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Long-Term Impact of the Coronavirus Disease 2019 Pandemic on Children with Eosinophilic Esophagitis

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What is already known on this topic?

- *There is a lack of comprehensive research assessing the profound effects of the coronavirus disease 2019 (COVID-19) pandemic specifically on children diagnosed with eosinophilic esophagitis (EoE).*

What this study adds on this topic?

- *Treatment adherence and endoscopic follow-up significantly declined in children with EoE during the COVID-19 pandemic, yet no strictures were observed.*
- *Increased eosinophilic esophagitis endoscopic reference score ring scores and tissue eosinophilia may suggest a potential risk of fibrostenosis with ongoing poor adherence.*
- *The COVID-19 infection in children with EoE was generally mild or asymptomatic.*

ABSTRACT

Objective: Although a limited number of studies have assessed the impact of the Coronavirus disease 2019 (COVID-19) pandemic on adults with eosinophilic esophagitis (EoE), there are no data on children. This study aimed to assess the impact of the COVID-19 pandemic on children with EoE, including long-term follow-up, treatment adherence, COVID-19 infection, and vaccination status.

Materials and Methods: Treatment adherence, symptoms, and endoscopic-pathological findings were compared at the beginning and the end of the first and second years of the pandemic. The COVID-19 infection and vaccination status were also assessed.

Results: The study included 66 children (median age 13.2 years) with EoE. Both treatment adherence and endoscopic follow-up decreased significantly during the pandemic compared to the beginning ($P < .001$ and $P < .001$, respectively). No strictures were observed. Twenty-two patients underwent endoscopy both before and during the pandemic, showing increased total eosinophilic esophagitis endoscopic reference score (EREFS) and peak eosinophil counts ($P = .045$ and $P = .08$, respectively). Among children aged 12 and older, 66% were vaccinated against COVID-19. Infection with COVID-19 was detected in 24 children (36.3%), with asymptomatic or mild symptoms in 95.8% of cases.

Conclusion: No strictures developed during the first 2 years of the pandemic in children with EoE. However, increased tissue eosinophilia and EREFS scores suggest a possible risk of fibrostenosis if treatment adherence remains low. Eosinophilic esophagitis does not seem to pose an increased risk for COVID-19 infection in children.

Keywords: COVID-19 pandemic, disease activity, long-term follow-up, pediatric eosinophilic esophagitis, treatment adherence

INTRODUCTION

Eosinophilic esophagitis (EoE) is a chronic immune-mediated inflammatory disease of the esophagus characterized by symptoms of esophageal dysfunction and histologically by eosinophil-predominant inflammation.[1] Over the last 20 years, there has been a significant increase in the prevalence of EoE, leading to substantial morbidity.[1,2] It is also the primary cause of dysphagia in children and young adults.[1,3] The natural history of EoE includes potential progression to esophageal remodeling and fibrostenosis if left untreated.[4] Therefore, long-term monitoring and consistent treatment are essential to ensure symptom control, maintain remission, and prevent complications. Diagnosis and follow-up of EoE require upper gastrointestinal endoscopy and a sufficient number of biopsies.[5,6]

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Despite the reported rise in hospital admissions for non-infectious exceptional reasons during the COVID-19 pandemic,[7,8] in-person (IP) healthcare visits have decreased due to patient concerns about infection and limited access to traditional healthcare services, including elective procedures.[9] These factors place individuals with underlying chronic diseases at a higher risk of being adversely affected by the pandemic.

Furthermore, the COVID-19 pandemic has been shown to involve the gastrointestinal tract, and delays or disruptions in endoscopic evaluations raised concerns regarding underdiagnosis, disease progression, and reduced treatment adherence in EoE patients.[10] There are few studies that have investigated the impact of COVID-19 on individuals with EoE, with the majority of them conducted in adults.[11-13] To date, no studies have exclusively examined the effects of the pandemic on pediatric patients with EoE. This study aimed to evaluate the long-term clinical impact of the COVID-19 pandemic on children with EoE, focusing on treatment adherence, disease activity, endoscopic monitoring, COVID-19 infection, and vaccination status.

