

CASE REPORT OPEN ACCESS

Bilateral Lower Lip Swelling as an Early Manifestation of Crohn's Disease in a 16-Year-Old Patient: A Case Report

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Received: 19 March 2026 | **Revised:** 12 June 2026 | **Accepted:** 6 July 2026

Academic Editor: Hannah Wesley

Keywords: case report | granulomatous cheilitis | oral manifestation | oral medicine | swelling

ABSTRACT

Crohn's disease and ulcerative colitis are chronic inflammatory bowel diseases that are often diagnosed with a significant delay. Although Crohn's disease can affect the entire gastrointestinal tract—from the mouth to the anus—ulcerative colitis is limited to the colon and rectum. This report describes the case of a 16-year-old male patient who suffered from a painless, bilateral swelling of the lower lip persisting for 4 months. Elevated fecal calprotectin (510 mg/kg) and subsequent endoscopic examination confirmed the diagnosis of Crohn's disease. Immunosuppressive therapy led to full resolution of the lip swelling and overall clinical improvement. Oral manifestations such as ulcers, gingivitis, and angular cheilitis can be the first signs of a systemic disease, such as Crohn's disease in this case, and therefore provide an opportunity for early detection by general dentists.

1 | Introduction

Crohn's disease is a chronic, immune-mediated disorder affecting the gastrointestinal tract and, together with ulcerative colitis, represents one of the two primary forms of inflammatory bowel disease. Unlike ulcerative colitis, which is limited to the large intestine, Crohn's disease is characterized by inflammation that can involve any segment of the digestive tract [1].

The prevalence of Crohn's disease is increasing significantly, particularly in industrialized countries. Crohn's disease occurs equally frequently in women and men [2, 3].

Oral manifestations are common in Crohn's disease. They involve most commonly the lips, buccal mucosa and gums [4]. There are disease-specific and nonspecific lesions. The specific lesions are changes in the mucosa directly caused by the disease, but they are not characteristic of Crohn's disease.

Specific manifestations include granulomatous cheilitis, cobblestone-like mucosal tags and linear ulcerations in the buccal mucosa. The nonspecific lesions may arise from malnutrition caused by intestinal malabsorption, which detrimentally impacts oral health [5]. Nonspecific manifestations include oral aphthous ulcers, gingivitis, periodontitis, angular cheilitis, and many more [4, 6, 7].

Oral manifestations can occur before the gastrointestinal symptoms and are particularly common in young patients [5, 8]. Therefore, it is highly likely that the general dentist will be presented with Crohn's disease patients and accordingly refer them early to the family doctor and gastroenterologist for coevaluation.

The aim of the present report is to use a clinical case to illustrate the possible oral manifestation of Crohn's disease and show the importance of their proper management.

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2 | Case Report

2.1 | Patient Information

A 16-year-old male patient was referred by an otorhinolaryngologist for further evaluation of a bilateral swelling of the lower lip.

The general medical history was unexceptional, and the patient denied any gastrointestinal symptoms such as abdominal pain, bloating, or diarrhea. Additionally, upon detailed inquiry into the family history, the patient mentioned a relative suffering from Crohn's disease.

2.2 | Clinical Findings

The painless swelling appeared suddenly and approximately 4 months prior to the first examination, initially on the left side before progressively extending to the right, remaining stable in size since its onset.

The extraoral examination revealed a bilaterally symmetrical swelling of the lower lip without erosions or ulcerations (Figure 1A,B).

The intraoral examination revealed an unremarkable finding. No suspicious cervical, submental, or submandibular lymph nodes were palpable. The sensorimotor function was intact bilaterally.

Upon further inquiry, the patient reported that approximately 2 years prior he had experienced irritating skin lesions presenting as slightly scaly, circular erythematous plaques, initially located in the trunk region and subsequently spreading to the upper and lower extremities, which had responded well to topical corticosteroid therapy. At that time, these lesions had been classified as eczema.

