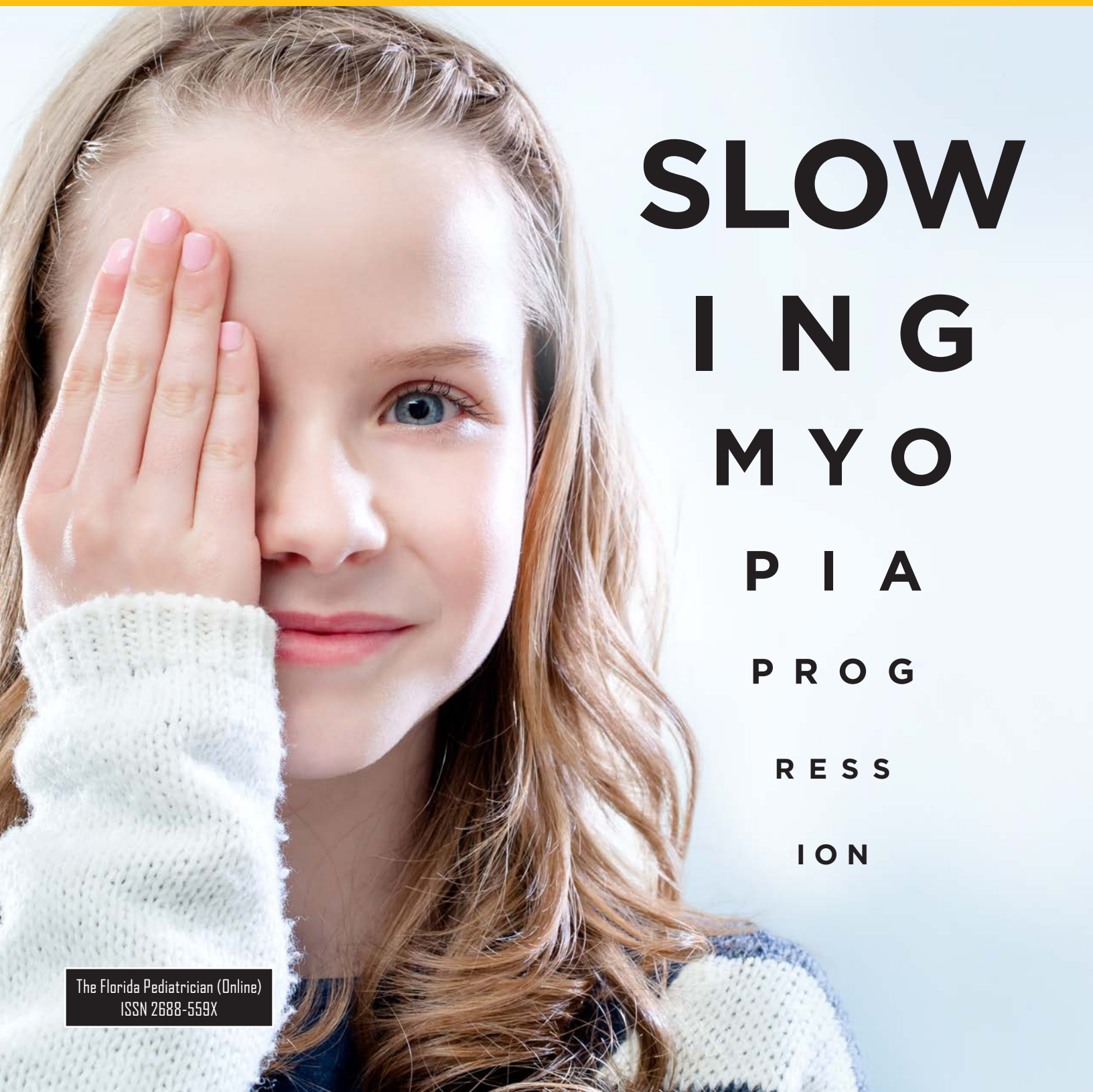
The Florida Pediatrician

FCAAP
Florida Chapter
OF THE AMERICAN ACADEMY OF PEDIATRICS
INCORPORATED IN FLORIDA

THE PEER-REVIEWED JOURNAL OF THE FLORIDA CHAPTER OF THE AAP SPRING 2024



SLOWING MYOPIA PROGRESSION

The Florida Pediatrician (Online)
ISSN 2688-559X

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VOLUME 44, ISSUE 2

Florida Chapter of the American Academy of Pediatrics
INCORPORATED IN FLORIDA

The Florida Pediatrician is the peer-reviewed journal of the Florida Chapter of the American Academy of Pediatrics, published by the FCAAP Editorial Board for FCAAP members.

Florida Chapter of the American Academy of Pediatrics, Inc.
1400 Village Square Blvd #3-87786, Tallahassee, FL 32312 | 850-224-3939 | info@fcaap.org

Goodbye, Dr. Schiebler

In March we lost a true titan of pediatrics: Gerold L. Schiebler, MD. Dr. Schiebler was a phenomenon when it came to advocacy for children. But he was more than that. He was a mentor, a scholar, a gentleman, a friend and academic father to many physicians.

I had the distinct honor of knowing Dr. Schiebler as a teacher, a mentor, and a friend. I can tell many stories about Dr. Schiebler and about his numerous accomplishments. How he was instrumental in getting many child friendly laws passed in Florida. However, I will limit myself to personal stories.

Thirty-three years ago, when I came to the University of Florida, the pediatric HIV services in Jacksonville, Florida were floundering because of a lack of an organized HIV program. It was largely due to lack of funding. I was frustrated and sought advise form late Dr. Sam Katz. He advised that I seek out Dr. Schiebler and said that "he will get you what you need." He was correct. I remember Dr. Schiebler telling me 33 years ago that getting pediatric HIV services funded in Florida will be his "last hurrah." We all know he never stopped advocating for children – even 3 days before his death he was on statewide advocacy meeting. The current statewide Pediatric HIV program is a testament to his advocacy and there would not have been a UF Center for HIV/AIDS Research Education and Service (UF CARES) in Jacksonville without Dr. Schiebler. But the there would not have been a CMS, Poison Control Center network, Congenital heart Center and many more programs without Dr. Schiebler

He got me involved with the Florida Chapter of the AAP (FCAAP). One day he called and told me, "You should be in the leadership of FCAAP". You never said no to Dr. Schiebler! I am thankful to him for getting me involved with FCAAP.

It is the little things he did. He always remembered the names of spouses and children. He always asked how they were and remembered what they were doing. One time, I was on a trip which included Mrs. Schiebler (and not Dr. Schiebler). I helped her during the trip with some things, and he was ever so thankful. He sent me one of his famous handwritten thank you notes. I would miss his 6 am calls when he would discuss specific issues and plans to address them. How can I forget "Schiebler's lists?" A few years ago, he had a fall which required weeks of rehabilitation. I visited him daily on my way home. One day, I came home and told my wife Dr. Schiebler is fine. She asked how do I know that with such surety. I said he gave me a list of things to do.

