

Dear Editors:

Thank you for the positive and thorough review of our manuscript, "Airway management of a patient with linear immunoglobulin A bullous dermatosis: A case report" (MS NO 91009). We appreciate your provisional acceptance pending revision.

We have reviewed your comments and are submitting a revised version of the article taking them into account. Below, please find the authors' itemized replies to each of the comments.

As the submission system does not allow for a separate manuscript file to be uploaded with the requested yellow highlighting on all revised/added text, the revised manuscript with these additions is included in this document. The manuscript has also been reformatted in accordance with your journal's "Format for Manuscript Revision: Case Report" template.

**REVIEWER #1 COMMENTS:**

**Scientific Quality:** Grade D (Fair)

**Language Quality:** Grade B (Minor language polishing)

**Conclusion:** Major revision

**Specific Comments to Authors:**

The authors present a case of a successful complication management in a patient with an autoimmune disease. The patient had an emergency operative procedure during which she experienced extensive oral bleedings due to a preexisting condition, which were controlled by oral packing and invasive ventilation until drug treatment of the underlying disease took effect. The message is that a multidisciplinary approach before an operation is important, including precautions concerning preexisting comorbidities forbidding ambulatory surgery. In emergency situations good communication between different specialties is vital (which is always the case). A protocol for complication management is provided. The title and abstract are meaningful and concise. The Conclusion and Core Tip support the message. Keywords are relevant. The Introduction gives a lot of information about Linear IgA Bullous Dermatitis (LABD).

**Authors' Response:** We thank the reviewer for the thoughtful examination of our manuscript.

Relevant introductory information for this case are only the first two paragraphs, which should end with the mentioning of limited literature about airway management in these cases (like Line 105-108). The following paragraphs and informations are relevant for the Discussion and are repeated there. They are not relevant for the Introduction and could be deleted.

**Authors' Response:** The introduction has been substantially shortened, and we have included the information regarding limited literature about airway management in these cases.

The Case Presentation is extensive but a little mixed up. The History of the present Illness of course includes LABD. The preoperative diagnosis and first line treatment is described in the personal and Family History section but it should be integrated in the Present Illness History as it is relevant for the present case. The same applies to the patient's economic situation, as it probably was the reason for the discontinuation of the treatment, resulting in aggravation of symptoms. The patients preexisting depression and anxiety might have played a role as well. If so, it should be mentioned. The eye injury was an emergency procedure. It is questionable, why this had to take place in an ambulatory setting and the patient was not transferred to the main hospital preoperatively. The physical examination had revealed the extensive oral ulcerations and the medical history was disclosed before the operation when there still had been time for a transfer to the main hospital. In an emergency setting there might have been reasons for starting the procedure in the ambulatory center with organised transfer postoperatively, but this should be mentioned explicitly.

**Authors' Response:** We appreciate the specific comments related to structuring the Case Presentation section, which has been substantially revised.

The Case Outline gives details about the airway management and the course of events. The first paragraph of the Discussion does not add to this section and could be moved to the Introduction. In this part it should be made clear, if different additional diagnoses were taken into account or discarded and which considerations led to the reported airway management. Where there any alternatives to not doing an emergency procedure right away? Was it not an option to start LABD treatment before the operation and transfer the patient to the main hospital beforehand? The second paragraph is in large parts only a repetition of the Introduction. It does not add any new points. Drug-induced LABD is not uncommon (and mentioned in Lines 248/249), but it needs to be explicitly explained, why an idiopathic LABD was assumed in this case, as discontinuation of an inducing agent would have been the first hand treatment. This point somehow is mentioned in the Conclusion but does not belong there. The pharmaceutical treatment of LABD is then mentioned with possible complications. That is o.k., but the local actions controlling the bleeding are very relevant. The effect of Dapsone after 72 hours is good to know, but an anaesthetist experiencing oral bleeding needs to control these right away. That of course is standard for ENT anaesthesia, but are there special issues in LABD to be considered? If not, that would be worth mentioning as well, as it would then just be an issue of "bridging" the patient until the medication takes effect.

**Authors' Response:** We appreciate the specific comments related to the structure

and content of the Case Outline section, which has been has been substantially revised.

