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## Periodontal management in patient with crohn's disease

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### Abstract

**Aim:** The objective of this case report is to present dental management within the three phases of periodontal treatment that was used in a patient with a medical diagnosis of Crohn's disease. Likewise, this study highlights the correlation of systemic pathologies with oral manifestations and the importance of their timely diagnosis.

**Case report:** A 24-year-old female patient attends the Department of Periodontology of the Faculty of Dentistry, Torreón Unit. Her reason for consultation was "my gums bleed a lot". As a pathological personal history, the patient reported Crohn's disease. Clinically, gingival hyperplasia was observed in the vestibular aspect of the four quadrants, bleeding on probing, thickening of the oral mucosa with an erythematous appearance, an inflamed hard palate with a painless cobblestone surface, a fissured dorsum of the tongue with the appearance of depapillae and angular cheilitis. After periodontal phase I, gingivectomy and gingivoplasty were performed, and incisional biopsy was performed for subsequent histopathological study.

**Results:** Clinically, the patient had better plaque rates and decreased bleeding on probing. The morphological findings allow the consideration of a granulomatous inflammatory condition, so interpretation and correlation with the clinical evidence are suggested.

**Conclusion:** Oral manifestations may precede Crohn's disease and serve as a diagnostic resource. It is extremely important to carry out an exhaustive oral clinical examination and corresponding histopathological studies to carry out a correct assessment of the associations between clinical symptoms and histopathology.

**Keywords:** Crohn's disease, orofacial granulomatosis, extraintestinal Crohn's disease, gingivectomy.

### Introduction

Crohn's disease, first described in 1930 and published in 1932 by Dr. Burril B. Crohn, is defined as a chronic granulomatous disease characterized by discontinuous lesions that can appear in the intestinal tract from the mouth to the anus [1, 2]. Common symptoms include weight loss, fatigue, diarrhea, abdominal pain, rectal bleeding, and fever. Patients with this condition are associated with an increased risk of cancer, anemia, osteoporosis, deficiencies, infections, and thrombotic events [3].

Men and women are affected equally, with an estimated incidence of 1 to 4 people per 1,000,000 people, making it the second most common inflammatory bowel disease. The etiology is unknown, but studies link it to hyperactivity of the digestive immune system, alterations in the bowel microbiome, defects in the function of the intestinal epithelial barrier, and genetic aspects. Pathogenesis is uncertain, and the role genetic, infectious, immunological, and environmental factors remains debated [2, 4]. The diagnosis should be mainly clinical, endoscopic, or radiological with confirmation by histopathology, with the dentist being the first to diagnose oral manifestations. Approximately 30% of patients with Crohn's disease have some extraintestinal clinical manifestations. The incidence of manifestations in the oral cavity is low (0.5% to 30%); however, it precedes intestinal symptoms more than half of the time, even one year before their onset [5].

Orofacial granulomatosis is a rare disease characterized by persistent and recurrent soft tissue enlargement, oral ulceration, and variety of other orofacial features. The term was first introduced by Wiensenfeld in 1985. It can be an oral manifestation of systemic diseases such as Crohn's disease, inflammatory bowel disease (IBD), sarcoidosis, granulomatosis with polyangiitis (GPA), and Melkersson-Rosenthal syndrome (MRS) [2, 6].

The main clinical abnormalities of Crohn's disease include diffuse inflammation, a fissured appearance of the buccal mucosa, localized gingivitis, intermittent swelling of the lips, linear ulceration with hyperplastic margins, and deep ulcers. The swelling is usually persistent, firm, and painless, and tends to affect the lips, buccal mucosa, and facial soft tissues. There are also papillomas of fibrous tissue, polyps or nodules; pyostomatitis vegetans and possibly aphthous ulcers [1, 7]. (Table 1).