I can write pages of stories about Dr. Schiebler, but for the page limit of the journal.

I am sure he has a list of things that need to be done for children in Florida that he will share with God in heaven.

Rest in Peace Dr. Schiebler!! I will miss your early morning calls and your lists, among many other things. There will be no one like you again.

Mobeen H. Rathore, MD, CPE, FAAP, FPIDS, FSHEA, FIDSA, FACPE
Editor, The Florida Pediatrician

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CASE REPORT

Sertraline Induced Stuttering in a Pediatric Patient

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ABSTRACT

An adolescent female was referred to the Developmental and Behavioral Pediatrics clinic for evaluation of anxiety and depression. She was diagnosed with generalized anxiety disorder and major depressive disorder based on the Diagnostic and Statistical Manual-5 (DSM-5) criteria. Evidence-based treatment was initiated, including psychotherapy and pharmacotherapy, with the selective serotonin reuptake inhibitor (SSRI), sertraline. Stuttering was noted with dose titration, which resolved after weaning the dose and discontinuing the sertraline.

The use of SSRIs for the pharmacological treatment of anxiety and depression is considered first-line in the pediatric population; therefore, familiarity with the side effects of SSRIs is essential. SSRI-induced stuttering has been reported in the adult population. We present the first known pediatric case. This case will help pediatric medical providers counsel patients regarding this rare medication side effect and aid decision-making based on preexisting speech and language disorders and possible social implications.

BACKGROUND

The rate of anxiety and depression diagnosed in children ages 6-17 years increased from 5.4% in 2003 to 8.4% in 2011-2012.[1] Furthermore, stressors, such as those associated with the current COVID-19 pandemic, have increased the prevalence of depression and anxiety. According to a meta-analysis done by Racine, et al., during the COVID-19 pandemic, 1 in 4 youths and 1 in 5 youths were found to experience clinically significant depression and anxiety, respectively.[2] Thus, the need for pediatricians to be familiar with treatment plans, including psychotherapy, pharmacotherapy, and the potential side effects of pharmacotherapy, is essential. To our knowledge, we report the first case of an adolescent with sertraline-induced speech dysfluency, described as stuttering.

PRIMARY OBJECTIVE

Create awareness among pediatricians regarding a less common side effect of antidepressant medications, specifically, stuttering associated with SSRI use, which has not been previously reported in children.

SUBJECT PRESENTATION

A 16-year-old female was referred to the Developmental and Behavioral Pediatrics clinic with concerns about anxiety and depression. She was diagnosed with Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) based on history and diagnostic criteria as defined in DSM-5. These diagnoses were further supported by elevated scores of 46 on the Screen for Child Anxiety Disorders (SCARED)-Child Version (>25 significant) and 19 on the Patient Health Questionnaire-9 for Teens (PHQ-9) (15-19 = moderately severe depression). She reported a history of bullying at school, exacerbating her anxiety and depression symptoms, which also led to her switching to homeschool instruction. Her psychiatric history was negative for symptoms of hallucinations or symptoms of mania. Her medical history was otherwise unremarkable, and she was not taking any prescribed medications at the time of presentation. She further denied the use of recreational drugs, alcohol, or tobacco. Her family history was negative for mental health, developmental, or speech and language disorders. She was developmentally appropriate for her age and had no history of speech dysfluency or language disorders. She was noted to be well-developed and well-nourished. Vital signs were within normal limits. Her general physical examination, including cardiac, respiratory, and abdominal systems, was normal.

A treatment plan was initiated, including Cognitive Behavioral Therapy (CBT) in combination with the SSRI, fluoxetine, at a low dose of 10 milligrams (mg). After a failed attempt with fluoxetine 10 mg, due to the side effect of nausea, she was switched to the alternative SSRI, sertraline, at the low dose of 25mg daily. At her 2-week follow-up visit, she reported that the sertraline was well tolerated. However, no improvement was noted in her impairing anxiety and depression symptoms. Hence, the dose of sertraline was titrated up to 50mg daily. Approximately three weeks after the dose titration, she presented to our clinic with a new complaint of difficulties with speech fluency, described as stuttering. She reported an overall improvement in her anxiety and depression, but the stuttering was impairing her social functioning, and she requested that the sertraline be discontinued. To minimize side effects from abrupt discontinuation of sertraline, the dose was lowered to the last tolerated dose of 25mg to wean off the sertraline. At her two-week follow-up, she reported resolution of the stuttering while on 25mg of sertraline. Since the symptoms of anxiety and depression were not optimally managed at this dose, sertraline was discontinued, and she was started on another SSRI, escitalopram, at a low dose of 10mg.

Follow-up at four weeks revealed no stuttering, and anxiety and depression symptoms were better controlled. The patient also contemplated returning to school during the upcoming academic year. There was no recurrence of the stuttering over the following year while taking the escitalopram dose of 10mg.

DISCUSSION

Mental health disorders are frequently encountered in pediatrics, and the prevalence of anxiety and depression is increasing among children and adolescents. This has led to an increase in the use of SSRI medications, as they are the recommended first-line pharmacologic treatment modality for pediatric anxiety and depression.[3,4] As such, awareness of the side effects is essential to the prescriber, the patient, and the family. The known side effects of SSRIs are nausea, insomnia, headache, dry mouth, and, rarely, serotonin syndrome, which is a potentially life-threatening complication. T he elimination half-life of sertraline is 22-36 hours.[5] There have been previous reports of adults with stuttering after initiation of SSRIs. Guthrie et al.[6] and Messiha et al.[7] reported fluoxetine-induced stuttering in adults. Christensen et al.[8] reported a 32-year-old female with stuttering after three weeks of sertraline use at a dose of 50mg. Complete resolution of stuttering was noted within three days of discontinuation of the sertraline, coinciding with the elimination half-life of the drug.[9] To our knowledge, ours is the first case report of speech dysfluency reported in a pediatric patient after the initiation of sertraline. This might also be dose-specific, where higher doses place the patient at higher risk for developing stuttering symptoms.

The pathophysiology of stuttering is not well understood. The literature points to possible abnormalities in sensory-motor processing.[10] Stuttering or speech dysfluency can be seen in the pediatric population and often resolves before adulthood. Less than 1 percent of adults stutter, and 80% are male.[11] Stuttering becomes identifiable when a child learns to talk; sometimes, they may have associated eye blinking, jaw jerking, or other involuntary movements. These symptoms can cause anxiety and embarrassment in an individual.[12] There is no pharmacological intervention that has been successful in the treatment of stuttering. Drug-induced stuttering is also noted with anti-epileptics, antipsychotics, antidepressants, and immunosuppressants.[13] It is important for all pediatric medical providers to be aware of this rare but significant adverse effect before initiating treatment with this medication.