MATERIALS AND METHODS

Study Design and Setting

This retrospective observational study was conducted at a single referral center for EoE. The 2-year period following March 11, 2020—the date when the first COVID-19 case was reported in the country—was examined.

Study Population

Patients younger than 18 years of age who had been diagnosed with EoE based on clinical and histopathological criteria prior to March 11, 2020, and who remained under regular follow-up during the pandemic period (March 11, 2020-March 10, 2022) were included.

Patients were excluded if they had been lost to follow-up before March 11, 2020; had incomplete medical records or insufficient biopsy data; or had other gastrointestinal diseases that could potentially cause esophageal eosinophilia.

Data Collection

Medical files were reviewed for demographics, disease activity, treatment status, number of endoscopic procedures, and histopathological results performed in the year before the pandemic, and at the end of the first and second years of the pandemic. In addition, a single investigator (S.P.T.) conducted all telephone interviews using a standardized, structured case report form specifically developed for this study. The questionnaire included items on treatment adherence, symptom status, endoscopic and histopathological follow-up, COVID-19 infection and vaccination status, as well as family perceptions related to COVID-19 risk. Interviews were conducted to reflect 3e distinct time periods: the pre-pandemic period, the first year, and the second year of the pandemic. Parental concerns regarding whether EoE posed a risk for COVID-19 were assessed at both the beginning and end of the second year of the pandemic. Written informed consent was obtained from each parent of the participants included in the study. The study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a priori approval by the institution's human research committee. Ethical committee approval was received from the Ethics Committee of Gazi University (Approval no: 2022-769, Date: June 8, 2022).

Definitions and Diagnostic Procedures

Eosinophilic esophagitis was diagnosed based on both clinical and histopathological criteria. Diagnosis required the presence of symptoms suggestive of esophageal dysfunction and histological confirmation of eosinophilic inflammation, defined as ≥15 eosinophils per high-power field (HPF) in at least 1 esophageal biopsy.[1] To confirm the diagnosis and assess disease activity, all patients underwent upper gastrointestinal endoscopy performed by experienced pediatric gastroenterologists. During each endoscopy, multiple biopsies were systematically obtained from the upper, middle, and lower thirds of the esophagus to avoid sampling error and to ensure comprehensive evaluation. The biopsy specimens were examined by expert pathologists who were blinded to the clinical data. Other causes of esophageal eosinophilia, such as gastroesophageal reflux disease, eosinophilic gastroenteritis, Crohn's disease, celiac disease, and parasitic infections, were ruled out based on clinical history, physical examination, laboratory tests, and endoscopic findings in accordance with current diagnostic guidelines.

Patients with symptoms like heartburn, chest pain, difficulty swallowing, food blockage, regurgitation, poor appetite, or feeding problems were considered to have "active EoE." In the absence of any symptoms related to EoE, the patient was considered to have symptom control. Endoscopic control was assessed using the eosinophilic esophagitis endoscopic reference score (EREFS).[14] The endoscopy indications were classified into 2 groups. Patients who had endoscopy for follow-up or treatment response without any active EoE symptoms were categorized as "routine follow-up," and those with EoE symptoms as "active EoE symptoms." In the endoscopic evaluation, a score of ≤2 on the EREFS was considered endoscopic control. Histopathological control was defined when the eosinophil count in all biopsies taken from the upper, middle, and lower esophagus returned to <15 eosinophils/HPF. Treatment adherence was assessed using a binary outcome, with responses categorized as either yes or no.

Statistical Analysis

Statistical analysis was performed using the IBM SPSS Statistics version 26.0 (IBM SPSS Corp.; Armonk, NY, USA). In intergroup comparisons of continuous variables, normality was assessed using the Shapiro–Wilk test. Since the continuous variables did not follow a normal distribution, they were presented as median (min-max), and the nonparametric Wilcoxon signed-rank test was used to compare the total EREFS scores between the pre-pandemic and pandemic periods. Categorical variables were presented as numbers and percentages. The Chi-square test and McNemar test were used for comparing categorical variables. A *P*-value < .05 was considered statistically significant.