The Conclusion is not really a good summarization. First, it includes considerations which should be part of the Discussion (Lines 262-265) ore the Case Presentation (Lines 265-268). Second, it is somewhat contradictory, because some details of the patient`s medical history had been known before the operation. The second paragraph describes features of the ambulatory surgical center which luckily allowed for a successful management. That should not be part of the Conclusion, it might make sense for the Case Presentation. The third paragraph is giving a part of a protocol to manage airway complications in LABD, which is a relevant message. The last paragraph is only repeating the Abstract`s conclusion. A good examination before surgery to avoid complications and the importance of a multidisciplinary approach are relevant messages of this case report, so they need to be included in this section.

**Authors' Response:** We appreciate the specific comments related to the Conclusion section, which has been has been substantially revised.

References are very short (especially concerning the treatment, as presently Dapsone has gone more to the second line). One of the pictures shows the firm name STORZ. That is not relevant to the case, the picture should be edited to show only the airway.

**Authors' Response:** The indicated figure has been edited as per the reviewer's comment.

In short, the case is interesting and might help anaesthesists not experienced in ENT or dental anaesthesia. The text needs to be "cleaned up" to increase readability. The Conclusion must be completely rewritten as it does not really support the messages of the case report.

**Authors' Response:** We appreciate the positive and helpful feedback. The manuscript as a whole, as well as the Conclusion section, has been substantially revised to account for these and other concerns.

#### **4 LANGUAGE POLISHING REQUIREMENTS FOR REVISED MANUSCRIPTS SUBMITTED BY AUTHORS WHO ARE NON-NATIVE SPEAKERS OF ENGLISH**

As the revision process results in changes to the content of the manuscript, language problems may exist in the revised manuscript. Thus, it is necessary to perform further language polishing that will ensure all grammatical, syntactical, formatting and other related errors be resolved, so that the revised manuscript will meet the publication requirement (Grade A).

**Authors are requested to send their revised manuscript to a professional English language editing company or a native English-speaking expert to polish the manuscript further. When the authors submit the subsequent polished manuscript to us, they must provide a new language certificate along with the manuscript.**

Once this step is completed, the manuscript will be quickly accepted and published online. Please visit the following website for the professional English language editing companies we recommend: <https://www.wjgnet.com/bpg/gerinfo/240>.

**Authors' Response:** Prior to submission, the original manuscript was reviewed and revised by two editors from the University of Florida College of Medicine Department of Anesthesiology's Communications & Publishing Office, and the revised manuscript has received another review from that office. If there are specific grammatical, syntactical, formatting, or other issues that have escaped their notice, please identify them and we will be happy to review.

## 5 ABBREVIATIONS

In general, do not use non-standard abbreviations, unless they appear at least two times in the text preceding the first usage/ definition. Certain commonly used abbreviations, such as DNA, RNA, HIV, LD50, PCR, HBV, ECG, WBC, RBC, CT, ESR, CSF, IgG, ELISA, PBS, ATP, EDTA, and mAb, do not need to be defined and can be used directly.

The basic rules on abbreviations are provided here:

- (1) Title:** Abbreviations are not permitted. Please spell out any abbreviation in the title.
- (2) Running title:** Abbreviations are permitted. Also, please shorten the running title to no more than 6 words.
- (3) Abstract:** Abbreviations must be defined upon first appearance in the Abstract.  
Example 1: Hepatocellular carcinoma (HCC). Example 2: *Helicobacter pylori* (*H. pylori*).
- (4) Key Words:** Abbreviations must be defined upon first appearance in the Key Words.
- (5) Core Tip:** Abbreviations must be defined upon first appearance in the Core Tip.  
Example 1: Hepatocellular carcinoma (HCC). Example 2: *Helicobacter pylori* (*H. pylori*)
- (6) Main Text:** Abbreviations must be defined upon first appearance in the Main Text.  
Example 1: Hepatocellular carcinoma (HCC). Example 2: *Helicobacter pylori* (*H. pylori*)
- (7) Article Highlights:** Abbreviations must be defined upon first appearance in the Article Highlights. Example 1: Hepatocellular carcinoma (HCC).  
Example 2: *Helicobacter pylori* (*H. pylori*)
- (8) Figures:** Abbreviations are not allowed in the Figure title. For the Figure Legend text, abbreviations are allowed but must be defined upon first appearance in the text.  
Example 1: A: Hepatocellular carcinoma (HCC) biopsy sample; B: HCC-adjacent tissue sample. For any abbreviation that appears in the Figure itself but is not included in the Figure Legend textual description, it will be defined (separated by semicolons) at the end of the figure legend. Example 2: BMI: Body mass index; US: Ultrasound.