REFERENCES

1. Bitsko RH, Holbrook JR, Ghandour RM, et al. Epidemiology and impact of healthcare provider diagnosed anxiety and depression among US children. *J Develop Behavl Pediatrs.* 2018;39(5):395-403.
2. Racine N, McArthur B, Cooke J, et al. Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19, A Meta-Analysis. *JAMA Pediatr.* 2021;175 (11):1142-1150.
3. March J, Silva S, Petrycki S, Curry J, Wells K, Fairbank J, et al. Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: treatment for adolescents with depression study (TADS) randomized controlled trial. *JAMA*. 2004;292(7):807-20.
4. Walkup JT, Albano AM, Piacentini J, Birmaher B, Compton SN, Sherrill JT, et al. Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety. *N Engl J Med.* 2008;359(26):2753-66.
5. DeVane CL, Liston HL, Markowitz JS. Clinical pharmacokinetics of sertraline. *Clin Pharmacokinet*. 2002;41(15):1247-1266.
6. Guthrie S, Grunhaus L. Fluoxetine and stuttering. J Clin Psychiatry. 1990; 51(2):85.
7. Messiha FS. Fluoxetine: adverse effects and drug-drug interactions. *J Toxicol Cln Toxicol.* 1993;31:603-630.
8. Christensen R, Byerly M, McElroy R. A case of sertraline-inducing stuttering. *Journal of Clinical Psychopharmacology*.1996;16(1):92-93.
9. Sertraline for treatment of depression, *Med Lett Drugs Ther*. 1992;34:47-48.
10. Brady JP. The pharmacology of stuttering: a critical review. *Am J Psychiatry*. 1991;148(10):1309–1316.
11. Yairi E, Ambrose NG. Early childhood stuttering I: persistency and recovery rates. *J Speech Lang Hear Res*. 1999;42(5):1097–1112.
12. Craig A, Hancock K, Tran Y, et al. Epidemiology of stuttering in the community across the entire life span. *J Speech Lang Hear Res*. 2002;45(6):1097–1105.
13. Corine E, Florence H, Peter H, et al. Drug-induced stuttering: occurrence and possible pathways. *Front Psychiatry*. 2021;12:692568.

REVIEW ARTICLE

Exploring Covid-19 Vaccine Counseling Efforts of People with Autism by Medical Chart Review

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ABSTRACT

Objectives/Background:

Autistic individuals were at increased risk of being hospitalized from COVID-19. However, despite the COVID-19 vaccines having been shown to have reduced the risk of hospitalization and death, autistic people face numerous equity and access barriers to receiving the COVID-19 vaccines. Healthcare provider counseling is an important group to target in order to promote vaccine equity. This study explored the feasibility of conducting a medical chart review of COVID-19 vaccine counseling topics for autistic patients.

Methods:

Medical charts were coded from a random sample of 60 autistic patients from a large academic medical center, stratified by vaccination status. The authors explored whether the patient received any documented COVID-19 vaccine counseling. Of the patients who received any COVID-19 vaccine counseling, the authors categorized the counseling into one of the themes chosen *a priori*: Health, COVID-19 Vaccine Safety, Cost, and COVID-19 Misinformation.

Results:

Zero of the unvaccinated patients had any documented COVID-19 vaccine-specific counseling. Just six of the vaccinated autistic patients had received any documented COVID-19 vaccine counseling. Five of these six patients had no documented content of their vaccine counseling. The only patient who had documented the content of their COVID-19 vaccine counseling was related to the 'Health' theme.

Conclusion:

This study is the first to explore medical chart review as an opportunity to provide COVID-19 vaccine outreach for the autistic community. The pandemic offers an opportunity to improve the quality of medical charts by addressing administrative documentation and knowledge about how to provide counseling.

INTRODUCTION

Approximately 1 in 36 children and 1 in 45 adults have autism spectrum disorder (ASD).[1,2] Yet, prior to the COVID-19 vaccines becoming available, autistic individuals were at increased risk of contracting and being hospitalized from COVID-19.[3,4] These autistic individuals were also at increased risk of losing access to critical ongoing health services due to lock-downs, isolation, or quarantine.[5] For example, an autistic child might have received physical, occupational, or speech therapy provided by school but were not able to receive those services if they or their school had to quarantine. The Centers for Disease Control and Prevention (CDC) identified autistic people as individuals at risk for facing equity barriers to receiving the COVID-19 vaccine.[6]

Pediatricians and other healthcare workers were identified as target populations that can build COVID-19 vaccine equity for people with ASD.[7,8] The CDC created resources to educate healthcare providers on COVID-19 vaccine counseling for parents, patients, and patients with intellectual and developmental disabilities, including autistic patients.[9] However, no studies have explored the documentation of these vaccine counseling sessions via a medical chart review for the autistic community. Providing COVID-19 vaccine counseling would ensure that autistic patients and caregivers can make informed medical decisions and allay any vaccine hesitancy. This manuscript aims to explore the content of COVID-19 vaccine counseling of autistic patients by conducting a medical chart review.

METHODS

This study was deemed exempt as a quality improvement study by the University of Florida's Institutional Review Board. The authors conducted a systematic review from a random selection of 60 autistic patients. The patients were identified using ICD9 and ICD10 codes (299.0 and F84.0, respectively) and randomized by an electronic random sorter before being distributed to the authors. The patients were stratified by age (5-11 years old, 12-17 years old, and 18 years old and older) and whether or not the patients were up-to-date on COVID-19 vaccination. At the time of the study, only children five years and older were eligible for a COVID-19 vaccine. Demographic variables listed in the electronic health record (HER) were also extracted, including sex, race, insurance (private, public, other), and diagnosis of COVID-19 at any time. The authors also collected co-morbid medical conditions as defined by the CDC list of medical conditions that increase the severity of COVID-19 infection (Table 1).[10] These co-morbid conditions were stratified into four categories (zero, one, two, and three or more conditions).

	n (Percent)
Overweight or Obesity	22 (36.7)
Mental Health Conditions	15 (25.0)
Dementia or other Neurological Conditions	12 (20.0)
Immunocompromised	3 (5.0)
Chronic Liver Disease	1 (1.7)
Chronic Lung Disease	1 (1.7)
Diabetes (type 1 or type 2)	1 (1.7)
Heart Conditions	1 (1.7)
Sickle Cell Disease or Thalassemia	1 (1.7)
Cancer	--
Chronic Kidney Disease	--
Cystic Fibrosis	--
HIV Infection	--
Physical Inactivity	--
Smoking (current or former)	--
Solid organ or blood stem cell transplant	--
Substance use disorders	--
Tuberculosis	--

Table 1: Medical Diagnoses Identified by the CDC for increased risk of becoming very sick if COVID-19 is contracted of the sampled autistic patients (N=60)

The authors coded the records by whether the patient received any documented COVID-19 vaccine counseling. Subsequently, if the patient received any COVID-19 vaccine counseling, the authors categorized it into one of four presumed themes chosen a priori: Health, COVID-19 Vaccine Safety, Cost, and COVID-19 Misinformation.

