

Case Study

2 Squamous Cell Carcinoma of the Lacrimal Sac: A case study and Literature Review

3

4 1. Abstract:

5 Lacrimal sac squamous cell carcinoma is rare and mostly presents with unspecific symptoms of
6 associated chronic dacryostenosis or dacryocystitis and may be falsely diagnosed as dacryocystitis. A
7 73-year-old female attended with right epiphora and a right inner canthal mass. With the clinical
8 findings of painless 2-cm firm rubbery and smooth mass in the right medial canthus, initially a
9 diagnosis of chronic dacryocystitis was made and antibiotic therapy was started. Since there was no
10 improvement with therapy, further procedures including Magnetic Resonance (MR) Imaging were
11 performed. Although the imaging suggested an inflammatory or infectious etiology, during the
12 operation a mass was detected in the lacrimal fossa and an incisional biopsy of the sac under frozen
13 section was should be performed. And histopathological examination revealed infiltrative well-differentiated
14 highly keratinizing squamous cell carcinoma (SCC) arising from lacrimal sac. After the verification of the
15 diagnosis of SCC, the lacrimal sac was excised completely intact at surgery. Herein, we report a case
16 of squamous cell

16 carcinoma of the lacrimal sac mimicking chronic dacryocystitis.

17 Keywords: Lacrimal Sac, Tumor, Squamous Cell Carcinoma

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21 INTRODUCTION

22 Malignant lacrimal tumors are rare and occasionally arise in the lacrimal sac. [1] Most lacrimal sac
23 tumors present with unspecific symptoms of associated chronic dacryostenosis or dacryocystitis;
24 therefore the initial diagnosis is often dacryocystitis. Herein, we report a case with squamous cell
25 carcinoma (SCC) of the lacrimal sac mimicking chronic dacryocystitis.

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27 CASE REPORT

28 A 73-year-old Indian chronically ill looking etc house wife presented female attended to us with
29 excessive lacrimation in the RE (right eye) right epiphora presenting for of 15 months duration and a right
30 inner

31 canthal mass of presenting for 6 months duration. Medical history was unremarkable unremarkable
32 and the patient had no

33 history of previous ocular surgery. As shown in Figure 1 Physical examination revealed a painless 2-
34 cm firm rubbery and smooth mass in the right medial canthus (Figure 1). During irrigation, it was
35 observed that

36 the nasolacrimal canal was occluded. Visual acuity was 10/10 in both eyes. Ocular movements were
37 intact and there was no exophthalmos or diplopia. Biomicroscopic examination findings were
38 normal.

39 With these clinical findings initially a diagnosis of chronic dacryocystitis was made and antibiotic
40 therapy was started. Since there was no improvement with therapy Magnetic Resonance (MR)
41 imaging was performed and a well-defined mass lesion in the left lacrimal sac extending to the
42 nasolacrimal duct was detected. On T1-weighted images, the lesion was hypointense and enhanced
43 minimally and heterogeneously after contrast administration. The lesion was hyperintense on T2-
44 weighted images suggesting an inflammatory or infectious etiology. Although the patient was
45 scheduled for surgical planning to

46 make dacryocystorhinostomy, intraoperatively during the operation a mass was detected in the
47 lacrimal fossa and

48 incisional biopsy of the sac under frozen section was should be performed. After the verification of the
49 diagnosis of SCC, the lacrimal sac was excised completely intact at surgery (Figure 2).

50 Histopathological examination of the specimens revealed infiltrative well-differentiated highly

Comment [DA1]: This will provide more information to readers.

Comment [DA2]: Recast...what is her occupation, duration of swelling, race

Comment [DA3]: The introduction is too brief. Relate to risk factors .. Review literature from different parts of the globe... taking note of various modes of presentation and management. What are the most current management options?

Comment [DA4]: Insert appropriate details.

Comment [DA5]: Give more details..was it attached to underlying tissue or skin?

Comment [DA6]: Was there any evidence of spread or metastasis? Lymph nodes etc

45 keratinizing SCC arising from lacrimal sac. As shown in Figure 3a-Pathological examination of the
46 excised sac revealed squamous cell carcinoma with atypical squamous cells within abundant
47 eosinophilic cytoplasm, pleomorphic nuclei, prominent nucleoli (Figure 3a). As shown in Figure 3b and
48 3c
48 The specimens were stained with HMWCK and p63 (Figure 3b & 3c).
49 During postoperative follow up no local recurrences were detected by orbital tomography at 6th and
50 12th months.
51
52 FIGURE 1: A firm rubbery and smooth mass in the right medial canthus.

DISCUSSION

61 Malignant tumors of the lacrimal sac are rare. Approximately 400 cases have been reported in the
62 literature, as case series or isolated cases. [2-3] Histopathologically these tumors can be categorized
63
64 as epithelial and nonepithelial types with primary epithelial tumors accounting for 75.6% of the
65 cases. [4-5]
66 Most lacrimal sac tumors present with nonspecific signs and symptoms including a slowly growing
67 palpable mass in the medial orbital canthus and epiphora. The clinical presentation of lacrimal sac
68 tumors resembles to that of chronic dacryocystitis or mucocele which also usually present as masses
69 in the medial canthus. So patients can be initially misdiagnosed as dacryocystitis. Montalban et al
70 reported that 2 of their 7 cases were diagnosed as dacryocystitis such as our patient. [6]
71 MR imaging of lacrimal tumors usually shows an intermediate signal lesion on T1-weighted
72 sequences and a hypointense signal on T2-weighted images. [6-7] In some cases such as our case
73 with hyperintense signal on T2-weighted sequences, MR images may not distinguish lacrimal sac
74 tumors from dacryocystitis. [7]
75 In case of suspicion of malignancy, incisional biopsy of the sac under frozen section should be
76 performed. After diagnostic confirmation of tumor is achieved, surgical resection should be
77 completed with subsequent definitive therapy including radical resection, radiotherapy or
78 chemotherapy. [1,4,8] Our patient had SCC of lacrimal sac with no evidence of systemic spread. The
79 results of screening for metastases were all normal. And during follow up no local recurrence was
80 detected and the patient still remains asymptomatic.
81 In summary, as lacrimal sac tumors are seen rarely, they can be easily overlooked and initially
82 misdiagnosed as dacryocystitis because of the common clinical features. In order to prevent
83 misdiagnosis, a lacrimal sac tumor should be suspected in patients presenting with chronic
84 dacryocystitis and MR imaging should be performed. However it also should be kept in mind that in
85 some cases MR imaging may not distinguish lacrimal sac tumors from dacryocystitis, so in case of
86 strong suspicion of malignancy surgical approach and histopathological examination should be
87 performed.

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Comment [DA7]: What is the full name?

Comment [DA8]: Back this up in your case report

Comment [DA9]: Give details...what were they?

Comment [DA10]: Enrich this discussion... racial findings, other forms of presentation etc

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115 COMPETING INTERESTS

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117 Authors have declared that no competing interests exist.

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120 CONSENT

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122 Informed consent was obtained from the individual Medical Officer who participated in the study.

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124 ETHICAL APPROVAL

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126 The study was approved by the Federal Medical Centre ethics committee and have therefore; been

127 performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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Comment [DA11]: Not clear. What of the patient? Did he give consent?