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Spectrum of CD30+ Lymphoid Proliferations in the Eyelid: Lymphomatoid Papulosis, Cutaneous Anaplastic Large Cell Lymphoma, and Anaplastic Large Cell Lymphoma

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Abstract

Purpose—To report the clinicopathologic features of three patients with CD30+ lymphoid proliferations of the eyelid.

Design—Retrospective case series.

Participants—Patients with cutaneous CD30+ lymphoproliferative lesions of the eyelid.

Methods—Three patients with CD30+ non-mycosis fungoides T cell lymphoid infiltrates of the eyelid were identified. The histories, clinical findings, pathologic features including immunohistochemical staining, treatments and outcomes were reviewed and compared.

Main Outcome Measures—Pathologic findings including immunohistochemical analysis.

Results—The patients included an 81-year-old man, an 18-year-old man, and a 42-year-old woman, with CD30+ lymphoid proliferations of the eyelid and adjacent soft tissue. The first patient had an isolated crateriform eyelid lesion that was classified as lymphomatoid papulosis (LyP). The second patient had an isolated multinodular lesion of the eyelid that was classified as cutaneous anaplastic large cell lymphoma (cALCL). The third patient presented with eyelid edema with an underlying mass and was found to have widely disseminated anaplastic large cell lymphoma (ALCL). Diagnoses were dependent on clinical findings.

Conclusions—CD30+ lymphoid proliferations represent a spectrum of conditions ranging from indolent LyP, to moderately aggressive cALCL, and to highly aggressive ALCL. Interpretation of the pathologic findings in CD30+ lymphoid proliferations is based in part on clinical findings.

Cutaneous CD30+ lymphoid proliferations represent a distinct form of T-cell lymphoma that is characterized by the morphology (large and anaplastic) and immunophenotype (CD30+) of

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the tumor cells. They present as a spectrum of diseases composed of clinically indolent lymphomatoid papulosis (LyP), primary cutaneous anaplastic large cell lymphoma (cALCL), and aggressive systemic ALCL. Excluding classic mycosis fungoides (MF), primary cutaneous CD30+ lymphoid proliferations comprise approximately 30% of all cutaneous T cell lymphomas. CD30+ lymphoid proliferations of the ocular adnexa are rare as 1–3% of adnexal lymphomas are of non-B-cell type.^{1–3} The clinician's role, including the examining ophthalmologist, is vital in distinguishing these diseases because histopathologic differentiation is often difficult. For instance, LyP and ALCL exhibit histologic subtypes that mimic one another. While these diseases are on the same spectrum, the prognosis and management for each one is significantly different. It is therefore important for the clinician to understand these entities so that a proper evaluation leading to the correct diagnosis is performed. We report a case of one patient each with LyP, cALCL, and ALCL that presented on the eyelid. Table 1 provides a list of immunohistochemical biomarkers that will be discussed throughout the paper.

Case Reports

Case 1

An 81-year-old man complained of a rapidly growing lesion in the medial canthal region of his right upper eyelid that was initially noted thirteen days earlier. The lesion was painless, elevated, and ulcerated with a central crater. The initial clinical impression was a keratoacanthoma versus squamous cell carcinoma (Figure 1). The lesion was resected and submitted for pathologic examination. Examination showed ulcerated epidermis with an underlying cellular infiltrate (Figure 2A). The bed of the ulcer contained inflammatory cells, including lymphocytes, eosinophils, neutrophils, scattered plasma cells, and histiocytes. Additionally, there were focal aggregates of atypical lymphocytes (Figure 2B). Immunohistochemical stains were positive for CD3 (Figure 2C), CD30 (Figure 2D), and MT1 in the large lymphocytes, which were negative for ALK, CD10, CD20, CD79 and CD68. Flow cytometry showed a population of CD4 positive T cells in the lesion. The diagnosis was lymphomatoid papulosis (LyP).