To determine whether the study had sufficient statistical power, an a priori power analysis was conducted using G*Power version 3.1.9.7. Based on the hypothesis that treatment adherence would decrease by approximately 20% during the COVID-19 pandemic (in the absence of similar prior studies), a binomial test (2-tailed) was used with an effect size of $g = 0.20$, $\alpha = 0.05$,

and power = 0.80. The minimum required sample size was calculated as 49 participants.

RESULTS

Study Population

A total of 66 pediatric patients with EoE were included in the study, and their demographics are presented in Table 1.

Follow-up During the Pandemic

During the pandemic, all patients were followed up through telemedicine (TM), with 18 patients interviewed once, 25 patients interviewed twice, and 13 patients interviewed more than twice. During the year before the pandemic, 18 patients' parents declined endoscopy, and therefore, symptom monitoring was used to follow-up on these patients. It was determined that 32 patients (48.4%) did not attend any IP follow-up visits during the first 2 years of the pandemic. Before the pandemic, 34 patients were compliant with EoE treatment (5 patients underwent diet therapy, 19 received proton pump inhibitors (PPI), 3 were prescribed topical budesonide, and 7 were on combination therapy). At the end of the first and second year of the pandemic, treatment adherence was reduced significantly compared to the year before the pandemic (P = .013 and P < .001, respectively) (Table 2). In children aged ≥12 years, treatment adherence was lower compared to younger children across all 3 follow-up periods. The most common reasons for discontinuation of treatment were the lack of symptoms and the inability to attend follow-up visits.

Endoscopic and Clinical Follow-up

The percentage of patients who underwent at least 1 endoscopy per year before the pandemic was 72.7%. During the first and second year of the pandemic, it significantly decreased to 13.6% and 33.3%, respectively (P < .001 for both years compared to the year before the pandemic). No strictures developed during the 2-year period. Two patients experienced food impaction in the second year of the pandemic; one was relieved by vomiting, while the other required emergency endoscopy. All other endoscopies were planned. Table 2 and Figure 1 show the disease follow-up status and EREFS scores of the 66 patients.

Table 1. Demographic and Clinical Characteristics of Pediatric Patients with Eosinophilic Esophagitis (n = 66)

Age, Year; Median (min-max)	**13.2 (4.4-17.8)**
Male, n (%)	47 (71.2)
Age at the diagnosis, year median (min-max)	6.4 (0.3-17.8)
Duration of follow-up, year median (min-max)	5.3 (2.6- 13.0)
Family history of EoE, n (%)	4 (6.1)
Comorbid chronic diseases, n (%)	44 (66.6)
Allergic	38 (57.6)
Non-allergic	17 (25.8)
Treatment, n (%)	34 (51.5)
PPI	19 (55.9)
Diet	5 (14.7)
Swallowed topical budesonide	3 (8.9)
Combined therapy	7 (20.5)

EoE, eosinophilic esophagitis; PPI, proton pump inhibitor.

Endoscopic and Histopathological Comparison in Subgroup

A total of 22 patients underwent endoscopy both before and during the first or second year of the pandemic (Table 3). There was no significant difference in terms of active EoE symptoms, but there was an increase of more than 2-fold in total EREFS (P = .039). In the year preceding the pandemic, patients with a total EREFS score ≤2 (endoscopic control n = 16) exhibited a significant rise in their scores during the pandemic (n = 10) (P = .003), whereas no significant alterations were noted in the group with a total EREFS score of >2 prior to the pandemic (n = 6). Among patients under pathological control before the pandemic (n = 11), there was a notable increase in tissue eosinophil count during the pandemic (P = .008), while patients without pathological control before the pandemic (n = 11) showed no significant changes in tissue eosinophil count during the same period. All of the patients whose endoscopic and/or pathological control was impaired during the pandemic were nonadherent with their treatment.