**(9) Tables:** Abbreviations are not allowed in the Table title. For the Table itself, please verify all abbreviations used in tables are defined (separated by semicolons) directly underneath the table. Example 1: BMI: Body mass index; US: Ultrasound.

**Authors' Response:** These guidelines have been reviewed while revising the manuscript and the updated version should reflect adherence to them.

## **6 EDITORIAL OFFICE'S COMMENTS**

Authors must revise the manuscript according to the Editorial Office's comments and suggestions, which are listed below:

### **(1) Science editor:**

**1 Conflict of interest statement:** No conflict of interest.

**2 Manuscript's theme:** The topic is within the scope of the journal.

**3 Academic misconduct:** No academic misconduct was found.

**4 Scientific quality:** The authors submitted a manuscript reporting a case of airway management of a patient with linear immunoglobulin a bullous dermatosis. The manuscript is overall qualified.

**(1) Advantages and disadvantages:** The reviewer has given positive peer-review reports for the manuscript. Scientific Classification: Grade D; Language Quality: Grade B. The authors present a case of a successful complication management in a patient with an autoimmune disease. The patient had an emergency operative procedure during which she experienced extensive oral bleedings due to a preexisting condition, which were controlled by oral packing and invasive ventilation until drug treatment of the underlying disease took effect. The message is that a multidisciplinary approach before an operation is important, including precautions concerning preexisting comorbidities forbidding ambulatory surgery. In emergency situations good communication between different specialties is vital. A protocol for complication management is provided. The Conclusion is not really a good summarization.

**Authors' Response:** We thank the reviewer for the thoughtful examination of our manuscript. The Conclusion section has been substantially revised to account for this and the other reviewer's feedback.

**(2) Table(s) and figure(s):** There are 3 figures, and all should be improved.

**Authors' Response:** The figures have been reviewed and updated in the revised manuscript.

**(3) References:** A total of 5 references are cited, including no references published in the last 3 years. There are no self-cited references of the authors. The cited references are overall sufficient and reasonable. The reviewer didn't request the authors to cite improper references published by him/herself.

**Authors' Response:** We appreciate the positive feedback on our use of references.

**5 Language evaluation:** The English-language grammatical presentation needs to be improved to a certain extent.

**Authors' Response:** The updated manuscript has been reviewed by and revised in coordination with the editor in the University of Florida College of Medicine Department of Anesthesiology's Communications & Publishing Office.

**6 Medical ethics:** Please provide the filled conflict-of-interest disclosure form. Please provide the CARE Checklist (2016).

**Authors' Response:** The completed conflict-of-interest disclosure form and CARE Checklist (2016) have been included with our submission.

## **7 Specific comments:**

(1) Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor. If the author has used a figure published elsewhere or that is copyrighted, the author needs to be authorized by the previous publisher or the copyright holder and/or indicate the reference source and copyrights. Please check and confirm whether the figures are original (*i.e.* generated *de novo* by the author(s) for this paper). If the picture is 'original', the author needs to add the following copyright information to the bottom right-hand side of the picture in PowerPoint (PPT): Copyright ©The Author(s) 2024.

**Authors' Response:** The figures have been prepared in accordance with this guidance.

(2) Uniform presentation should be used for figures showing the same or similar contents; for example, "Figure 1 Pathological changes of atrophic gastritis after treatment. A: ...; B: ...; C: ...; D: ...; E: ...; F: ...; G: ...".

**Authors' Response:** The figures have been prepared in accordance with this guidance.



**8 Recommendation:** Conditional acceptance.

Language Quality: Grade B (Minor language polishing)

Scientific Quality: Grade D (Fair)

**Authors' Response:** We appreciate the conditional acceptance and have taken all editorial feedback into account while revising the manuscript. The updated manuscript has been reviewed by and revised in coordination with the editor in the University of Florida College of Medicine Department of Anesthesiology's Communications & Publishing Office.

**(2) Company editor-in-chief:**

I have reviewed the Peer-Review Report, and full text of the manuscript, all of which have met the basic publishing requirements of the *World Journal of Clinical Cases*, and the manuscript is conditionally accepted. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office's comments and the Criteria for Manuscript Revision by Authors.

**Authors' Response:** We appreciate the conditional acceptance and have taken all editorial feedback into account while revising the manuscript.