RESULTS

Table 2 describes the EHR-based demographics of the randomly sampled autistic patients from January 1 through December 31, 2021 (N=60). The majority of autistic patients were male (75.0%), white, non-Hispanic (53.3%), and had public insurance (60.0%). Approximately half of the patients were vaccinated (51.7%) for COVID-19. Over a third of the autistic patients (38.3%) had one co-occurring condition, and 25.0% had two or more co-occurring medical conditions.

	n (Percent)
Vaccination Status	
Unvaccinated	29 (48.3%)
Incomplete dosage	5 (8.4%)
Up-to-date*	26 (43.3%)
Gender	
Male	45 (75.0%)
Female	15 (25.0%)
Child age	
5-11 years old	26 (43.3%)
12-17 years old	16 (26.7%)
18 years old or older	18 (30.0%)
Race	
White, non-Hispanic	32 (53.3%)
Black, non-Hispanic	14 (23.3%)
Hispanic	6 (10.0%)
Asian	4 (6.7%)
Other/Unknown	4 (6.7%)
Insurance	
Private or military	24 (40.0%)
Any public	36 (60.0%)
Number of Diagnoses from CDC Increased Risk List**	
0	22 (36.7%)
1	23 (38.3%)
2	11 (18.3%)
3	4 (6.7%)
Diagnosis of COVID-19 at any time	
No diagnosis of COVID-19	37 (79.3%)
Diagnosed with COVID-19	13 (21.7%)
* all patients received a Moderna or Pfizer vaccine, thus up-to-date was two doses, and a third dose was considered a booster	
**Does not include disabilities such as ASD	

Table 2: Demographics of Autistic Patients (N=60)

An in-depth chart review revealed that none of the unvaccinated autistic patients had any COVID-19 vaccine-specific counseling documented, and just six vaccinated patients (10% overall, 19.4% of those vaccinated) had documentation of receiving any COVID-19 vaccine counseling. Five of the six patients with COVID-19 counseling had a generalized statement that COVID-19 vaccine counseling was provided. The notes for these five counseling sessions did not specify the extent or content of vaccine counseling. The only patient who had documentation of the content of their counseling was categorized into the 'Health' theme as it discussed how the patient was a member of a high-risk group and how the vaccine would help reduce COVID-19 infection complications.

DISCUSSION

This study is the first to explore medical chart review as a COVID-19 vaccine outreach opportunity for the autistic community. In general, documentation of patient-provider interactions in medical charts has been poor.[11] The COVID-19 pandemic offers a novel opportunity to improve the quality of the documentation in medical charts by addressing barriers to documentation and improving the knowledge of the content to improve the healthcare outcomes subsequently.[12]

Administrative barriers exist to COVID-19 vaccine counseling, which includes actual documentation of the counseling with EHR and the provider's ability to counsel autistic patients or their parents/caregivers. To encourage documentation of COVID-19 vaccine counseling, the Centers for Medicare and Medicaid Services (CMS) required states to cover COVID-19 vaccine counseling for healthcare providers[13] as part of the bundled administration fees that could be recouped. This increased reimbursement should incentivize healthcare providers to document COVID-19 vaccine counseling sessions to receive the 100% federal match. Documentation of such counseling in the EHR medical chart ensures appropriate continuity of care and provides opportunities for continued counseling on vaccine hesitation.

To maximize the CDC's recommendation that healthcare providers improve COVID-19 vaccine counseling, and drawing from the preliminary results highlighted here, the authors offered an educational webinar where continuing medical education (CME) and continuing education (CE) credits were available.[14] The content of this CME/CE course included a discussion of ASD, ableism, and healthcare access; a discussion of the chart review findings and implications; and finally, how to increase COVID-19 vaccine confidence for the autistic community, especially for the pediatric population. Knowledge about vaccine hesitancy and the CME/CE course quality was measured immediately post-webinar. The participants who immediately completed the webinar exam had to score at least 80% on the knowledge to receive CME/CE credit. A total of 15 participants attended the live webinar. The CME/CE course was consistent with the recommendation that providers offer and document COVID-19 vaccine counseling.[15] The authors suspect that once the COVID-19 vaccine emergency use authorization was expanded to children six months and older, there would not be an increased rate of providers seeking education on discussing COVID-19 vaccines with autistic patients. The authors' reasoning is that the average age of diagnosis is around five years of age, and many children are not identified as autistic until they are in the school system.[1,16] Despite this educational opportunity and hopeful enhanced counseling, provider recommendation is only one step in an autistic individual receiving a COVID-19 vaccine or booster. To measure this, the field of building COVID-19 confidence could learn lessons from other vaccines that have met resistance, such as the human papillomavirus (HPV) vaccine. Multilevel approaches have shown promise and gained popularity in improving HPV vaccine uptake by assessing for medical records and confirming receipt of the HPV vaccine while intervening at the clinic, provider, parent, and patient levels.[17,18] Future studies should explore how a multilevel intervention impacts COVID-19 vaccine uptake.

A primary limitation of this study is documentation and counseling are different; a healthcare provider might have counseled their autistic patient or caregivers but did not make any administrative notes in the EHR. A potential remedy is that healthcare providers could partner with their electronic medical record build groups and IT departments to create specific "dot phrases" detailing usual vaccine counseling and reasons for vaccine refusal. Currently, there are no EHR dot phrases to identify vaccine counseling. The COVID-19 vaccine dot phrases that do exist primarily measure if the patient received a COVID-19 vaccine and needed a reminder. There are no standardized dot phrases across EHR systems, primarily for the COVID-19 vaccine. Additionally, this study included a random sample of autistic patients from one health system. Patients from other health systems or who receive care at congregate care sites might have different vaccine counseling experiences with their healthcare providers.

This project explored COVID-19 vaccine counseling for autistic patients using medical chart review. Because autistic individuals are at increased risk of hospitalization from COVID-19, multilevel approaches must work to increase vaccination rates in this autistic population, especially as newer COVID-19 variants emerge, which might be resistant to the protective benefits of the COVID-19 vaccines.