Table 2. Follow-up Data of Children with Eosinophilic Esophagitis During the COVID-19 Pandemic (n = 66)

	The Year Before the Pandemic	**First Year of the Pandemic**	**Second Year of the Pandemic**
Treatment Adherence, n (%) *P*	34 (51.5)	23 (34.8) **.013***	18 (27.3) **<.001***
<12 years *P*	19 (63.3)	12 (40.0) **.039***	11 (36.6) **.008***
≥ 12 years *P*	15 (41.6)	11 (30.5) .289*	7 (19.4) .008*
Symptomatic follow-up, n (%)	66 (100.0)	66 (100.0)	66 (100.0)
Active EoE symptoms *P*	22 (33.3)	17 (25.7) .383*	21 (31.8) 1.000*
Endoscopic-pathologic follow-up, n (%) *P*	48 (72.7)	9 (13.6) **<.001***	22 (33.3) **<.001***
Patients who underwent endoscopy	n = 48	n = 9	n = 22
For routine follow-up, n (%) *P*	37 (77.1)	7 (77.7) 1.000*	15 (68.2) .610*
For active EoE symptoms, n (%) *P*	11 (22.9)	2 (22.2) 1.000*	7 (31.8) .610*
Total EREFS, median (min-max) *P*	1 (0-4)	2 (0-5) .478**	2.5 (0-9) **.045****
EREFS >2, n (%) *P*	10 (20.8)	2 (22.2) .125*	11 (50.0) .180*
Peak eosinophil count, eos/HPF median (min-max) *P*	12 (0-110)	9 (0-100) .499**	44 (0-250) .080**
Eosinophil <15/HPF, n (%) *P*	25 (52.0)	6 (66.6) .500*	8 (36.3) .344*

P-values represent comparisons between each pandemic year and the year before the pandemic, using the McNemar test (*) and Wilcoxon Signed Ranks Test (**).
EoE, eosinophilic esophagitis; EREFS, eosinophilic esophagitis endoscopic reference score; HPF, high-power field.

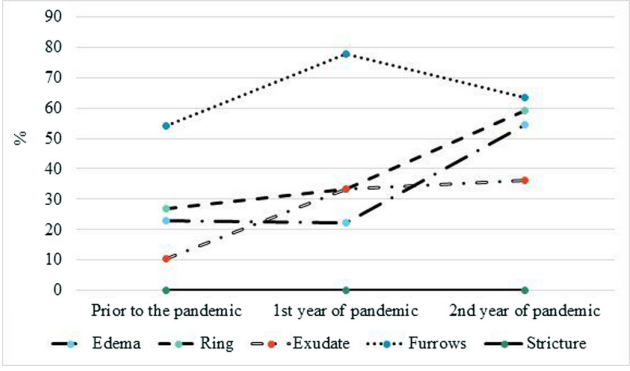


Figure 1. Distribution of eosinophilic esophagitis endoscopic reference score (EREFS) parameters among pediatric patients.

Coronavirus Disease 2019 Infection and Vaccination Status

The parents perceived their children with EoE to be at a higher risk for COVID-19 infection in 45.4% and 16.6% of cases at the beginning and end of the second year, respectively ($P < .001$). Twenty-four patients (36.3%) tested positive for COVID-19 infection via polymerase chain reaction (PCR) test. The mean duration of symptoms in patients with PCR-positive COVID-19 infection was 3.95 days, and the most common symptom reported was fever. Among these cases, 95.8% had either mild symptoms (n = 21) or were asymptomatic (n = 2). Only 1 patient with EoE, under 12 years of age, required hospitalization for 9 days due to COVID-19 pneumonia and had not been vaccinated due to his age. There were no severe COVID-19 infections or multisystem inflammatory syndrome. No patients required admission to the intensive care unit or died. No exacerbation of EoE symptoms was reported during COVID-19 infection.