Case 2

An 18-year-old man with no significant past ocular history noticed an inflamed nodule in his right upper eyelid. He treated himself with over the counter eyedrops, warm compresses, and baby shampoo. Four days later, the nodule became more inflamed and he began a course of tobramycin/dexamethasone ointment and oral doxycycline initiated by an optometrist. After four days, he was evaluated by a pediatrician who cultured the lesion and prescribed oral cefdinir and trimethoprim/sulfamethoxazole, ciprofloxacin eyedrops, and mupirocin ointment. Cultures were obtained that were negative. Approximately two weeks later, he developed a rash on his torso. His medications were discontinued and he was referred to an ophthalmologist. The ophthalmologist prescribed oral doxycycline and topical tobramycin/dexamethasone. There was no improvement after four days and the patient was evaluated by an oculoplastic surgeon. Examination showed a firm, multinodular lesion in the right upper eyelid with associated erythema (Fig 3). An excisional biopsy of the lesion showed a nodular proliferation of cells (Fig 4A) composed of large round cells with round to oval pleomorphic nuclei, and prominent nucleoli surrounded by lymphocytes and eosinophils (Fig 4B). There were scattered mitotic figures within the lesion and reactive vascular channels were present. Immunohistochemical stains were positive in tumor cells for CD30 (Fig 4C), vimentin, CD45, TIA1, fascin (Fig 4D), EMA (Fig 4E), CD10, CD3, CLA (Fig 4F), and PCNA, and negative for Bcl-2, CD20, CD15, PAX5, CD56 and ALK. Fluorescent in-situ hybridization (FISH) analysis of the specimen failed to demonstrate the 5(2;5)(p23;q35) translocation. Systemic evaluation including a PET/CT scan of the body, bone marrow biopsy, and CBC with

differential showed no evidence of lymphoma elsewhere. The diagnosis was primary cutaneous anaplastic large cell lymphoma (cALCL). A second biopsy showed no evidence of residual malignancy and the patient has remained free of systemic disease with one year follow-up.

Case 3

A 42-year-old woman with no significant past ocular history was referred for possible left orbital cellulitis. The patient complained of a three week history of gradual swelling around her left eye with tenderness and decreased vision. She was initially treated with amoxicillin/clavulanate, but her symptoms worsened. On initial examination, the patient said that she was unable to read. She claimed to have no light perception in her left eye, although her pupils were equally reactive to light with no relative afferent pupillary defect. Her extraocular movements were full with no restriction and intraocular pressures were 23 and 21 mmHg, right and left eyes, respectively. Abnormal findings were confined to the left eye. She had marked eyelid edema and conjunctival chemosis with no apparent proptosis (Figure 5). A dilated fundus examination was unremarkable. The patient was admitted to the hospital, administered intravenous ampicillin/sulbactam, and taken to the operating room for possible drainage. At the time of surgery, it became apparent that the patient had a solid eyelid/anterior orbital mass. The mass was composed of cells with hyperchromatic nuclei, prominent nucleoli, high nuclear to cytoplasmic ratios and scattered mitotic figures (Fig 6A and 6B). Scattered small round lymphocytes were also present within the lesion. Immunohistochemical stains were positive for CD30 (Fig 6C), ALK (Fig 6D), EMA (Fig 6E), cutaneous lymphocyte antigen (CLA) (Fig 6F), CD3, and CD4, and negative for CD20, S100, HMB45, cytokeratins AE-1/AE-3, MAK6, and CK7 in the tumor cells. FISH analysis of the specimen showed the presence of the 5(2;5) (p23;q35) translocation (Fig 7). Flow cytometry was negative for a population of B cells. The diagnosis was anaplastic large cell lymphoma (ALCL) and the patient underwent a metastatic workup, including an FDG PET-CT (Fig 8) which was positive for widespread metastatic disease. The patient was started on a course of cyclophosphamide and developed a small bowel obstruction from tumor involvement. She expired approximately two weeks after her initial diagnosis.

Discussion

LyP, cALCL, and systemic ALCL display large anaplastic cells that are CD30+. However, there are differences that are demonstrated on histopathology, immunohistochemistry and, more importantly, clinical evaluation. Generally, LyP typically presents with papulonodular lesions that spontaneously regress within weeks. cALCL tends to present as a single larger lesion with no extracutaneous manifestations while systemic ALCL can demonstrate systemic symptoms and findings associated with lymphoma along with rapid progression. Clinical and histopathologic findings are summarized in Table 2.

The median age at presentation in patients with LyP is 45 years. These patients present with recurrent papular or nodular lesions that can ulcerate and are most commonly located on the trunk and extremities.¹ LyP lesions spare the mucous membranes and usually present in clusters, but may be single or disseminated. Spontaneous regression of the lesions occurs after 4 to 6 weeks and a hyper- or hypo-pigmented scar may remain. Although LyP is benign, patients with LyP have an increased risk for progressing to MF, Hodgkin's lymphoma, or ALCL. The resulting lymphomas often have a clonal relation to the previous LyP. LyP is usually not treated, although psoralen plus ultraviolet A or low-dose methotrexate has been used for aggressive disease.

