

Cutaneous Anaplastic Large Cell Lymphoma: A Case Report about Masking Effect of Facial Masks in the COVID-19 Pandemic

Shannon S. Wu, BA*

Grzegorz J. Kwicien, MD†

Demetrius M. Coombs, MD†

Sofia Foglietti‡

Alanna Fostyk, DO, FACOSS§

Mark A. Foglietti, DO, DFACOSS§

Summary: The COVID-19 global pandemic commenced widespread usage of face masks. Due to covering of the lower face in public settings, limited social interaction, and patient hesitancy for seeking in-person healthcare, dermatologic conditions of the lower face are prone to delayed diagnosis and management. With society recovering from the pandemic and social distancing restrictions being lifted, an increasing number of patients present with malignant skin conditions at advanced stage. The authors describe a 47-year-old female patient who presented with a 4-month-old facial mass that was initially believed to originate from skin irritation caused by mask-wearing. A biopsy revealed primary cutaneous anaplastic large cell lymphoma (PC-ALCL). This case report outlines the management of the rare PC-ALCL lesion and diagnostic challenges related to facial masks and social distancing. (*Plast Reconstr Surg Glob Open* 2021;9:e3783; doi: [10.1097/GOX.0000000000003783](https://doi.org/10.1097/GOX.0000000000003783); Published online 30 July 2021.)

The COVID-19 pandemic commenced widespread usage of face masks. Due to coverage of the lower face, limited social interaction, and patient hesitancy for in-person visits, dermatologic conditions of the lower face are prone to delayed diagnosis and management. With social distancing restrictions being lifted, a rise in patients presenting with malignant skin conditions at more advanced stage is anticipated.

Herein we describe a patient who presented in delayed fashion with a facial mass that was initially believed to originate from skin irritation by mask-wearing. Biopsy revealed primary cutaneous anaplastic large cell lymphoma (PC-ALCL). This case report outlines the management of the rare PC-ALCL lesion and diagnostic challenges related to face masks and social distancing.

CASE REPORT

A 47-year-old woman with no relevant medical history presented with two masses (1 cm and 0.5 cm) on the right cheek superior to the nasolabial fold. The masses were

mobile, nodular, in juxtaposition, and separated by a scar from a prior drainage attempt (Fig. 1). The lesion initially appeared as a small cyst at the point of contact with a face mask containing a silicone inset. Given progressive growth, the patient saw a dermatologist 2 months later. A drainage attempt for suspected foreign body reaction or abscess resulted in continuous growth of two distinct masses separated by the scar from the incision. Further treatments with local mupirocin, oral doxycycline, and Kenalog injections were unsuccessful. Patient presented to our plastic surgery clinic two months later for a second opinion. Excisional biopsy of the smaller lesion revealed dermatologic manifestation of a CD30(+) ALK(-) lymphoproliferative disorder, either cutaneous ALCL or lymphomatoid papulosis. The patient was referred to an oncologist and underwent further imaging. Whole-body PET/CT scan showed hypermetabolic density at the cheek lesion, but no lymphadenopathy or other extranodal hypermetabolism suggestive of systemic disease. Complete blood count with differential, comprehensive metabolic panel, lactate dehydrogenase, and HIV testing were performed to rule out systemic involvement and immunological compromise. Clinically, the patient exhibited no B symptoms such as fever, night sweats, gastrointestinal upset, or organomegaly. Full-body skin examination revealed no other lesions.

Given the absence of systemic disease and rapid growth, the lesion was managed with a 4 × 5 cm wide local excision without need for chemotherapy (Figs. 2, 3). Intraoperative frozen sections with complete circumferential peripheral and deep margin assessment confirmed complete excision, and the defect was reconstructed with

From the *Cleveland Clinic Lerner College of Medicine, Cleveland, Ohio; †Department of Plastic Surgery, Cleveland Clinic, Cleveland, Ohio; ‡Kent State University, College of Public Health, Cleveland, Ohio; §Foglietti Fostyk Plastic Surgery, Beachwood, OH.

Received for publication May 26, 2021; accepted June 30, 2021.

Copyright © 2021 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 \(CCBY-NC-ND\)](https://creativecommons.org/licenses/by-nc-nd/4.0/), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: [10.1097/GOX.0000000000003783](https://doi.org/10.1097/GOX.0000000000003783)

Disclosure: The authors have no financial interest in relation to the content of this article.