In the country, COVID-19 vaccination was recommended for children aged 12 years and older starting from September 5, 2021. There were 36 (54.5%) participants aged ≥12 years included in the study, and the vaccination rate in this age group was 66.7%. The number of COVID-19 vaccine doses received by children ranged from 1 to 4, with 16.6% receiving 1 dose, 33.3% receiving 2 doses, 11.1% receiving 3 doses, and 5.5% receiving 4 doses. The percentage of mothers and fathers of children with EoE who received at least 1 dose of COVID-19 vaccination was 83.6% and 97%, respectively.

Table 3. Endoscopic and Histopathological Characteristics of Pediatric Patients who Underwent Follow-up Evaluations both Before and During the First 2 Years of the COVID-19 Pandemic (n = 22)

	The Year Before the Pandemic	During the First 2 Years of the Pandemic	*P*
Total EREFS median (min-max)	1 (0-4)	2.5 (0-9)	**.045***
Edema, n (%)	5 (22.7)	12 (54.5)	.195**
Ring, n (%)	7 (31.8)	13 (59.1)	.180**
Exudate, n (%)	3 (13.6)	8 (36.4)	.180**
Furrowing, n (%)	11 (50.0)	14 (63.6)	.774**
Stricture, n (%)	0 (0)	0 (0)	
Peak eosinophil count, median (min-max)	14 (0-110)	44 (0-250)	.080*

EREFS, eosinophilic esophagitis endoscopic reference score.
*Wilcoxon signed rank test,
**The McNemar test.

Post Hoc Power Analysis

A post hoc power analysis was performed using the actual sample size (n = 66), observed proportions (treatment adherence p1 = 0.27; p2 = 0.52), and effect size $g = 0.25$. The achieved statistical power was found to be 0.98, confirming that the study had sufficient power to detect the anticipated effect size. Also, a post hoc power analysis was performed for the comparison of total EREFS scores before and during the pandemic period (n = 22), using a matched-pairs design. Based on the observed effect size (dz = 0.633), $\alpha = 0.05$, and a 2-tailed test, the achieved power was calculated as 0.81, indicating adequate statistical power.

DISCUSSION

No study has yet exclusively examined the impacts of the COVID-19 pandemic on children with EoE. The clinical impact of the COVID-19 pandemic was investigated, including long-term treatment adherence, disease follow-up, COVID-19 infection and vaccination status among pediatric patients with EoE. Over the initial 2 years of the pandemic, there was a significant decrease in adherence to EoE treatment and a reduction in the number of endoscopies. This was followed by a substantial increase in both total endoscopy scores and peak eosinophil counts, specifically among patients with endoscopic and pathological control prior to the pandemic. However, no case of EoE developed strictures during the pandemic period. More than a third of patients with EoE had contracted COVID-19, but none of them experienced severe COVID-19 infection or EoE symptom exacerbations.

Treatment adherence is a general problem in many chronic diseases.[15,16] During the pre-pandemic period, diet and medication adherence rates among adult EoE patients were found to be 35.1% and 41.8%, respectively.[17] However, during the first 2 months of the pandemic, these rates were reported to be 100%.[17] While no studies specifically addressed long-term adherence to EoE treatment during the pandemic, outside the pandemic period, a 2-year study revealed lower treatment adherence among adolescents (76.2 ± 24.5%) compared to children (88.6 ± 16.7%).[18] On the other hand, treatment adherence was low even before the pandemic, and this rate further declined within the first 2 years of the pandemic, despite continued symptom monitoring of these patients through TM. This result may be attributed to the milder severity of EoE in the cases, concerns related to medications used for EoE (PPI, topical corticosteroids) due to the pandemic, no change in the number of cases with active EoE symptoms despite discontinuing treatment, or cultural differences.