When revising the manuscript, it is recommended that the author supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript. To this end, authors are advised to apply PubMed, or a new tool, the RCA, of which data source is PubMed. RCA is a unique artificial intelligence system for citation index evaluation of medical science and life science literature. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at: <https://www.referencecitationanalysis.com/>, or visit PubMed at: <https://pubmed.ncbi.nlm.nih.gov/>.

**Authors' Response:** We reviewed the PubMed and RCA results with regards to our keywords in preparing our revision to the manuscript.

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**Name of Journal:** *World Journal of Clinical Cases*

**Manuscript NO:** 91009

**Manuscript Type:** CASE REPORT

**Airway management of a patient with linear immunoglobulin A bullous dermatosis:  
A case report**

Olga C Nin, Robert Hutnik, Neil N Chheda, David Hutchinson

**Olga C Nin, Robert Hutnik, David Hutchinson,** Department of Anesthesiology,  
University of Florida College of Medicine, Gainesville, Florida, USA

**Neil N Chheda,** Department of Otolaryngology, University of Florida College of  
Medicine, Gainesville, Florida, USA

**Author's contributions:** Chheda NN and Hutchinson D critically reviewed and revised the manuscript. Nin OC wrote the original draft and critically reviewed and revised the manuscript.

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**Corresponding author: Olga C Nin, MD, Medical Director of Florida Surgical Center, Associate Professor,** Department of Anesthesiology, University of Florida College of Medicine, 1600 SW Archer Road, PO Box 100254, Gainesville, FL 32610, USA.  
onin@anest.ufl.edu



## **Abstract**

### **BACKGROUND**

There is limited literature on managing the airway of patients with linear immunoglobulin A (IgA) bullous dermatosis, a rare mucocutaneous disorder that leads to the development of friable bullae. Careful clinical decision making is necessary when there is a risk of bleeding into the airway, and a multidisciplinary team approach may lead to decreased patient morbidity during these high-risk scenarios, especially when confronted with an unusual cause for bleeding.

### **CASE SUMMARY**

A 45-year-old African American female presented to our ambulatory surgical center for right corneal transplantation due to corneal perforation after blunt trauma in the setting of cicatricial conjunctivitis and diffuse corneal neovascularization from linear IgA bullous dermatosis. The diagnosis of IgA dermatosis was recent, and the patient had been lost to follow-up. The severity of the disease and extent of airway involvement was unknown at the time of the surgery. Significant airway bleeding was noticed upon intubation and the otorhinolaryngology team had to be called to the operating room. The patient required transfer to the intensive care unit where a multidisciplinary team was involved in her case. The patient was extubated on postoperative day 4.

### **CONCLUSION**

A multidisciplinary approach to treating this disease is the best course of action before a surgical procedure. In our case, key communication between the surgery, anesthesia, and dermatology teams led to the quick and safe treatment of our patient's disease. Ambulatory surgery should not be considered for these cases unless they are in full remission and there is no mucous membrane involvement.

**Key Words:** Airway management; Bleeding risk; Case report; Linear immunoglobulin A bullous dermatosis; Multidisciplinary approach; Outpatient procedure

**Core Tip:** Linear immunoglobulin A bullous dermatosis, a rare mucocutaneous disorder, can lead to significant airway bleeding due to the presence of friable bullae. Airway emergencies in ambulatory surgical centers can be very high risk. A multidisciplinary discussion of the disease and patient optimization needs to be performed before the day of surgery. These cases should be treated in the inpatient setting where resources are most easily accessible, and an ear, nose, and throat team should be available.

## INTRODUCTION

Linear immunoglobulin A (IgA) bullous dermatosis (LABD) is an autoimmune mucocutaneous disease involving disruption of the dermoepidermal junction, resulting in the formation of blisters or bullae<sup>[1]</sup>. IgA autoantibodies attach to antigens in the skin's basement membrane and mucosa, causing these clinical findings. Lesions typically appear as clear or hemorrhagic bullae with an urticarial base on the face, trunk, buttocks, and skin overlying joint sites. In 60% to 80% of cases, mucosal membranes, including the eyes and oral cavity, are also affected<sup>[2]</sup>. Patients with mucosal involvement can experience morbidity related to corneal scarring and pharyngeal or esophageal stricture formation, requiring surgical intervention. There is limited literature on the intraoperative management of these patients, especially regarding airway instrumentation.

## CASE PRESENTATION

### *Chief complaints*

Decreased vision in the right eye.