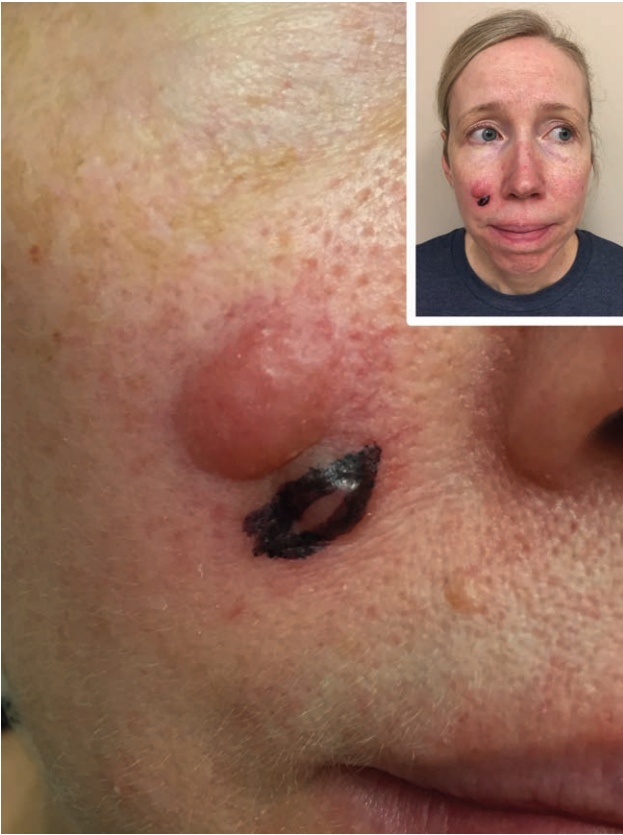


Fig. 1. A 47-year-old patient who presented with two masses (1 cm and 0.5 cm) on the right cheek separated by a scar from a prior drainage attempt. The smaller, lower lesion is marked for excisional biopsy.



Fig. 2. Rapid enlargement of the larger lesion can be seen 5 weeks after the initial biopsy.

an 11 × 8 cm cervicofacial flap (Fig. 3). The final pathology report with immunohistochemistry, flow cytometry, and karyotype analysis described lymphoma cells positive for CD2, CD3, CD4, CD30, T-cell receptor gene rearrangement, and negative for CD5, CD7, CD8, CD10, CD20, CD21, ALK-1, TiA1, granzyme B, TCL1A, PD1, TCR-delta, beta-F1, and ICOS. The Ki-67 proliferative index was 70%. These findings were consistent with PC-ALCL. A 4-month postoperative visit revealed well-healed reconstruction with good cosmesis and no functional deficits (Fig. 4).

DISCUSSION

Mask-wearing is highly effective at preventing aerosolized transmission of respiratory droplets. Many individuals in countries recovering from prior SARS and MERS pandemics have continued routine mask-wearing. Usage of face masks may persist even after the COVID-19 pandemic is “over.” Thus, the consequences of prolonged mask-wearing should be explored. Dermatologic effects of masks such as itching, xerosis, acne, dermatitis, and redness have been reported.^{1,2} Biophysical properties including increased sebum production and transepidermal water loss are altered with mask-wearing.³ The increased incidence of chalazion coinciding with the COVID-19 pandemic highlights a link to ophthalmic complications of mask-wearing.⁴ Ear protrusion has been reported as a side effect in pediatric patients.⁵ Fewer

social interactions may deter earlier recognition of skin changes. Furthermore, social distancing precautions may disincentivize patients from seeking in-person health-care. Mixed messaging about risks of COVID-19 transmission in healthcare settings has contributed to delayed care. The effects of delayed care-seeking on cancer staging are beginning to be realized. In this case report, we describe the diagnosis of cutaneous ALCL that was delayed due to social distancing and mask-wearing. We highlight the importance of early recognition and efficacious clinical workup of dermatologic conditions, particularly for rare malignant conditions such as PC-ALCL, in the era of face masks.

Four types of ALCL are recognized: primary systemic ALK(+) ALCL, primary systemic ALK(-) ALCL, PC-ALCL, and breast implant-associated ALCL.⁶ Given recent widespread attention, plastic surgeons are familiar with the CD30(+) ALK(-) breast implant-associated ALCL.⁷ Cutaneous CD30(+) ALK(-) lymphoproliferative disorders, which include PC-ALCL, lymphomatoid papulosis, and borderline overlap lesions are less well known, but encompass a wide spectrum of disease, from benign lymphomatoid papulosis to the more malignant PC-ALCL. Histologically, the two may be difficult to distinguish from other skin conditions such as arthropod bite reaction, mucosis fungoides, Sezary syndrome, and other primary cutaneous T-cell lymphomas. However, they can be distinguished by clinical appearance and disease course.