**Table 1:** Specific Injuries and Non-specific injuries

Specific Injuries	Non-specific injuries
Fingerprint indurated lesions	Aphthous stomatitis
Cobblestonelike raised lesions	Pyostomatitis vegetans
Gingivitis	Angular cheilitis
Lips edema with vertical fissures	Glossitis

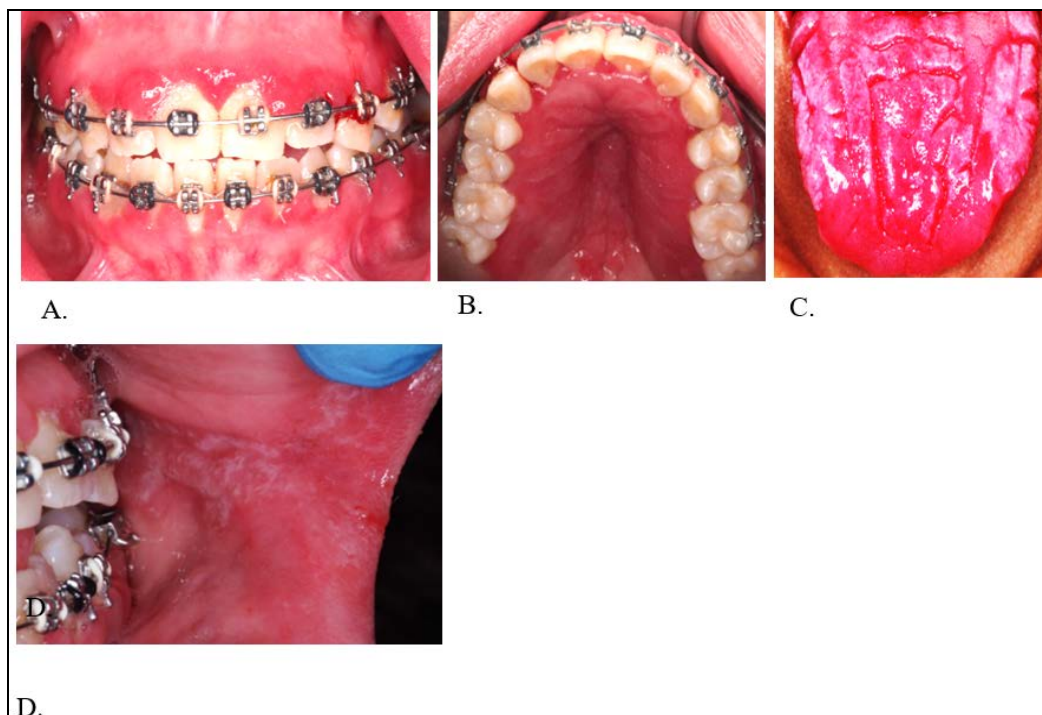
Specific Injuries	Non-specific injuries
Indurated lesions in the form of a fingerprint	Aphthous stomatitis
"Stoned" appearance	Pyostomatitis vegetans
Gingivitis	Queitis angular
Edema of the lips with vertical fissures	Glositis
Deep linear ulceration	Submandibular lymphadenopathy

The periodontal manifestations of acquired and developmental diseases and conditions constitute one of the new classifications of periodontal and peri-implant diseases and conditions described in 2018. Among the systemic disorders that have a great impact on the loss of periodontal tissue by influencing periodontal inflammation, there are genetic conditions associated with immunological disorders, including chronic granulomatous disease, among other diseases [8, 9]. The case described in this article focuses on oral and its periodontal management and the importance of performing a complete histological diagnosis for its correct correlation with systemic disease.

**Case report**

A 27-year-old female patient with an ASA II classification attends the clinic of the Master's degree in Periodontics of the Faculty of Dentistry of the Autonomous University of Coahuila, Torreón Unit, being referred from private practice. The patient's main complaint was bleeding and swelling of the gums. In his pathological personal history, he reported a previous diagnosis of Crohn's disease for 2 years and was treated symptomatically with the following medications: mesalazine, celecoxib, metamizole sodium, tramadol with paracetamol orally in daily doses and the humira adalimumab@ vaccine every two weeks.

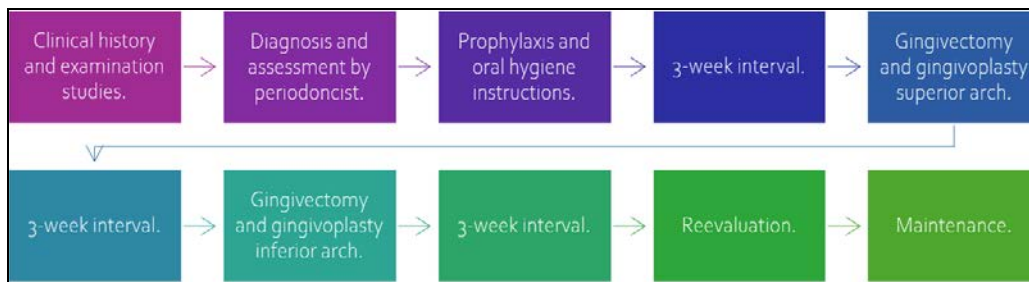
Intraoral examination revealed active orthodontic treatment, gingival hyperplasia in the vestibular aspect of the four quadrants bleeding, thickening of the oral mucosa with an erythematous appearance, an inflamed hard palate with a painless cobblestone surface, a fissured dorsum of the tongue with the appearance of depapillary papillae and angular cheilitis. Poor control of dentobacterial plaque and associated gingivitis is observed. (Figure 1)