### *History of present illness*

A 45-year-old African American female presented to our ambulatory surgical center for right corneal transplantation due to corneal perforation in the setting of cicatricial

conjunctivitis, as well as diffuse corneal neovascularization from LABD. At the time of the surgery, the severity of the disease was unknown. The patient had been lost to follow-up with dermatology and was not taking any medications for her LABD. The severity of the patient's history of LABD diagnosis was only discovered after the operating room case and an in-depth conversation with her dermatologist. The patient's LABD was considered idiopathic per her dermatologist, given the absence of any inciting medication or infection. She began experiencing skin rashes and blisters in 2017. In June 2019, she sought medical attention due to mucosal membrane involvement, but at that time no medical therapy was initiated. In January 2021, she developed visual problems with her right eye and, following a confirmatory skin biopsy, was officially diagnosed with LABD in February 2021. Dapsone therapy was initiated in April 2021. She was hospitalized in May 2021 for a corneal ulcer of the right eye and was treated with one dose of intravenous immunoglobulin (IVIG), rituximab infusions, and 25 mg of oral dapsone twice each day. The patient received 4 doses of rituximab and was lost to follow-up until August 2021. This case was emergent due to the risk of permanent visual loss. The surgery was scheduled at the freestanding outpatient surgical center due to the presence of necessary equipment, personnel, and materials.

### *History of past illness*

The patient's medical history consisted of anxiety, depression, chronic benzodiazepine dependence, chronic back pain, hypertension, constipation, genital herpes, prior cocaine abuse, and LABD.

### *Personal and family history*

The patient had a strong family history of autoimmune disease, with paternal cousins having sarcoidosis, systemic lupus erythematosus, and multiple sclerosis. The patient was married and lived a few hours away from our hospital location. She was of a lower socioeconomic background and had trouble affording medications for her treatment.

### *Physical examination upon admission*

The patient had visible nasal ulcers and some white ulcers on her tongue (Figure 1). There was no history of bleeding in her mouth or of previous anesthetic complications. The rest of the physical exam was normal.

### *Laboratory examinations*

No laboratories needed for preoperative evaluation before this emergent case.

### *Imaging examinations*

See Figure 1 to show the preoperative oral and nasal lesions.

## **CASE OUTLINE**

On August 10, 2021, the patient presented to the free-standing ambulatory surgical center for a corneal transplant of the right eye under general anesthesia. On the day of surgery, an anesthetic preoperative evaluation and a focused physical examination were performed. The patient had visible clear nasal ulcers and white ulcers on her tongue (Figure 1). There was no history of bleeding in her mouth or of previous anesthetic complications. General anesthesia was indicated, given the type of surgery; therefore, airway manipulation was required. The decision was made to intubate using a C-MAC for optimal airway visualization due to the unknown extent of mucosal involvement of her disease, and complete visualization of the oropharynx was desirable. A peripheral intravenous catheter was placed, and 2 mg of intravenous midazolam was administered before proceeding to the operating room. She received a standard intravenous anesthesia induction with propofol, fentanyl, lidocaine, and rocuronium.

Upon careful placement of the C-MAC Mac 3 blade, ulcerative lesions were observed throughout the oropharynx, epiglottis, and vallecula. There was spontaneous and diffuse bleeding from lesions in the vallecula, even with minimal manipulation, and the airway was quickly secured using a wire-reinforced 7.0 endotracheal tube. A wire-reinforced tube was chosen so the endotracheal tube could be taped to the chin for

surgical exposure. The ear, nose, and throat (ENT) team was called to the operating room to evaluate the bleeding, where they performed a visual examination by C-MAC, suctioned, and placed five epinephrine-soaked (0.1 mg/mL) cottonoids in the oropharynx. After a discussion between the ENT and ophthalmology teams, the decision was made to proceed with the surgery and transfer the patient intubated after surgery to our institution's main hospital surgical intensive care unit under the care of the ENT team. This hospital is located 20 min from our free-standing outpatient facility. Upon successful completion of the surgical procedure, the patient was transferred intubated to the surgical intensive care unit *via* ambulance.

The patient was transferred in stable condition to the main hospital by ambulance under the direct supervision of the attending anesthesiologist. To assess the extent of the ulcerative lesions before trial extubation, a bedside bronchoscopy was performed that revealed no ulcerative lesions in the trachea or bronchi. Ventilator weaning commenced, and extubation was planned in the operating room when clinically indicated. On postoperative day 1, the patient was taken to the operating room where a micro-suspended direct laryngoscopy was performed. Despite minimal manipulation, diffuse mucosal bleeding in the oral cavity and oropharynx was observed. The oral cavity was packed for hemostasis, and the patient remained intubated (Figure 2).