LyP exhibits three histological types, and affected patients may simultaneously have more than one present.^{1,4} Type A is usually dense, wedge-shaped, and resembles Hodgkin's disease with scattered infrequent large atypical CD30+ cells resembling Reed-Sternberg cells. These cells

are surrounded by eosinophils and neutrophils, with the neutrophils present within vascular spaces. The epidermis is usually sparsely infiltrated and may be ulcerated, as was present in our first patient. Type B is band-like or nodular and resembles MF with cerebriform cells. Neutrophils and eosinophils may be infrequently present. Type C resembles ALCL with clusters and sheets of CD30+ cells in the upper dermis with no fatty tissue infiltration.

ALCL was identified in 1985 when the Ki-1 antibody directed against the CD30 antigen reacted with a type of large cell lymphoma.⁵ Systemic ALCL primarily affects males in a wide age range but predominantly under the age of 30. Many patients present in stage III or IV with B symptoms (fever, recent weight loss, drenching night sweats) and noncontiguous lymphadenopathy. Extranodal disease can be seen in approximately 40% of cases with skin being the most common site. The skin lesions in systemic ALCL can vary in clinical appearance and histology.^{6–8} A balanced translocation t(2;5)(p23;q35) has been found to be highly associated with systemic ALCL.^{9–10} This occurs when the anaplastic lymphoma kinase (ALK) gene on chromosome 2 fuses with the nucleophosmin (NPM) gene on chromosome 5. This particular translocation occurs in approximately 80% of ALK translocation positive ALCL. The rest are comprised of translocations involving ALK and genes other than NPM. All translocations result in constitutive activation of the ALK kinase domain. Immunohistochemical staining for the resulting NPM-ALK fusion protein is clinically significant as patients with ALK translocation positive ALCL have a better survival rate (5 year survival rate of 70–80%) compared to those who are ALK translocation negative (5 year survival rate of 30–40%).^{11–12} Patients with ALK translocation negative ALCL are usually over the age of 30 at the time of diagnosis. In general, the treatment for systemic ALCL consists of local radiation with combination chemotherapy.¹

Histopathologic findings in systemic ALCL include large cells with prominent nucleoli in the lymph node sinuses and paracortex showing a cohesive pattern of growth.^{1–11} Multinucleated cells, Reed-Sternberg-like cells, doughnut cells, and hallmark cells may be seen. The histologic variants include common, small-cell, lymphohistiocytic, Hodgkin's-like, sarcomatoid, and neutrophil-rich. The common variant accounts for approximately 70% of systemic ALCL and is characterized by sheets of large pleomorphic tumor cells and the presence of hallmark cells, multi-nucleated cells, and Reed-Sternberg-like cells. The neutrophil-rich variant may be mistaken for a histologic subtype of LyP (type A). Systemic ALCL is aggressive, as shown in our third case.

Primary cALCL is morphologically similar to systemic ALCL, although it is less aggressive.¹ In contrast to systemic ALCL, cALCL has a 5 year survival rate of 90% with spontaneous regression occurring in over 40% of cALCL patients. It may be seen in young and elderly patients with a median age of 60. cALCL may present as a solitary lesion or multiple fused or clustered lesions that are >2 cm in diameter with or without erythema and ulceration. Unlike systemic ALCL, the balanced translocation, t(2;5), is not present in cALCL.^{1–13,14} cALCL may be treated with surgical removal with or without irradiation as well as low-dose methotrexate for skin-restricted disease and multiagent chemotherapy for extracutaneous disease. Given the similarities between cALCL and systemic ALCL, it would be challenging to clinically distinguish between the latter and cALCL with extracutaneous involvement. While there is no definitive formula to follow, one would have to assess several factors such as tumor location, rate of progression, presence of systemic involvement, and a biomarker profile (discussed below). A lack of systemic involvement, along with disease that is limited to the intraocular and/or periorbital area would likely imply a primary cALCL process.