REFERENCES

1. Maenner MJ, Warren Z, Williams AR, et al. Prevalence and characteristics of autism spectrum disorder among children aged 8 years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2020. *MMWR*. 2023;72(2):1-14.
2. Dietz PM, Rose CE, McArthur D, Maenner M. National and state estimates of adults with autism spectrum disorder. *J Autism Dev Disord*. 2020;50(12):4258-4266.
3. Karpur A, Vasudevan V, Shih A, Frazier T. Brief report: impact of COVID-19 in individuals with autism spectrum disorders: analysis of a national private claims insurance *database J Autism Dev Disord*. 2022;52(5):2350-2356.
4. Schott W, Tao S, Shea L. COVID-19 risk: adult Medicaid beneficiaries with autism, intellectual disability, and mental health conditions. *Autism*. 2021;26(4):975-987.
5. White LC, Law JK, Daniels AM, et al. Brief Report: Impact of COVID-19 on individuals with ASD and their caregivers: a perspective from the SPARK cohort. *J Autism Dev Disord*. 2021;51(10):3766-3773.
6. Centers for Disease Control and Prevention. Barriers to equity in childhood COVID-19 vaccination. 2022; https://www.cdc.gov/vaccines/covid-19/planning/children/equity-barriers.html. Accessed July 7, 2022.
7. Wiggins LD, Jett H, Meunier J. Ensuring equitable COVID-19 vaccination for people with disabilities and their caregivers. *Pub Health Rep*. 2021;137(2):185-189.
8. Tinker SC, Cogswell ME, Peacock G, Ryerson AB. Important considerations for COVID-19 vaccination of children with developmental disabilities. *Pediatrics*. 2021;148(4):e2021053190.
9. Centers for Disease Control and Prevention. Vaccine recipient education. 2022; https://www.cdc.gov/vaccines/covid-19/hcp/index.html. Accessed August 5, 2022.
10. Centers for Disease Control and Prevention. Underlying medical conditions. 2022; https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html. Accessed August 9, 2022.
11. Weiner SJ, Wang S, Kelly B, Sharma G, Schwartz A. How accurate is the medical record? A comparison of the physician's note with a concealed audio recording in unannounced standardized patient encounters. *J Am Med Inform Assoc*. 2020;27(5):770-775.
12. Mathioudakis A, Rousalova I, Gagnat AA, Saad N, Hardavella G. How to keep good clinical records. *Breathe (Sheff)*. 2016;12(4):369-373.
13. Centers for Medicare and Medicaid Services. Biden-Harris administration makes 100% federal Medicaid matching funds available for state expenditures on certain COVID-19 vaccine counseling visits for children and youth. 2021; https://www.cms.gov/newsroom/press-releases/biden-harris-administration-makes-100-federal-medicaid-matching-funds-available-stateexpenditures. Accessed August 8, 2022.
14. Vasudevan V, Moss H, Shychuck EM, Brosco J. Building COVID-19 vaccine confidence for the autistic community in Florida. [Webinar]. 2022; https://srahec.org/autism-speaks/. Accessed June 14, 2022.
15. Finney-Rutten LJ, Zhu X, Leppin AL, et al. Evidence-based strategies for clinical organizations to address COVID-19 vaccine hesitancy. *Mayo Clin Proc*. 2021;96(3):699-707.
16. Autism Speaks. Autism by the numbers: age of diagnosis. 2023; https://nationalautismdatacenter.org/age-of-diagnosis/. Accessed April 20, 2023.
17. Staras SAS, Richardson E, Merlo LJ, et al. A feasibility trial of parent HPV vaccine reminders and phone-based motivational interviewing. *BMC Public Health*. 2021;21(1):109.
18. Paskett ED, Krok-Schoen JL, Pennell ML, et al. Results of a multilevel intervention trial to increase human papillomavirus (HPV) vaccine uptake among adolescent girls. *Cancer Epidemiol Biomarkers Prev*. 2016;25(4):593-602.

TRAINEE REVIEW ARTICLE

Slowing Myopia Progression in Childhood: A Guide for The Pediatrician

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Myopia, or the refractive state of being near-sighted, is an ever-increasing public health burden. Believed to be due to both inherited and environmental factors, myopia is predicted to affect 49.8% of the world's population by 2050, with pathologic myopia (high myopia that places an eye at a significantly increased risk of having a retinal tear or detachment) predicted to affect 9.8% of the population.[1] Being myopic could set that child up for social difficulties, financial strain on their family, and even long-term ophthalmologic surgical complications. A near-sighted kindergartener is likely to get much more near-sighted before they are done growing. The pediatrician is often a child's first eye screening; thus, the burden frequently falls on the pediatrician to first notice the refractive problem and send the child to the correct provider. Because of this, it is imperative that pediatricians know that new evidence-based treatments are available to help slow myopia progression.

Myopia, or the state of being able to see near things but not things far away, is almost certain to continue to worsen throughout a child's school years. While those with myopic parents are more likely to have myopia themselves, research has shown that this is not the whole picture, and other risk factors contribute to a child's likelihood of being myopic. An individual with high myopia needs frequent eye screenings throughout life due to the high risk of developing complications. Patients with high myopia have a greater chance of developing cataracts, glaucoma, maculopathy, and retinal detachments. While counseling a patient on lifestyle changes could theoretically slow myopic progression, offering treatments available today through many pediatric optometrists and ophthalmologists could be life-changing for such a patient.

Several lifestyle choices are thought to worsen myopic progression and could be the reason that myopia is increasing in prevalence in the current technology-driven age. High intensity near work was found to correlate with increasing rates of myopia progression.[2] Additionally, more years of schooling or higher intensity of schooling is a known risk factor. While studies have shown that higher intelligence quotient scores are also correlated with myopia, some postulate that this is a confounding factor.[3] Currently, Asian-American children are the most likely to be near-sighted, followed by Hispanic-American children, Black-American children, and then Caucasian-American children.[4] Associations such as pollution exposure, hours of sleep, exposure to smoking, birth order or season of birth, and nutrition continue to be debated risk factors. Most importantly, myopic progression appears to be slowed significantly when a child spends enough time outdoors.[5] Indeed, increasing a child's outdoor time seems to override the impact of

many hours of near work, even if a child's parents are myopic. It appears that the benefit is most helpful when the child is becoming myopic rather than when a child is already progressing. Still, suppose a family is offered a referral for myopic progression treatment, and the family kindly declines. In that case, it may be prudent for the pediatrician to encourage outdoor time for 2 hours or more a day as an alternative.

The proposed mechanisms for myopic progression are outside the scope of this article; however, in summary, myopic progression is thought to be due in part to the focus (or rather lack of focus) of light on the periphery of the retina in a child. Multiple techniques to utilize this knowledge and prevent myopic progression have been attempted. Recently, myopia progression treatment has become safer and easier and thus should now be mentioned to myopic families.

Historically, orthokeratology (ortho-k) has been the leader in slowing myopic progression. Ortho-k is a corneal reshaping contact lens worn while a child sleeps. The contact lens reshapes the eye's surface, creating a treatment zone so that when the child wakes up and removes the lens, they do not need to wear glasses during the day. Originally designed to prevent children from needing glasses at school or for activities, ortho-k lenses were discovered to slow myopia progression. This form of myopia therapy is not fit for every patient due to cost, initial adaptation to the lens, and treatment limitations.