Fig. 3. Full-thickness defect after wide local excision. Pen markings delineate cervicofacial flap borders measuring 11 × 8 cm. The flap was rotated medially to cover the defect and anchored to the inferior orbit periosteum.

Lymphomatoid papulosis mostly presents on trunk and extremities and is characterized by wax-and-waning crops of erythematous papules or nodules that spontaneously regress over several weeks. PC-ALCL typically presents on head, neck, and extremities in immunocompromised patients as a rapidly growing solitary or localized group of nodules that may ulcerate.⁸

The possibility of systemic ALCL must be considered in the evaluation of PC-ALCL. Our patient was assessed for systemic disease with PET/CT and underwent serial full-body skin exams for other cutaneous findings, both preoperatively for treatment planning, and postoperatively for surveillance of recurrent lymphoma. She underwent hematologic work-up and HIV testing to rule out immunologic compromise. Surgical excision of a solitary PC-ALCL can be definitive treatment, such as in this case, whereas multiple lesions, secondary lesions, or systemic disease may require chemotherapy and/or radiotherapy.^{9,10}

CONCLUSIONS

We describe a rare case of CD30(+) ALK(-) PC-ALCL presenting as a solitary, rapidly-enlarging facial mass in a previously healthy 47-year-old female patient. This mass was initially attributed to skin irritation and foreign body reaction to a silicone face mask inset. In the era of



Fig. 4. The healed flap at the 6-week postoperative visit.

widespread face masks, dermatologic conditions especially in the lower face may present with more advanced disease due to delayed diagnosis, fewer social interactions, and patient hesitancy for in-person office visits. Healthcare providers should be vigilant on history and physical examination, especially as mask-wearing and social distancing restrictions are lifted.

Mark A. Foglietti, DO, DFACOS
Foglietti Fostyk Plastic Surgery
22901 Millcreek Blvd. Suite 145
Beachwood, OH 44122
E-mail: mafoglietti@aol.com

PATIENT CONSENT

The patient provided written consent for the use of her image.

REFERENCES

1. Krajewski PK, Matusiak L, Szepietowska M, et al. Increased prevalence of face mask-induced itch in health care workers. *Biology (Basel)*. 2020;9:E451.
2. Kim J, Yoo S, Kwon OS, et al. Influence of quarantine mask use on skin characteristics: one of the changes in our life caused by the COVID-19 pandemic. *Ski Res Technol*. 2020.
3. Park SR, Han J, Yeon YM, et al. Effect of face mask on skin characteristics changes during the COVID-19 pandemic. *Ski Res Technol*. 2020 (E-pub ahead of print).
4. Silkiss RZ, Paap MK, Ugradar S. Increased incidence of chalazion associated with face mask wear during the COVID-19 pandemic. *Am J Ophthalmol case Reports*. 2021;22:101032.

5. Zanotti B, Parodi PC, Riccio M, et al. Can the elastic of surgical face masks stimulate ear protrusion in children? *Aesthetic Plast Surg.* 2020;44:1947–1950.
6. Stoll JR, Willner J, Oh Y, et al. Primary cutaneous T-cell lymphomas other than mycosis fungoides and Sezary syndrome – part I: clinical and histologic features and diagnosis. *J Am Acad Dermatol.* 2021;S0190-9622(21)00926-9 (E-pub ahead of print).
7. Nelson JA, McCarthy C, Dabic S, et al. BIA-ALCL and textured breast implants: a systematic review of evidence supporting surgical risk management strategies. *Plast Reconstr Surg.* 2021;147:7S–13S.
8. Sanka RK, Eagle RC Jr, Wojno TH, et al. Spectrum of CD30+ lymphoid proliferations in the eyelid lymphomatoid papulosis, cutaneous anaplastic large cell lymphoma, and anaplastic large cell lymphoma. *Ophthalmology.* 2010;117:343–351.
9. Baik BS, Lee WS, Ji SY, et al. Treatment of primary cutaneous anaplastic large cell lymphoma. *Arch Craniofac Surg.* 2019;20:207–211.
10. Aoki M, Niimi Y, Takezaki S, et al. CD30+ lymphoproliferative disorder: primary cutaneous anaplastic large cell lymphoma followed by lymphomatoid papulosis. *Br J Dermatol.* 2001;145:123–126.