Primary ocular adnexal CD30+ lymphocytic infiltrates, such as those that occurred in the three cases we describe herein, are extremely rare (Table 3).^{3,15} There have been two previously reported patients with LyP of the eyelids^{16,17} and another study suggesting that a patient

experienced a hemi-retinal vein occlusion secondary to systemic LyP.¹⁸ ALCL affecting the ocular adnexa appears more likely to be secondary to systemic ALCL than cALCL, although some cases secondary to cALCL have emerged recently.^{3,19–25}

The combination of rarity and both clinical and histological overlap presents a significant challenge to the clinician and pathologist in determining the diagnosis. Studies have investigated cell biomarkers to help distinguish these entities.² Bcl-2 (apoptosis inhibitor), CD56, and fascin (actin filament bundling protein) are expressed from most to least frequently in systemic ALCL, cALCL, and LyP. The presence of CD56 is associated with a poorer prognosis in systemic ALCL. Tumor necrosis factor receptor-associated factor-1 (TRAF-1), an intracellular component of tumor necrosis factor receptor (TNFR) signaling, was found to be strongly expressed in LyP, but not cALCL or ALCL. Cutaneous lymphocyte antigen (CLA), an E-selectin ligand that facilitates adhesion of T lymphocytes to the cutaneous vascular endothelium, has also been found to be highly expressed in LyP, but variably in cALCL and minimally in systemic ALCL. Epithelial membrane antigen (EMA) has been discovered to be present in systemic ALCL, but not c-ALCL or LyP. TGF- β receptor mutations have been seen in systemic ALCL and may contribute to the loss of growth inhibition.^{26–36}

While the information obtained from these markers may be useful in distinguishing LyP, cALCL, and systemic ALCL, our cases show that these biomarkers alone cannot definitively separate CD30+ lymphoid infiltrates. For example, immunohistochemical stains were positive for EMA and for fascin in our second patient, both suggestive of systemic ALCL, although the clinical features were most consistent with cALCL. In contrast, the positive immunohistochemical stains for EMA in our third patient's biopsy supported the clinical diagnosis of systemic ALCL. Additionally, immunohistochemical stains in our second patient's lesion were faintly positive for CLA and strongly positive for CLA in our third patient, which are suggestive of LyP. However, the clinical appearance and remainder of the pathologic evaluation for these patients showed that the infiltrates were cALCL (patient 2) and systemic ALCL (patient 3). This underscores the importance of the clinician's role, because if one had excessively relied on the immunohistochemistry, our patients may have received improper counseling and treatment.

Our first patient's localized findings along with the histologic and immunohistochemical findings are consistent with LyP, type A. He will need to be followed closely since there is a risk of progression to systemic lymphoma. Our second patient's clinical presentation of a multinodular lesion of the eyelid without systemic symptoms or findings and lack of residual disease after re-excision is consistent with cALCL. He will require close monitoring for extracutaneous manifestations and treatment if necessary. Our third patient's findings of diffuse systemic disease along with positive immunohistochemical staining for the ALK translocation are consistent with systemic ALCL. Our three patients illustrate the necessity of understanding the pathologic findings and providing a proper clinical interpretation in order to correctly diagnose CD30+ lymphoid infiltrates on the eyelid.

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Figure 1.
Case 1. There is an ulcerated cutaneous lesion in the right upper eyelid.

Figure 2.

Case 1. A. There is a cellular infiltrate and reactive vascular channels present in the dermis. B. The cellular infiltrate consists of large, atypical lymphocytes, eosinophils and neutrophils. Immunohistochemical stains are positive for C. CD3 and D. CD30 in the atypical lymphocytes. (hematoxylin and eosin, A 25X, B 100X, peroxidase anti-peroxidase C and D, 100X)

Figure 3.
Case 2. There is a multinodular, erythematous lesion with an overlying eschar in the right upper eyelid.

Figure 4.

A. Case 2. A. There is a nodular proliferation of cells within the eyelids. B. These large cells exhibit round to oval, vesiculated nuclei, prominent nucleoli, and are interspersed with lymphocytes and eosinophils. Immunohistochemical stains are positive in the tumor cells for C. CD30, D. fascin, E. EMA and weakly for F. CLA. (hematoxylin and eosin, A 25X, B 100X, peroxidase anti-peroxidase C –F, 100X)

Figure 5.
Case 3. There is marked edema of the left upper and lower eyelids.