Due to the severity and extent of the disease, the dermatology team reinitiated dapsone therapy and prescribed a course of intravenous methylprednisolone and a single dose of both cyclophosphamide and IVIG. Overnight, the patient was observed to have a few isolated episodes of agitation that resulted in spontaneous bleeding; therefore, the oropharynx was repacked with epinephrine- and tranexamic acid-soaked Kerlix. On postoperative day 3, the ENT team removed the oral packing. On postoperative day 4, the patient returned to the operating room and was successfully extubated to cool, humidified air *via* a face mask. She received a dose of intravenous cyclophosphamide and was discharged 2 d later with a course of prednisone daily and dapsone with a follow-up for a second intravenous cyclophosphamide infusion planned in 1 mo. A timeline of this case can be seen in Figure 3.

## **FINAL DIAGNOSIS**

Right corneal perforation due to cicatricial conjunctivitis and diffuse corneal neovascularization from LABD.

## **TREATMENT**

Patient was treated with dapsone and a course of prednisone. In the hospital the patient was given a course of intravenous methylprednisolone and a single dose of both cyclophosphamide and IVIG. She subsequently received monthly IV cyclophosphamide home infusions.

## **OUTCOME AND FOLLOW-UP**

The patient continues on monthly cyclophosphamide infusions and daily oral prednisone and dapsone. She is seeing her dermatologist monthly.

## **DISCUSSION**

LABD is a markedly rare disease, so very few anesthesiologists have experience managing these patients. In Europe, the incidence is approximately 0.1 per million. It presents in a bimodal age distribution: children aged six months to 10 years old (mean age five years old, rarely persisting past puberty) and adults over 60 years old. LABD is typically triggered by infection but can also be drug-induced by exposure to antibiotics (most notably vancomycin), antihypertensives, and nonsteroidal anti-inflammatory drugs. While some LABD presentations are idiopathic, associations with other systemic diseases have been demonstrated, such as ulcerative colitis, systemic lupus erythematosus, and lymphoproliferative disorders. Up to 5% of reported cases of LABD have been associated with lymphoid malignancies including Hodgkin's or B-cell lymphoma. Idiopathic LABD may persist for decades with episodes of relapse/remission. In our patient, LABD was diagnosed in February 2021 and deemed idiopathic<sup>[3]</sup>.

Diagnosis is confirmed by clinical, histopathological, and immunological data. Treatment varies depending on the degree of severity of disease and the potential inciting event. In suspected drug-induced LABD, removal of the offending medication may result in gradual resolution. The mainstay of treatment in LABD is dapsone (50-150 mg daily in adults), which can begin resolution of lesions within 72 h. Per a collection of case reports, median length of dapsone treatment is 26 mo<sup>[4]</sup>. Common side effects of dapsone include hemolytic anemia (G6PD deficiency), methemoglobinemia, motor neuropathy, hepatitis, cholestatic jaundice, and hypoalbuminemia. Routine complete blood count, liver function tests, and G6PD levels should be checked while on dapsone therapy. Immunosuppressants (azathioprine, methotrexate, mycophenolate mofetil, and cyclophosphamide) and corticosteroids are other modalities used for treatment. Chronic use of cyclophosphamide can lead to the onset of malignancies, such as bladder cancer<sup>[5]</sup>. Other treatment options include colchicine, tetracyclines, sulfonamides, nicotinamides, and IVIG.

Dermatology input and medication management were key to improving our patient's outcome. She continued on dapsone and was also given intravenous methylprednisolone, IVIG, and a dose of cyclophosphamide to treat her mucous membrane lesions and allow for extubation.

For an anesthesiologist caring for patients with LABD, the most critical information needed is the presence of mucous membrane involvement and airway compromise. In the event of airway bleeding with this disease, ENT intervention to control bleeding with epinephrine and tranexamic acid is necessary to protect the airway as medical treatment begins to take effect. Our ambulatory surgical center and the ENT clinics are all in the same building, helping our team initiate treatment quickly.