**Fig 1:** Intraoral initial characteristics. A. Erythematous, edematous gum with pressure bleeding. B. Soft palate with cobblestone appearance. C. Fissured tongue. D. Angular queilitis.

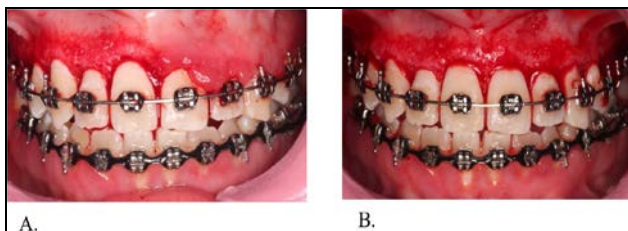
The patient's periodontal diagnosis was classified as one of the periodontal manifestations of acquired diseases and conditions affecting periodontal tissue related to chronic granulomatous disease (Crohn's disease).

Acquired diseases and conditions affecting periodontal tissues related to chronic granulomatous disease (Crohn's disease). In addition, the diagnosis of plaque-induced gingivitis was attributed. A treatment plan including periodontal phases I, II and III was carried out. (Figure 2).



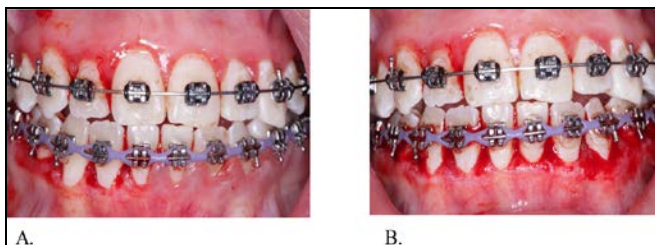
**Fig 2:** Treatment plan protocol. (Own creation)

Detartration was started, plaque removal and oral hygiene instructions were given at home, and the modified Stillman brushing technique and the use of interdental brushes were used. After 3 weeks, a reevaluation was carried out, where a decrease in bleeding was noted. We proceeded to phase II of the treatment, where gingivectomy and gingivoplasty were performed in the upper part via scalpel handle #3 with a 15c blade and Kirkland scalpel. (Figure 3).



**Fig 3:** Intraoperative. A. Gingivectomy and gingivoplasty first quadrant. B. Gingivectomy and upper arch gingivoplasty.

After an interval of 3 weeks, gingivectomy and gingivoplasty were performed in the lower arch following the same surgical protocol. (Figure 4).



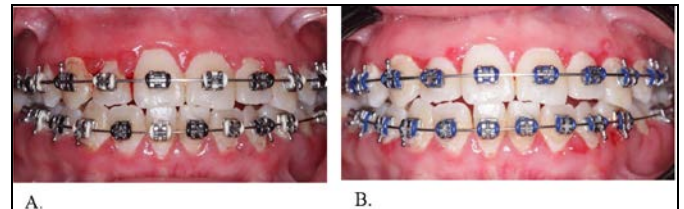
**Fig 4:** Intraoperative. A. Gingivectomy and gingivoplasty fourth quadrant. B. Gingivectomy and gingivoplasty lower arch.

The postoperative medication used was dexketoprofen 25 mg every 8 hours for 4 days, and topical applications of Bexident Post® 3 times a day for two weeks were prescribed. Postsurgical indications and follow-up appointment were given 3 weeks after the last procedure. As a complement to the patient's medical treatment, the pathologist recommended rinses of 0.12% chlorhexidine at two-week intervals and topical application of Kitos Cell® to the lip corners.

For both surgical interventions, samples of the adhered gingival tissue were obtained from the area of greatest involvement or dimensions and placed in 10% formalin for subsequent histopathological analysis. The samples were 2.2 x 1.5 x 0.3 cm long, and all the fragments presented the same characteristics: irregular shape and anfractuous surface. Its consistency is reported as soft, light brown with dark brown areas; when cut heterogeneous solids are observed, light brown with dark brown areas are included in their entirety in a capsule for further processing and histopathological analysis.