Figure 6.
Case 3. A. There are sheets of cells within the biopsy. B. These large cells exhibit pleomorphic, hyper chromatic nuclei. Immunohistochemical stains are positive in the tumor cells for C. CD30, D. ALK, E. EMA and F. CLA (staining small and large lymphocytes; negative in vascular channels). (hematoxylin and eosin, A 25X, B 100X, peroxidase anti-peroxidase C-F, 100X)

Figure 7.
Case 3. FISH analysis shows the presence of the ALK fusion chromosome (yellow-green, arrow) for 5(2;5)(p;23.2;q23.5)

Figure 8.
Case 3. An FDG-PET-CT shows hypermetabolic diffuse lymphadenopathy, omental and mesenteric implants, and deposits in skeletal muscle.

Table 1**Biomarkers Evaluated with Immunohistochemical Staining**

Biomarker	Brief Description
CD30, Ber-H2	Useful T-cell marker in ALCL
CD3	T-cell marker
CD4	T-helper cell marker
CD10	Pre-B and pre-T cell marker, positive for some lymphomas (not ALCL)
CD15	Activated B- and T-cell marker Positive marker for Hodgkin's Lymphoma, negative for ALCL
CD20, L26	B-cell marker
CD43	pan T-cell marker, activated B-cell marker
CD45	T-cell, B-cell, hematopoietic cell marker
CD45RO	Memory/activated T-cell marker
CD56	Activated T-cell marker Marker for various leukemias/lymphomas
CD68	Macrophage/monocyte marker
CD79	B-cell marker
MT1	Mediates homeostasis of essential metals, detoxification of heavy metals
ALK	Marker for NPM-ALK fusion protein Very specific for the detection of ALCL
TIA1	T-cell marker
Fascin	Actin filament bundling protein
EMA	Mucin-like glycoprotein; pan-epithelial marker
CLA	E-selectin ligand - facilitates T-cell adhesion to cutaneous vascular endothelium
Bcl-2	Apoptosis inhibitor
PAX5	Early stage B-cell marker Positive staining in B-cell non-Hodgkin's leukemia/lymphoma

Biomarker	Brief Description
S100	Neural crest cell marker Positive staining in melanoma
HMB45	Melanoma-specific antigen marker
Cytokeratin AE-1/AE-3	Pancytokeratin marker Stains for epithelial neoplasms Strongly stains for glial tumors
MAK6	Cytokeratin marker
CK7	Cytokeratin marker

Legend ALCL = anaplastic large cell lymphoma, ALK = anaplastic lymphoma kinase, NPM-ALK = nucleophosmin-anaplastic lymphoma kinase, EMA = epithelial membrane antigen, CLA = cutaneous lymphocyte antigen

Table 2Clinical and Pathologic Findings in CD30+ Lymphoid Proliferations^{1,2,4–14,26–36}

	LyP	cALCL	Systemic ALCL
Demographics	Median age: 45 years	Median age: 60 years	Males < 30 years
Symptoms/Clinical Findings	<ul style="list-style-type: none"> - Recurrent papular/nodular lesions on trunk/ extremities ± ulceration with spontaneous regression after 4 to 6 weeks - Hyper- or hypopigmented scar may remain. 	<ul style="list-style-type: none"> - ≥1 lesion that is >2 cm in diameter ± erythema and ulceration. - No extracutaneous involvement. 	<ul style="list-style-type: none"> - Stage III or IV with B symptoms - Noncontiguous lymphadenopathy - 40% with extranodal disease
Histology	<p>A. Resembles Hodgkin's disease with large cells resembling Reed-Sternberg cells</p> <p>B. Resembles mycosis fungoides with cerebriform cells</p> <p>C. Resembles ALCL with clusters and sheets of large cells</p>	<ul style="list-style-type: none"> - Sheets of large cells with irregular nuclei within dermis and subcutaneous region - Epidermis spared 	<ul style="list-style-type: none"> - Large cells with prominent nucleoli in lymph node sinuses and paracortex - Multinucleated cells, Reed-Sternberg-like cells, doughnut cells, and hallmark cells may be seen - 6 histologic variants. Neutrophil-rich variant may be mistaken for LyP, Type A.
Contrasts in Immunohistochemistry	CD30 +	CD30 +	CD30 +
	CLA +	CLA expression variable	CLA expression minimal
	EMA –	EMA +	EMA +
	Bcl-2: Expressed in ALCL > cALCL > LyP		
	CD56: Expressed in ALCL > cALCL > LyP; poor prognosis in ALCL		
	Fascin: Expressed in ALCL > cALCL > LyP		
	TRAF-1: Expressed in LyP >> cALCL > ALCL		
Treatment	<ul style="list-style-type: none"> - Usually none - PUVA or low-dose MTX has been used for aggressive disease 	<ul style="list-style-type: none"> - Resection ± irradiation - Low-dose MTX for skin-restricted disease - Chemotherapy for extracutaneous disease 	<ul style="list-style-type: none"> - Local radiation with combination chemotherapy
Prognosis	<ul style="list-style-type: none"> - Benign - Increased risk for progressing to MF, Hodgkin's 	<ul style="list-style-type: none"> - Less aggressive than systemic ALCL - Better survival rate than systemic 	<ul style="list-style-type: none"> - ALK translocation-positive ALCL with better prognosis (5 year survival rate of 70–