2.3 | Diagnostic Assessment

The histological examination of two mucosal excisates, each measuring approximately 3×2 mm, done by the otorhinolaryngologist was primarily nonspecific, showing reactive changes without evidence of a granulomatous reaction on serial sections. Furthermore, direct immunofluorescence did not reveal any findings suggestive of mucous membrane pemphigoid (Figure 2).

The MRI findings revealed clear enlargement of the lower lip, suggesting an inflammatory change without evidence of neoplasia (Figure 3).

Due to the suspicion of a general medical cause for this oral symptomatology, the patient was referred to his general practitioner for further evaluation. Laboratory data showed an elevated level of calprotectin of 510 mg/kg, with associated iron deficiency, prompting referral to the gastroenterology department.

Endoscopy revealed a stenosing terminal ileitis. Histologically, classic signs of a chronic inflammatory bowel disease were found, so that the diagnosis of Crohn's disease could be made.

2.4 | Therapeutic Intervention

Following the induction of immunosuppressive treatment with Inflectra (infliximab, maintenance dose every 8 weeks), the patient's lip swelling has fully resolved, and there has been a significant improvement in the patient's overall condition.

Follow-up by intestinal ultrasound and fecal calprotectin measurements, as well as a repeated colonoscopy in 6–12 months are planned. The overall clinical course is summarized in Table 1.

3 | Discussion

The two main representatives of chronic inflammatory bowel disease are Crohn's disease and ulcerative colitis. In Western countries, the incidence has increased significantly since the middle of the last century, and this increase can also be observed in Asia, albeit with a time lag [9, 10].

Despite scientific progress, the etiology of the disease is not yet fully understood. What is certain is that it is a multifactorial, immune-mediated pathogenesis. In genetically susceptible individuals, there is an incorrect interaction between the intestinal microbiome, immune system, and environmental factors [11].

Crohn's disease can affect the entire gastrointestinal tract, including the oropharynx. It often occurs for the first time at a young age (typically between the age of 15 and 30) and, depending on the course of the disease; patients are sometimes severely restricted in their quality of life. This is particularly significant as approximately 80% of patients experience comorbidities [9–11].



FIGURE 1 | (A) Frontal view and (B) side view of lower lip swelling.

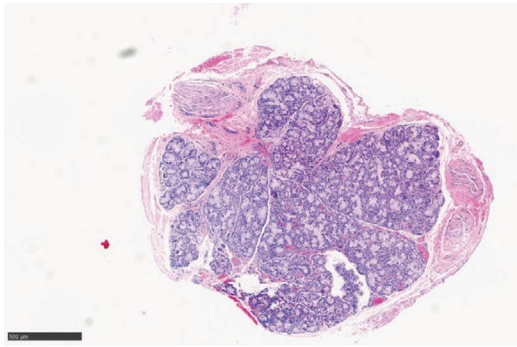


FIGURE 2 | Histological H.E. stain showing regularly lobulated minor salivary gland without significant inflammation. Furthermore, overlying squamous epithelium showed no pathological findings.

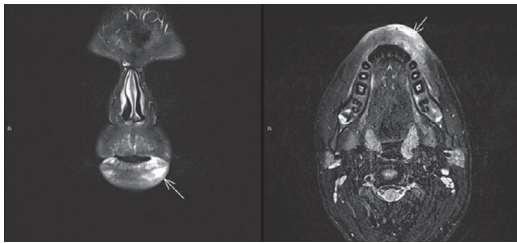


FIGURE 3 | Significant enlargement of the lower lip on the left, more discrete on the right.

As a systemic disorder, Crohn's disease can manifest not only in the gastrointestinal tract but also in extraintestinal organs. These extraintestinal manifestations are observed in more than 50% of patients within 30 years after diagnosis and may involve the joints (in up to 46% [12]), skin, eyes, and the hepatobiliary tract [13].