The pandemic was associated with dramatic reductions in the use of preventive and elective care.[9] In many centers, elective outpatient endoscopies were canceled or delayed.[19] Also, in the study, a significant reduction in the number of endoscopies was observed during both years of the pandemic compared to the year before the pandemic, with a more pronounced decrease in the first year. It is believed that this significant

decrease in the number of endoscopies is related to long quarantine periods, fear of virus transmission, and infection risk for both patients and physicians, as well as the possibility that symptoms of EoE were milder or more tolerable in most of the patients. Moreover, the observation of fewer severe symptoms in the group, such as food impactions requiring urgent endoscopy, provides additional support for this hypothesis.

It is well known that delay in diagnosis of EoE increases the risk for stricture formation in a time-dependent manner.[20] Additionally, it has been demonstrated that delays in scheduled endoscopic evaluation can lead to poor outcomes in adult patients diagnosed with EoE during the pandemic period.[13] In adults, 73.5% of EoE cases had cancellations of pre-planned endoscopies during the pandemic period; in this group, dilation and de novo fibrostenosis associated with a decrease in esophageal diameter were found more frequently compared to pre-pandemic periods.[13] In the study, despite a significant reduction in endoscopic procedures as well as treatment adherence during the first 2 years of the pandemic, no instances of fibrostenosis or stricture were observed, and no dilatations were needed. However, an increase in all parameters of EREFS except stricture, as well as peak tissue eosinophil counts, may actually indicate a warning sign for the development of fibrostenosis. This finding may be explained by the longer duration of the disease in adult EoE patients compared to children, and/or the differences in EoE endotypes between adults and children, which could lead to a faster progression of strictures. Further longitudinal studies are needed to elucidate the true incidence and predictors of fibrostenosis in this population, which will ultimately guide optimal follow-up protocols.

It was remarkable that all the patients whose endoscopic and/or pathologic control was impaired were nonadherent with their treatment during the pandemic. Certainly, nonadherence to the treatment is expected to disrupt disease control. During the pandemic, factors such as social isolation, disrupted daily routines, increased stress, and difficulties in accessing medication and food can contribute to a decrease in dietary and drug treatment adherence. Families often stopped treatment due to the absence of symptoms or difficulty accessing the hospital. Concerns about the immunosuppressive effects of corticosteroids and PPIs might have reduced adherence.

The COVID-19 research has received little attention in terms of EoE.[11-13] Among them, 1 study included both adult and pediatric EoE/eosinophilic gastrointestinal system diseases (EGIDs) cases but did not state the number of children.[12] In this study, 78.9% of cases were diagnosed as isolated EoE, and they concluded that patients with EoE are not at increased risk for severe COVID-19 infection, or COVID-19 does not lead to EGIDs' flares. In another study that evaluated 5258 children diagnosed with COVID-19, 24 had a concurrent diagnosis of EoE during the first year of the pandemic.[21] Most children with EoE who were infected with COVID-19 did not need hospital admission (70.8%), similar to the study (95.8%).[21] In addition, despite EoE being a chronic condition, the course of COVID-19 infection in children with EoE was similar to that of the general pediatric population.[22,23] Reduced expression of angiotensin-converting enzyme-2 and downregulation of late-phase hyper-inflammation in the gastrointestinal tract may explain how T helper cell type 2 (Th2) immunity and the pediatric age group confer protection against COVID-19.[24] The immunological interplay between COVID-19 infection and EoE remains largely unexplored. Given that EoE is characterized by a Th2 dominant immune response, it is plausible that the immunomodulatory effects of SARS-CoV-2 could influence disease activity. COVID-19 has been shown to induce a broad range of immune responses, often skewed toward a T helper cell type 1 (Th1) profile; however, post-infectious immune dysregulation and cytokine shifts might transiently alter Th2-mediated conditions such as EoE. Further studies are warranted to elucidate whether SARS-CoV-2 infection exacerbates, ameliorates, or has no significant impact on the immunopathology and clinical course of EoE.[25]