For our case, the severity and details of the disease were unknown at the time of the surgery. The surgery was emergent and needed to proceed to try to save vision in her eye. In our health system, corneal transplants are only done at our ambulatory center; necessary supplies and equipment are not present in the hospital. The patient did not report as scheduled to the anesthesia preoperative clinic so the first time the patient was



evaluated by the anesthesia team was on the day of her surgery. Given the emergent need to preserve her vision, the necessity of performing the surgery at our ambulatory center, and the absence of any history of airway bleeding, the decision was made to proceed. Going forward, such cases must be completed in the inpatient setting; our system now has plans in place to transfer necessary equipment and staff to the inpatient setting as necessary.

## CONCLUSION

To our knowledge, this is the first case report of the anesthetic implications of LABD<sup>[4]</sup> involving the mucous membranes of the nasal cavities and oropharynx. Given the lack of information on this disease and its extent in this patient, our anesthesia team was unaware of the lesions we would encounter throughout both the oropharynx and hypopharynx. Upon intubation, we understood the extent of the lesions and their friability. In retrospect, we should have consulted the ENT team preoperatively for a preoperative nasopharyngoscopy to determine the extent of the lesions. Had the patient attended her preoperative clinic appointment, our team may have had more information available.

A multidisciplinary approach to treating this disease is the best course of action before a surgical procedure. Ambulatory surgery should not be considered for these cases unless they are in full remission and there is no mucous membrane involvement. In our case, key communication between the surgical services, anesthesia, and dermatology teams occurred after the surgery and led to quick and safe treatment. We present this case to bring forward important anesthetic considerations for this rare disease.

This manuscript was prepared in compliance with the Health Insurance Portability and Accountability Act (HIPAA) of 1996 privacy regulations and adheres to applicable Enhancing the Quality and Transparency of Health Research guidelines (CARES [for CAse REportS] checklist). Written patient consent and written HIPAA authorization for the publication of this case report were obtained using a standardized consent form. Institutional Review Board consent was not required.

### ***Learning points***

- 1) Mucous lesions in the oropharynx and hypopharynx can be extremely friable and cause bleeding upon minimal manipulation.
- 2) Early dermatology intervention and medication administration is key to a quick recovery from an acute exacerbation.
- 3) Proper planning of operating room intervention in a hospital setting is vital to mitigate potential airway complications. These cases should not be done in an ambulatory setting.

### **ACKNOWLEDGEMENTS**

The authors thank Bryan Penberthy, MFA, of the University of Florida College of Medicine Department of Anesthesiology's Communications & Publishing office for his editorial assistance with this manuscript.

### **REFERENCES**

- 1 **Chen S**, Mattei P, Fischer M, Gay JD, Milner SM, Price LA. Linear IgA bullous dermatosis. *Eplasty* 2013; **13**: ic49 [PMID: 23882302]
- 2 **Guide SV**, Marinkovich MP. Linear IgA bullous dermatosis. *Clin Dermatol* 2001; **19**: 719-727 [PMID: 11705681 DOI: 10.1016/s0738-081x(00)00185-1]
- 3 **Lammer J**, Hein R, Roenneberg S, Biedermann T, Volz T. Drug-induced linear IgA bullous dermatosis: a case report and review of the literature. *Acta Derm Venereol* 2019; **99**: 508-515 [PMID: 30809685 DOI: 10.2340/00015555-3154]
- 4 **Lings K**, Bygum A. Linear IgA bullous dermatosis: a retrospective study of 23 patients in Denmark. *Acta Derm Venereol* 2015; **95**: 466-471 [PMID: 25350667 DOI: 10.2340/00015555-1990]

5 **Vale ECSD**, Dimatos OC, Porro AM, Santi CG. Consensus on the treatment of autoimmune bullous dermatoses: dermatitis herpetiformis and linear IgA bullous dermatosis - Brazilian Society of Dermatology. *An Bras Dermatol* 2019; **94**: 48–55 [PMID: 31166403 DOI: 10.1590/abd1806-4841.2019940208]

