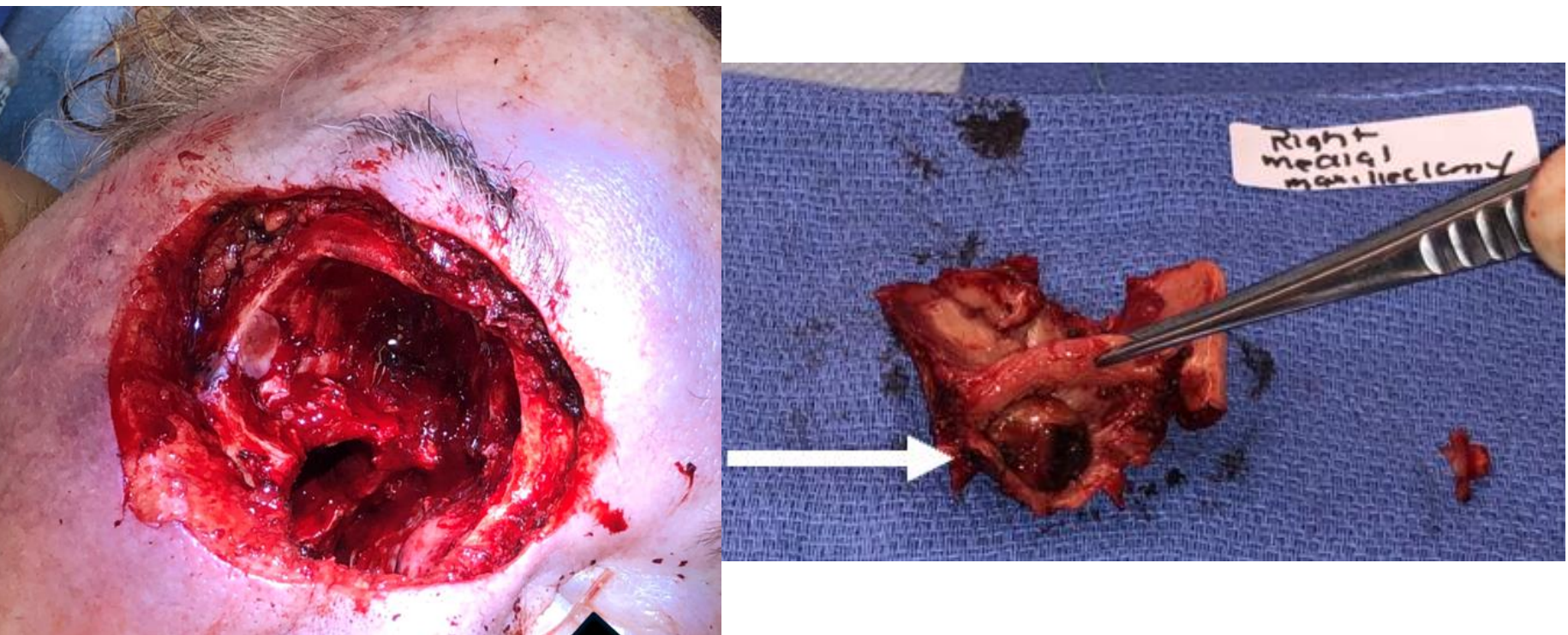


Fig 1. A melanoma of the lacrimal sac, after orbital exenteration and medial maxillectomy. Second picture demonstrates tumor growing through Hasner's valve and protruding from underneath the inferior turbinate (arrow, B)