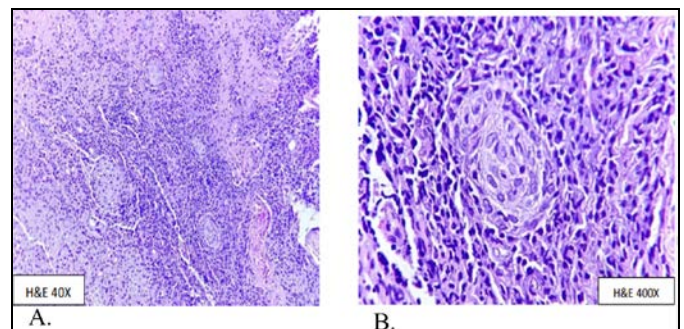
## Results

Three weeks after surgery, the patient was reassessed and presented with papillae at OD 12 and 22 with an erythematous clinical appearance, edema and bleeding on probing. The patient showed improvement in plaque control; however, 40% of the patients still had a plaque index. Oral hygiene measures were reinforced, and periodontal maintenance was performed. Three months later, an improvement in plaque control was observed, with an index of 15% and erythematous areas scattered over various papillae. (Figure 5).



**Fig 5:** Postoperative. A. Healing 3 weeks after surgery in the lower area. B. Healing 3 months after last surgery.

Histological sections stained with routine hematoxylin and eosin revealed multiple mucosal fragments lined with parakeratinized stratified squamous epithelium, which in some areas have long, blunt and gouty epithelial nails, which present overstratification of the basal layer. Underlying the lamina propria, chronic inflammatory infiltrates are observed, which in some areas form small granulomas. All of this was supported by dense, irregular fibroconnective tissue with blood vessels of different sizes. (Figure 6)



**Fig 6:** Histopathological examination. A. Histological sections stained with 40X hematoxylin and eosin staining. B. Histological sections stained with hematoxylin and 400X eosin staining.

After microscopic examination, the incisional biopsy product of vestibular gingiva volume augmentation provided a diagnostic impression of chronic nonspecific mucositis with the formation of nonnecrotizing subepithelial granulomas measuring 2.2 x 1.5 x 0.3 cm. The morphological findings allow the consideration of a granulomatous inflammatory condition, so interpretation and correlation with the clinical evidence are suggested.

## Discussion

In 1969, Dudeney was the first to publish a clinical case in which Crohn's disease was related to oral manifestations around the gums, lips, and oral mucosa. The main oral manifestation involves gingival tissues with alterations in cobblestone appearance and thickening of the tissue, according to Sigusch. This clinical presentation resembles other entities, such as generalized papillomatosis of the oral vesicular mucosa, rashes such as pemphigus, fungal and viral infections such as erythema multiforme, for which it is necessary to establish a differential diagnosis<sup>[5]</sup>.

There is no specific treatment for Crohn's disease; however, the main goals are to decrease symptoms and improve quality of life<sup>[5]</sup>. Comprehensive management of Crohn's disease has two goals. The first of these is to treat the most affected area and its associated complications from a medical point of view. Treatment decisions are guided by age, comorbidities, symptoms, inflammatory status, location, extent, and risk of progression. The second goal is to minimize the overall negative impacts the disease has on the patient's system, including the oral cavity. This approach prioritizes percutaneous care, including adjuvant surgical therapies<sup>[3]</sup>.

## Conclusion

Orofacial granulomatosis is a rare disease characterized by enlargement and ulceration of oral soft tissues, in addition to other clinical features in the maxillofacial complex. This condition may be a manifestation of systemic conditions. This correlation with systemic diseases is what gives it its clinical importance. For correct comprehensive and differential diagnosis, histopathological studies of the lesions and confirmation of their associations with the broad spectrum of oral clinical presentations of systemic conditions such as Crohn's disease, sarcoidosis, granulomatosis with polyangiitis and Melkersson-Rosenthal syndrome are essential.

In this case report, we present dental management via a periodontal approach in a patient with a medical diagnosis of Crohn's disease. In the case of this disease, oral manifestations may precede intestinal disease and serve as a diagnostic resource. It is extremely important to carry out an exhaustive oral clinical examination and perform corresponding histopathological studies to contribute positively to the comprehensive treatment of patients with Crohn's disease.

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