	LyP	cALCL	Systemic ALCL
	lymphoma, or ALCL	ALCL; 5 year survival rate of 90% - Spontaneous regression occurs in over 40%	80%) than ALK translocation- negative ALCL (5 year survival rate of 30–40%)

Legend LyP = lymphomatoid papulosis, cALCL = primary cutaneous anaplastic large cell lymphoma, ALCL = systemic anaplastic large cell lymphoma, TRAF-1 = tumor necrosis factor receptor-associated factor-1, ALK = anaplastic lymphoma kinase, EMA = epithelial membrane antigen, CLA = cutaneous lymphocyte antigen, PUVA = psoralen plus ultraviolet A, MTX = methotrexate

Table 3

CD30+ Eyelid Lymphoid Proliferations

Case	Age (years)	Sex	Location	Symptoms	Immunopath	Diagnosis	Treatment	Outcome
1	81	M	RUL	painless ulcerated mass	CD30, CD3, MT1	LyP	surgical resection	no recurrence 1 year f/u
2	18	M	RUL	irritation	CD30, CD43, CLA, EMA, fascin	cALCL	surgical resection	no recurrence 1 year f/u
3	42	F	left eyelids and orbit	periorbital edema and chemosis	CD30, EMA, ALK, CLA	ALCL	chemotherapy	died 2 weeks after diagnosis
Hu et al ²⁰	63	F	maxillary sinus and limbus	headache, red eyes	CD45RO	diffuse large cell T cell lymphoma	chemotherapy	remission 1.5 years f/u
Mencia-Gutierrez et al ¹⁹	39	M	LUL, lymph nodes and skin	rapidly growing cutaneous exophytic mass	CD30, CD43	ALCL versus cALCL	radiation, chemotherapy	remission 6 year f/u
Coupland et al ¹⁴	48	M	LUL	tender, ulcerated lesion	CD30, CD45, ALK	likely cALCL	chemotherapy, radiation	remission 4 year f/u
Coupland et al ¹⁴	30	F	RUL, lymph nodes	malaise, fever, weight loss	CD30, CD45	ALCL	radiotherapy, chemotherapy, surgical resection	died
Segal et al ²²	10	M	lateral eyelid	firm, raised ulcerated mass	CD3, Ber-H2	likely cALCL	surgical resection, chemotherapy	remission 9 months f/u
Clarke et al ¹⁸	16	F	RUL	painless ulcerated mass	CD30, ALK	ALCL	chemotherapy	died
Winhoven et al ²¹	39	M	RUL	painless ulcerated mass	CD30	cALCL	topical chemotherapy	remission 18 months f/u
Boulton et al ¹⁵	19	F	left eyelids	painless ulcerated mass	n/d	LyP	chemotherapy	remission
Koreen et al ²³	59	M	right medial canthus, right orbit	rapidly growing nontender ulcerated mass	CD30+, CD3+, EMA-, ALK1-, CD56-	cALCL	radiotherapy	remission 7 months f/u
Tanzi et al ²⁴	45	F	RUL	Rapidly growing friable, tender, ulcerated mass	CD3+, L26+, Ber-H2+, AE1-, AE3-, EMA-	likely cALCL	none	lost to f/u after shave biopsy

Legend LyP = lymphomatoid papulosis, cALCL = cutaneous anaplastic large cell lymphoma, ALCL = systemic anaplastic large cell lymphoma, M=male, F=female, RUL=right upper eyelid, LUL=left upper eyelid, n/d=not done, f/u=followup