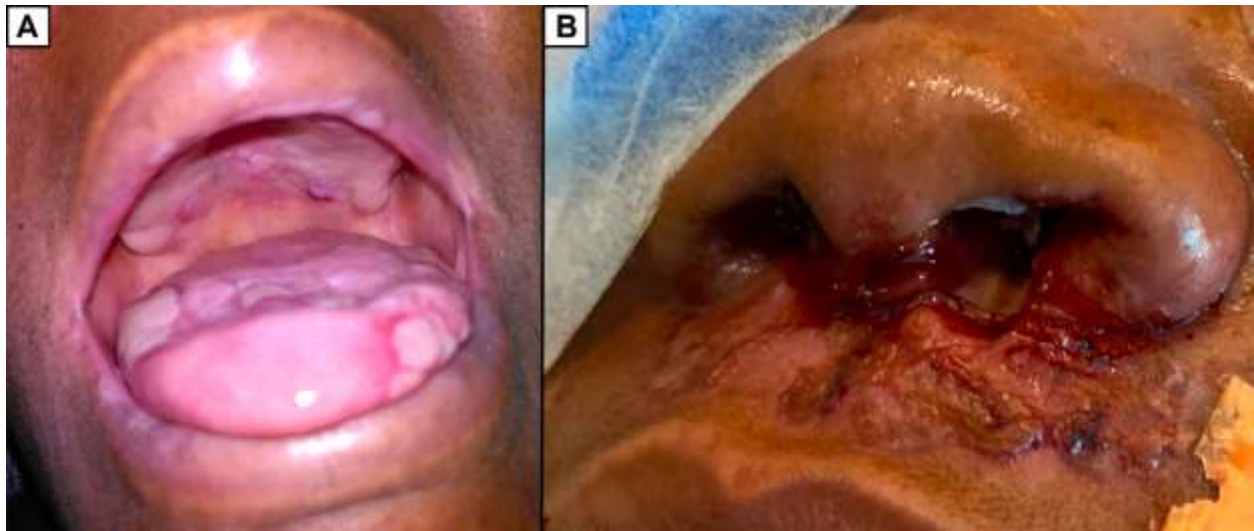
## **Footnotes**

**Informed consent statement:** Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

**Conflict-of-interest statement:** The authors declare that they have no conflict of interest to disclose.

**CARE Checklist (2016) statement:** The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

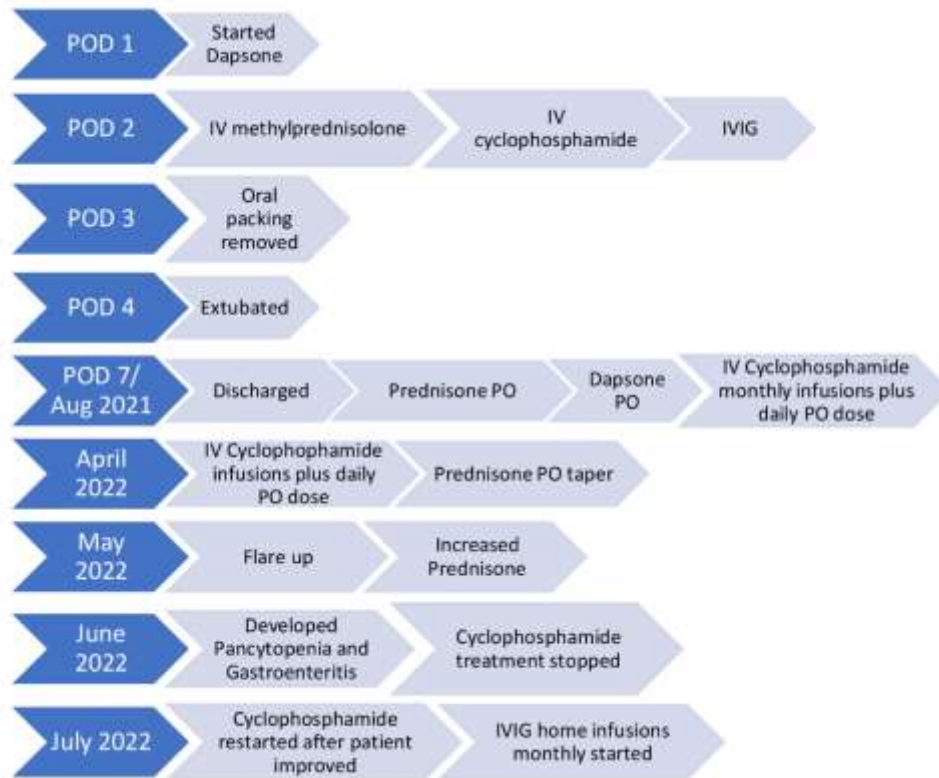
## Figure Legends



**Figure 1 Preoperative tongue and nasal lesions.** A: Preoperative tongue lesions; B: Preoperative nasal lesions.



**Figure 2 Hypopharynx of the airway in the operating room on postoperative day 1.**



**Figure 3 Timeline of case.**