Other options for contact lenses worn during the day are soft multifocal contact lenses and dual-focus contact lenses. Soft multifocal lenses have 6-year data that show the benefits of safely slowing myopia. More recently, a soft contact lens called MiSight® by CopperVision has been FDA-approved and is available in the U.S. market. Using patented technology, this lens appears to change light refraction in two rings (termed "treatment zones") around the center of a patient's vision. This soft contact lens is worn during the day and taken out every night. Three-year data on MiSight® appears to show that it slows myopic progression similarly to ortho-k technology.[6] Soft contact lenses expose a wearer to risks of corneal ulcers, corneal scars, decreased vision, and long-term dry eye syndrome. Since children are less likely to follow proper use rules for wearing contact lenses, such as not sleeping while wearing the contacts, not swimming or showering while wearing the contacts, and disposing of the contacts in the recommended amount of time, it is imperative to select patients for this option correctly.

Two options remain for pediatric patients who are not eligible for contact lenses: atropine drops and special eyeglasses. A pediatric eye provider can start each treatment and can be mentioned to the pediatric patient's family by a pediatrician.

First, an eye drop is available to slow myopic progression. Atropine drops are a commonly used eye drop to dilate a patient's eye for an examination. While systemic absorption can cause bradycardia and other systemic problems, low-dose atropine drops are relatively safe for use in children. Originally, a drop of Atropine 1% given to children nightly was shown to slow myopic progression.[7] At this dose, however, children complained of glare symptoms, sensitivity to light, and difficulty with near work. Thus, since this study was performed, eye providers have been studying which dose and at which frequency can both prevent the child from experiencing these symptoms and slow or prevent myopic progression. Currently, most providers are utilizing one drop of low-dose atropine (either Atropine 0.05%, Atropine 0.025%, or Atropine 0.01%) to each eye nightly.[8] This treatment requires a referral to an eye provider and continues to be costly to the patient, as insurance does not yet cover this eye drop. There is also a rebound effect when atropine is abruptly stopped; therefore, proper education on compliance must be discussed.

Finally, a safe, easier, and (likely) more affordable method of preventing myopia will soon be available in the United States once it gains FDA approval. Three spectacle lens options are being studied with promising results. MiYOSMART glasses, manufactured by Hoya Vision, are "defocus incorporated multiple segment" glasses. These glasses are comprised of a clear central zone with a schematic array of defocused segments.[9] The Stellest™ lenses, manufactured by Essilor, use Highly Aspherical Lenslet Target (H.A.L.T.) technology. These lenses utilize a clear central zone surrounded by aspheric lenslets. The third option is Diffusion Optics Technology (D.O.T) lenses, offered by SightGlass Vision. This option has a clear central zone surrounded by multiple dots that reduce the contrast to the retina.[10] These three spectacle lenses provide a safe way for a child to slow their myopic progression without the risk of chronic contact lens wear or improper use of atropine. Additionally, having a child wear glasses is a much easier task for a parent than the many difficulties of having a child wear contact lenses or comply with eye drops. While more costly than a regular pair of glasses, these glasses may still be affordable to the average family and can easily be prescribed by any pediatric eye provider.

In summary, the pediatrician may be the ideal provider to initially mention the risks and complications of myopia progression with families. Increasing outdoor time, special contact lenses, low-dose atropine eyedrops, and special glasses have scientific evidence to slow myopia progression. We recommend early referral to an eye provider, even at a very young age, if myopic progression is a concern. Currently, many eye providers are not routinely offering myopia progression treatment or routinely discussing therapy options with each patient. Thus, pediatricians should refer to eye providers in their area who provide this service. Pediatricians have the unique opportunity to refer interested patients to a pediatric eye provider who could further discuss these available options, thus possibly preventing a lifetime of vision difficulties and ocular complications. For families not interested in myopic progression treatment, the pediatrician could use this discussion to encourage outdoor activities for two or more hours per day and limit screen time to 2 hours a day for the benefit of their patient. We believe that with pediatricians' help, we can better serve our myopic children.

REFERENCES

Holden BA, Fricke TR, Wilson DA, et al. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. *Ophthalmology.* 2016;123(5):1036-1042.

Ip JM, Saw SM, Rose KA, et al. Role of near work in myopia: findings in a sample of Australian school children. *Invest Ophthalmol Vis Sci.* 2008;49(7):2903-2910.

Saw SM, Tan SB, Fung D, et al. IQ and the association with myopia in children. *Invest Ophthalmol Vis Sci.* 2004;45(9):2943-2948.

Kleinstein RN, Jones LA, Hullett S, et al. Refractive error and ethnicity in children. *Arch Ophthalmol.* 2003;121(8):1141-1147.

Xiong S, Sankaridurg P, Naduvilath T, et al. Time spent in outdoor activities concerning myopia prevention and control: a meta-analysis and systematic review. *Acta Ophthalmol.* 2017;95(6):551-566.

Chamberlain P, Peixoto-de-Matos SC, Logan NS, Ngo C, Jones D, Young G. A 3-year randomized clinical trial of MiSight lenses for myopia control. *Optom Vis Sci.* 08 2019;96(8):556-567.

Chua WH, Balakrishnan V, Chan YH, et al. Atropine for the treatment of childhood myopia. *Ophthalmology.* 2006;113(12):2285-2291.

Yam JC, Jiang Y, Tang SM, et al. Low-concentration atropine for myopia progression (LAMP) study: a randomized, double-blinded, placebo-controlled trial of 0.05%, 0.025%, and 0.01% atropine eye drops in myopia control. *Ophthalmology.* 2019;126(1):113-124.

Lam CSY, Tang WC, Tse DY, et al. Defocus Incorporated Multiple Segments (DIMS) spectacle lenses slow myopia progression: a 2-year randomised clinical trial. *Br J Ophthalmol.* 2020;104(3):363-368.

Rappon J, Neitz J, Neitz M, Young G, Chalberg T. CYPRESS 12-month results: safety and efficacy from a pivotal study of novel spectacle lenses designed to reduce myopia progression. *Optom Vis Sci.* 2020;97:E-abstract 200036

CASE REPORT

Sublingual Mass in a Neonate

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INTRODUCTION

The intraoral examination is a crucial part of the neonatal exam, as it can identify various abnormalities, including an abnormal palate, bifid uvula, and natal teeth. The differential for an intraoral mass is extensive and may include congenital cyst, infection, vascular malformation, epithelial inclusion cyst, and malignancy. Most of these masses are benign and not a cause for significant concern. This article introduces two cases, each involving the incidental finding and assessment of a distinct sublingual mass.