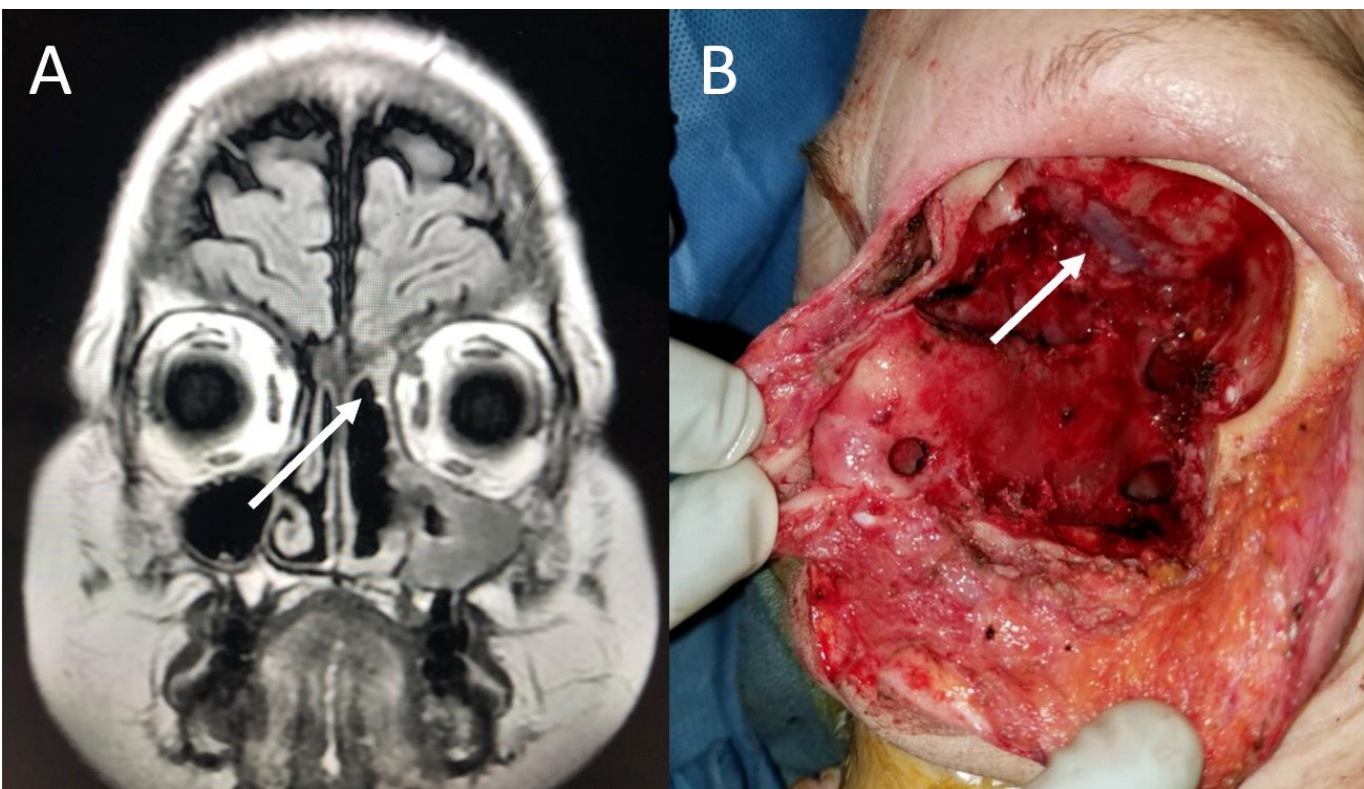


Fig 2. A patient with left lacrimal sac squamous cell carcinoma, with dural invasion on preoperative MRI (arrow, A). Second photo shows resection and dural repair (arrow, B).

Results (Cont)

Table 3: Recurrence and Survival Data

Patient Characteristic	N	% of Cohort
Any Recurrence	16	30
Local Recurrence	6	11
Regional Recurrence	11	20
Parotid Recurrence	3	6
Cervical Recurrence	10	19
Distant Recurrence	3	6
Death from Disease	1	2
	Mean (months)	Standard Deviation (months)
Recurrence Free Survival	44	48
Time to Recurrence	21	20
Overall Survival	50	47

- Preoperative imaging had a PPV of 60% and NPV of 100%
- 11/16 recurrences were regional recurrences, with average time to recurrence of 21 months
- For T2 and larger tumors, performing ND or parotidectomy trended towards improved recurrence free survival (31mo vs 23mo, p=0.13)
- For T2 and larger tumors, performing ND or parotidectomy trended towards improved regional recurrence rate (17% vs 38%, OR 3.1, p=0.18)

Conclusions

- Improved attention to lymph node basins may improve outcomes for lacrimal sac malignancies
- Preoperative imaging that includes the neck and parotid is recommended
- Intraparotid nodes are most commonly affected, followed by level I and level II
- There is a trend towards recurrence free survival benefit with upfront cervical lymphadenectomy and/or parotidectomy when T1 tumors are excluded

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