Oral manifestations were initially reported in 1969 by Dudeney [8, 14]. In adults, lesions are found in about 0%–9% of cases, whereas in children they occur in about 50%–80% of patients [4].

Oral manifestation of Crohn's disease can be classified into specific and nonspecific oral lesions, with specific lesions occurring less frequently. Aphthous ulcerations are frequently observed clinically but are nonspecific for Crohn's disease, as they also occur in the general population. Other nonspecific lesions include angular cheilitis and glossitis. Nonspecific oral lesions are generally considered secondary manifestations related to chronic inflammation, malnutrition and malabsorption syndrome or adverse effects of medications. Specific oral lesions include granulomatous cheilitis especially of the lower lips, cobblestone-like mucosal tags, linear ulcerations of the vestibule and mucogingivitis [6, 7]. Additionally, less common findings but very specific marker such as vegetating pyostomatitis and periodontitis have been described in individual cases [4].

Histologically, specific oral lesions in Crohn's disease are characterized by noncaseating granulomas consisting of activated macrophages, some of which fuse to form multinucleated giant cells, and surrounding lymphocytes and fibrotic tissue. It is important to note that noncaseating granulomas are not exclusively

TABLE 1 | Summary of the patient's clinical course.

Timepoint	Clinical event
2 years prior to presentation	Appearance of irritating skin lesions located on the trunk and extremities. Topical corticosteroid therapy led to improvement.
February 2023	Symptoms onset: bilateral swelling of the lower lip.
May 2023	Clinical examination by otorhinolaryngologist. Biopsy of mucosa (lower lip). Topical corticosteroids did not result in any improvement.
July 2023	Clinical examination by clinic of oral surgery. MRI performed.
August 2023	Examination by general practitioner. Elevated fecal calprotectin of 510 mg/kg with associated iron deficiency.
October 2023	Clinical and endoscopic examination by gastroenterology. Endoscopy revealed a stenosing terminal ileitis. Histologically revealed classic signs of chronic inflammatory bowel disease.
November 2023	Initiation of immunosuppressive treatment with Inflectra (infliximab).
Planned follow-up	Intestinal ultrasound, fecal calprotectin measurements and repeated colonoscopy within 6–12 months.

found in Crohn's disease but also occur in other granulomatous conditions such as sarcoidosis or orofacial granulomatosis. Although granulomas are detected in only 24%–61% of Crohn's disease patients overall, they are present in up to 70%–100% of cases with orofacial granulomatosis [15].

Therefore, oral histology alone is insufficient for a definitive diagnosis. It requires the integration of multiple diagnostic modalities. Ileocolonoscopy and histology remain the gold standard, but complete assessment also includes laboratory markers such as fecal calprotectin, cross-sectional imaging, and evaluation for extraintestinal manifestations [16].

In the presence of lip swelling, the differential diagnosis should include orofacial granulomatosis, Melkersson–Rosenthal syndrome, angioedema, cheilitis granulomatosa, contact dermatitis, foreign body reaction, and sarcoidosis. A precise clinical and histopathological examination of the oral lesions is therefore essential as a first step but must always be interpreted in combination with systemic diagnostic findings to accurately distinguish Crohn's disease-associated oral manifestations from other granulomatous or inflammatory conditions [5, 17].

In 5%–10% of cases, oral lesions precede gastrointestinal involvement [8]. In children, oral lesions as a precursor to inflammatory bowel disease are more commonly observed, highlighting the importance of early detection and interdisciplinary collaboration with gastroenterologists, as the condition can affect growth, puberty, and emotional development [4].

The presenting symptoms are diverse. A systematic review by Pecci-Lloret et al. [4] found that pain was a frequent symptom among affected patients, often associated with ulcerative lesions. Other reported findings included gingival irritation, dry lips, and lip swelling, whereas a notable number of patients remained asymptomatic, which may contribute to diagnostic delays. In some cases, oral symptoms were accompanied by gastrointestinal complaints, including diarrhea, weight loss, abdominal pain, and general malaise [4].