CASE REPORT

The first case involves a female infant born at 38 weeks and four days via cesarean section, who was admitted to the hospital on the sixth day of life for evaluation of poor feeding. Parents reported that the infant seemed disinterested in feeding via breast or bottle. History was significant for hydronephrosis and ankyloglossia requiring frenotomy in the newborn nursery. Upon initial exam, a 2cm yellow-orange nodule was noted under the tongue (figures 1.1 and 1.2). It was diamond-shaped and seemingly non-tender. No fluctuance, discharge, or surrounding erythema or swelling was noted. The family had not noticed the lesion. Occupational therapy and the newborn physician team were consulted and did not believe this interfered with feeds. Labs were significant for bilirubin of 10.6 mg/dL (normal bilirubin level 0-1.0 mg/dL). The sublingual mass decreased in size throughout the infant's hospitalization, and she was ultimately discharged without further intervention after parental teaching concerning feeds and demonstration of appropriate weight gain with feeding. The infant was examined one week later, and there was no mention of intraoral abnormality. The total bilirubin level at this visit was 2.0 mg/dL.

The second case addresses a six-day-old female born at 39 weeks of gestation via spontaneous vaginal delivery with a medical history significant for ABO incompatibility with indirect hyperbilirubinemia not requiring phototherapy and ankyloglossia with frenotomy performed on one day of life. The infant presented to the clinic on the day of life six for a bilirubin and weight check. Examination revealed a jaundiced infant with a 1cm midline sublingual yellow mass (figure 2.1). The infant seemed unaffected by the mass and was breastfeeding well. The transcutaneous bilirubin level in the clinic was 14.5 mg/dL. The infant returned at two weeks of age for a routine well-child check. At this point, the intraoral examination demonstrated resolution of the sublingual discoloration and mass.