There is currently no study available regarding the COVID-19 vaccination status of patients with EoE, regardless of age. However, it has been reported that even if they have access to COVID-19 vaccines, half of adult EoE cases expressed reluctance to get vaccinated.[11] This study therefore presents, for the first time, the COVID-19 vaccination status of children with EoE. Two-thirds of children with EoE in the study received at least a single dose of COVID-19 vaccination. This rate was even higher in their mothers (83.6%) and fathers (97%) and was close to the figures reported by the Ministry of Health for adults (93.3%).[26] Parents of children with EoE had higher vaccination rates, possibly due to concerns about their child's illness, fear of unknown long-term side effects, or the belief that their children were at low risk since they were vaccinated themselves and schooling was online. Furthermore, at the beginning of the pandemic, more than half of the families expressed the belief that EoE posed no significant risk for their children in terms of COVID-19 in this study. This perception may have also contributed to the lower vaccination rates among children.

In this study, telephone follow-ups were conducted using a structured form by a single trained investigator, ensuring consistency in data collection. While direct comparison with face-to-face visits was limited, the structured telephonic approach allowed comprehensive assessment of patients' status during the pandemic. Although there is limited prior research specifically evaluating TM in EoE care, recent data support the effectiveness and consistency of TM compared to standard IP visits. A retrospective study conducted at the University of Maryland Children's Hospital demonstrated no significant differences in clinical outcomes—including scheduling endoscopies, initiating or modifying therapy, and ordering laboratory or imaging studies—between TM and IP visits in pediatric patients with EoE. Notably, TM visits had a higher attendance rate, suggesting improved accessibility and adherence during the pandemic. Moreover, TM provided significant benefits in reducing travel time, costs, and patient burden.[27]

Study Strengths and Limitations

One of the strengths of the study is that all participants consisted of children with EoE, which allowed for the first-time evaluation of COVID-19 infection rates, severity, and vaccination status, in addition to the long-term follow-up and treatment adherence of EoE during the COVID-19 pandemic.

However, the study also has several limitations. The fact that the study was conducted at a single center, and the evaluations were performed at relatively long intervals such as 1 year. A key limitation of the study is that only a small subset of patients (n = 22) underwent endoscopic evaluation both before and during the pandemic, which may limit the ability to draw definitive conclusions regarding endoscopic disease progression. This small number of patients who underwent endoscopic evaluation during the COVID-19 pandemic may have impacted the detection of fibrostenotic complications such as strictures. Although no strictures were observed, this finding should be interpreted with caution given the limited endoscopic data. This underscores the necessity for continued long-term monitoring and follow-up endoscopic assessments to better characterize the development of fibrostenotic disease in pediatric patients with EoE. Although treatment adherence was thoroughly assessed, it relied entirely on parental self-reporting during structured TM interviews. The absence of a validated adherence scale may lead to reporting bias and reduce the reliability of adherence measurements. Multivariate logistic regression analyses to evaluate factors associated with poor adherence could not be performed due to the limited sample size and retrospective nature of the data collection.

Conclusion

Although no strictures developed in children with EoE in the first 2 years of the COVID-19 pandemic, elevated tissue eosinophilia and total EREFS may indicate a potential risk of fibrostenosis in the long term if treatment nonadherence continues, highlighting the need for long-term follow-up and comparative analysis. Eosinophilic esophagitis does not seem to pose an increased risk for COVID-19 infection in children.

Take-home Messages

Treatment adherence significantly declined during the COVID-19 pandemic among pediatric patients with EoE.

Reduced frequency of endoscopic follow-up was observed, which may increase the risk of disease progression and complications.

No strictures were detected during the 2-year pandemic period, but increased tissue eosinophilia and endoscopic scores suggest a potential long-term risk if noncompliance persists.

The COVID-19 infection in children with EoE was generally mild, with no severe cases or exacerbations reported.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Gazi University (Approval no: 2022-769, Date: June 8, 2022).

Informed Consent: Written informed consent was obtained from each parents of the participants who agreed to take part in the study.

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