The treatment goal of Crohn's disease is primarily to achieve short-term remission and sustain it over the long term [18]. Interrupting the disease's progressive and damaging course is crucial, as prolonged progression can result in intestinal failure and related complications, underscoring the need for individualized treatment.

Systemic therapy remains the predominant treatment approach, including the use of corticosteroids, immune-modulators, and biologics [4]. In the present case, oral manifestation resolved following systemic treatment with Infliximab. Similarly, regression of oral lesions after treatment with Ustekinumab, another biologic agent, has been reported in another case [19, 20].

Oral manifestations can occur independently of intestinal disease activity and may persist even in patients with well-controlled gastrointestinal symptoms, thus requiring separate long-term management. In these cases, supportive medications such as antiseptic mouthrinses and topical corticosteroids are additionally recommended as adjunctive local treatment [21].

A strength of this case is the comprehensive multidisciplinary workup, including histology, MRI, laboratory testing, and gastroenterological assessment, which enabled a definitive diagnosis despite initially nonspecific histological findings.

This case report has limitations. It describes a single patient, and the findings may not apply to all patients with Crohn's disease. Long-term follow-up data are not yet available. Additionally, the initial biopsy did not show granulomatous changes, which reflect the diagnostic difficulty of oral Crohn's disease, as histological findings can be nonspecific, especially in early stages.

Recognizing the oral manifestations of Crohn's disease and close cooperation with gastroenterologists can contribute to early detection, which is important as a delay in diagnosis is linked to higher rates of complications, increased severity and impact on quality of life [22]. A 2012 review reported that the average diagnostic delay ranges from 9 to 18 months from symptom onset and that up to 20% of patients already present with complications such as abscesses or fistulas at first diagnosis [4].

Early diagnosis is therefore associated with improved long-term outcomes, as timely treatment initiation helps prevent serious complications such as intestinal strictures and malabsorption. A 2022 review confirms the progressive, destructive nature of Crohn's disease and emphasizes that identifying predictive factors is essential to manage patients toward remission rather than a chronic, treatment-resistant course [23].

With the incidence of Crohn's disease continuously rising, general dentists are increasingly likely to encounter affected patients and should therefore be aware of its oral manifestations to facilitate early diagnosis and timely referral [24].

4 | Conclusion

This case illustrates that oral manifestations, specifically bilateral lower lip swelling, can precede the diagnosis of Crohn's disease and represent the first clinical sign of an underlying systemic inflammatory condition. In adolescent patients presenting with unexplained, persistent lip swelling, Crohn's disease should be considered in the differential diagnosis. Early interdisciplinary collaboration between dentists, general practitioners and gastroenterologists is essential to avoid diagnostic delay and initiate timely treatment. General dentists play a key role in the early detection of such systemic diseases through careful clinical examination and appropriate referral.

Author Contributions

Milica Stojicevic: conceptualization; writing – original draft, writing – review & editing, project administration. **Alexander Benz:** investigation, formal analysis, writing – review & editing. **Andrea Kreienbühl:** investigation, writing – original draft, writing – review & editing. **Momoto Ali Mao Aweys:** writing – review & editing. **Fabienne Andrina Bosshard:** conceptualization, investigation, supervision, writing – review & editing.

Acknowledgments

The authors have nothing to report.

Funding

Open access publishing facilitated by Universitat Zurich, as part of the Wiley - Universitat Zurich agreement via the Consortium Of Swiss Academic Libraries.

Disclosure

All authors have read and approved the final version of the manuscript. Milica Stojicevic and Fabienne Andrina Bosshard had full access to all

of the data in this study and take complete responsibility for the integrity of the data and the accuracy of the data analysis.

Ethics Statement

This case report was exempt from ethics committee review as it describes routine clinical care without experimental intervention. Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

Consent

The patient reported in this manuscript provided written informed consent for the publication of the case details.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The authors confirm that the data supporting the findings of this study are available within the article and/or its Supporting Information.

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