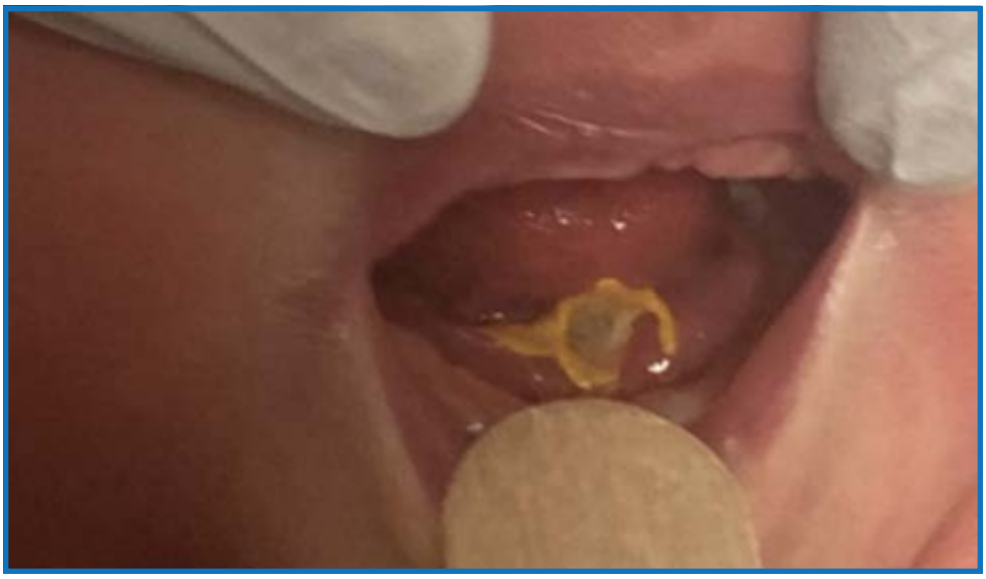

Figure 1.1

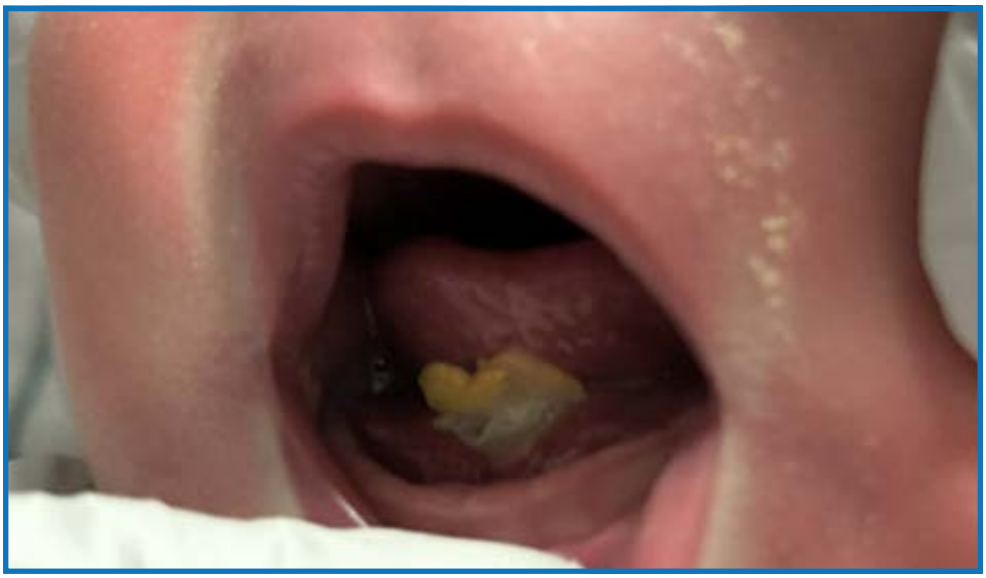

Figure 1.2

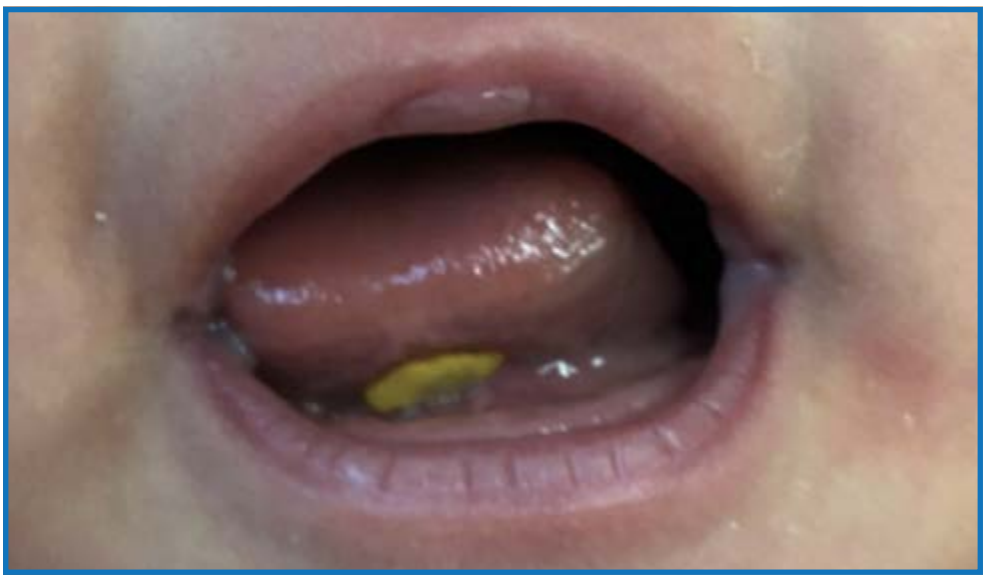

Figure 2.1

DISCUSSION

The sublingual masses described in these cases were likely caused by the accumulation of bilirubin-rich granulation tissue at the infants' frenotomy sites. In the case of frenotomy, the lingual frenulum is surgically released and allowed to heal by secondary intention. Families are instructed on lingual stretches to prevent excessive wound contracture. The wound-healing process is complex and can be complicated by infection and delayed healing. Although the deposition of bilirubin within granulation tissue has been previously noted in the literature, there have been no prior case reports identifying bilirubin deposition at frenotomy sites.

Several studies have demonstrated that bilirubin can play a role in wound contracture, healing, and collagen deposition.[1-3] Bilirubin's antioxidant and anti-inflammatory properties can reduce oxidative stress and inflammation at the site of injury, promoting healing.[2] One study demonstrated that rats treated with bilirubin had accelerated wound closure, thus highlighting bilirubin's role in angiogenesis and collagen deposition at the wound site.[4] Another study involving rats showed that granulation tissue from wound sites treated with bilirubin expressed upregulated anti-inflammatory and downregulated pro-inflammatory markers, thus suggesting that bilirubin can play a significant role in wound healing.[5]

These studies support the conclusion of bilirubin deposition in the sublingual granulation tissue following frenotomy and may further suggest that this bilirubin enrichment aided healing. Understanding the role of bilirubin in wound healing has essential implications for physicians caring for newborns who have undergone frenotomy or other surgical procedures. One potential benefit is preventing unnecessary consultations, referrals, or procedures. Yellow-orange granulation tissue at the frenotomy site can be concerning to both parents and medical professionals, potentially leading to unnecessary interventions if the granulation tissue is misinterpreted as an infection or congenital abnormality. It can also induce undue anxiety and stress for families if further interventions are pursued. Understanding the process and benefits of bilirubin deposition can equip physicians to reassure families that the wound is progressing as expected.

In conclusion, recognizing the role of bilirubin in wound healing is crucial for physicians caring for newborns who have undergone frenotomy or other surgical procedures. By understanding the potential benefits of bilirubin in wound healing, physicians can better reassure parents, prevent unnecessary consultations or procedures, and optimize wound care to promote healing.

REFERENCES

1. Adin CA. Bilirubin as a therapeutic molecule: challenges and opportunities. *Antioxidants* (Basel). 2021;10 (10):1536.
2. Yao Q, Chen R, Ganapathy V, Kou L. Therapeutic application and construction of bilirubin incorporated nanoparticles. *J Control Release*. 2020;328:407-424.
3. Jansen T, Hortmann M, Oelze M, et al. Conversion of biliverdin to bilirubin by biliverdin reductase contributes to endothelial cell protection by heme oxygenase-1-evidence for direct and indirect antioxidant actions of bilirubin. *J Mol Cell Cardiol.* 2010;49(2):186-95.
4. Ram M, Singh V, Kumawat S, et al. Bilirubin modulated cytokines, growth factors, and angiogenesis to improve the cutaneous wound healing process in diabetic rats. *Int Immunopharmacol*. 2016;30:137-149.
5. Ahanger AA, Leo MD, Gopal A, Kant V, Tandan SK, Kumar D. Pro-healing effects of bilirubin in open excision wound model in rats. *International Wound Journal*. 2014;13 (3):398-402.

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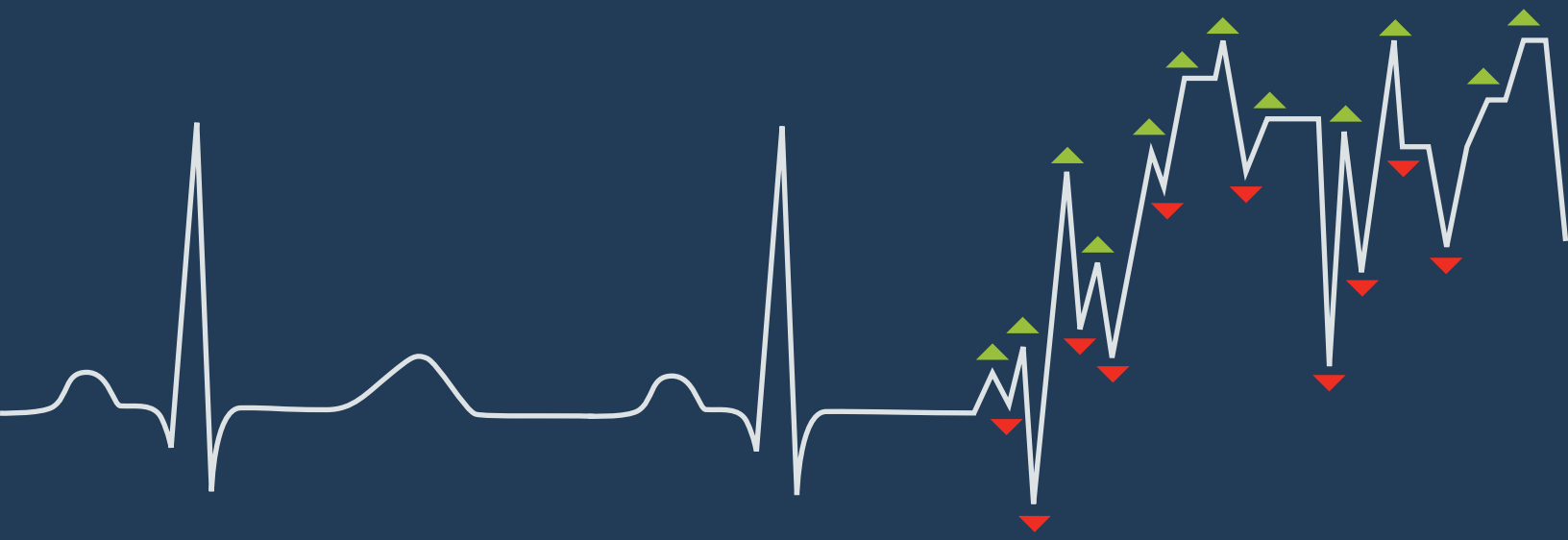

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