Scientific Research Publishing

Open Journal of Gastroenterology, 2023, 13, 313-318
https://www.scirp.org/journal/ojgas
ISSN Online: 2163-9469
ISSN Print: 2163-9450

Esophagitis Due to Actinomycosis in an Immunocompetent Patient with a History of SARS-CoV-2 Infection: Case Report

Zamora Harvey[1], Hernández Gustavo[2], González Melina[3]

[1]General Surgery Department, ISSSTE Tepic General Hospital APP, Tepic, México
[2]Departamento de Medicina Interna, ISSSTE Tepic General Hospital APP, Tepic, México
[3]Gastrointestinal Endoscopy Unit, Puerta de Hierro Hospital, Tepic, México
Email: doctorzamora26@gmail.com, gushdzval96@gmail.com

How to cite this paper: Harvey, Z., Gustavo, H. and Melina, G. (2023) Esophagitis Due to Actinomycosis in an Immunocompetent Patient with a History of SARS-CoV-2 Infection: Case Report. *Open Journal of Gastroenterology*, **13**, 313-318.
https://doi.org/10.4236/ojgas.2023.1310028

Received: September 15, 2023
Accepted: October 23, 2023
Published: October 26, 2023

Abstract

We present an unusual case of esophageal actinomycosis that developed in a patient with normal immunity and a history of acute SARS-CoV-2 infection. We report a case of a 56-year-old female patient without chronic degenerative pathologies with a history of non-severe acute SARS-CoV-2 infection that occurred two months prior to her presentation, treated with prednisone and betamethasone orally and inhaled, respectively for 21 days. The pivotal symptom is dysphagia and definitive diagnosis requires a tissue culture of the affected organ or a biopsy that shows the classic sulfur granules. Currently, antibiotic treatment with beta-lactams, such as amoxicillin/clavulanic acid, is still effective, as it was in our patient.

Keywords

Actinomyces, Actinomycosis, Esophagitis, SARS-CoV-2, Immunocompetent

1. Introduction

Actinomycosis is a chronic infection caused by filamentous bacteria of the *genus Actinomyces*, which are gram-positive, strict anaerobic or microaerophilic, non-sporulated, catalase-negative, pleomorphic bacilli that form a significant part of the commensal flora of the oral cavity, gastrointestinal tract, and genital tract. Female, of generally low pathogenicity, in its pathogenic form it typically affects various tissues causing fibrosis, abscesses and fistulas that can leave sequelae and even lead to death [1].

It affects immunocompromised people, with the rarest forms being: anorectal,

gastric, hepatic, esophageal (20%), splenic, diverticular and abscessed disease. Actinomycosis rarely occurs in immunocompetent patients; it presents a subacute course and usually responds poorly to antibiotics, with the development of local complications being common, such as esophagotracheal fistula [1].

In previous articles where esophagitis due to actinomycosis is described, the need to perform an endoscopy to take biopsy is always commented because that is the best and only way to corroborate the diagnosis.

Esophageal actinomycosis is a very rare entity in immunocompetent patients. It presents a subacute course and usually responds poorly to antibiotics, with frequent development of local complications, such as esophagotracheal fistula. In our patient, the only risk factor for SARS-CoV-2 infection and exposure to oral steroids with an adequate response to medical treatment determined a satisfactory evolution without complications [2].

The symptoms of the esophageal form present with severe odynophagia, ulcers or ulcers in the mouth and esophagus.

Long-term use of penicillin G is the treatment of choice, since infections that last 6 to 12 months tend to recur. Acquired resistance of actinomycetes to penicillin G during long-term therapy is rare, and the amoxicillin/clavulanic acid combination offers coverage advantages against aerobic or anaerobic pathogens that may be present [3].

The objective of this work is to publicize uncommon pathologies with the treatments prescribed in other literatures with the purpose of publicizing the current results and continuing to prescribe for future cases for better results.

2. Clinical Case

We report a case of a 56-year-old female patient without chronic degenerative pathologies with a history of non-severe acute SARS-CoV-2 infection that occurred two months prior to her presentation, treated with prednisone and betamethasone orally and inhaled, respectively for 21 days.

She went to gastroenterology due to dysphagia to solid foods for 1 month, progressing to liquids 1 week later. Within the clinical picture, she reported substernal pain VAS 8/10 without irradiation to the intake of solid and liquid foods, in addition to unquantified weight loss related to a decrease in food intake. Normal laboratories were in the analysis.

2.1. Endoscopy

Endoscopy performed, which reported two esophageal ulcers in the upper third of approximately 8 mm in diameter each with the presence of fibrin, so biopsies were from the edge as well as a brushing of the esophagus to send them for study.

Due to the endoscopic findings, the first suspicion was infectious esophagitis, so treatment with fluconazole 100 mg, 1 tablet every 12 hours orally for 14 days. At the end of the treatment, the patient continued to present symptoms, so she returned for consultation with the result of the esophageal biopsy.

2.2. Histopathological Report

Upon interpretive analysis of the histological sections of the esophageal biopsy (Figure 1), a fragment of non-keratinized simple squamous epithelium was identified that showed a non-neoplastic inflammatory lesion. Due to the histological findings of these structures, Gram histochemical staining was performed, which was positive.

When obtaining the histopathological report, serology was for HIV, which was negative and glycosylated hemoglobin, which was at 7% with normal fasting serum glucose without symptoms, associated with type 2 diabetes mellitus.

2.3. Treatment

For the management of the patient after the biopsy results, treatment was started with ceftriaxone 1 gram intramuscularly every 12 hours for 7 days and at the end, amoxicillin/clavulanic acid 850/125 mg 1 tablet orally every 12 hours for 3 weeks was continued, presenting resolution of symptoms.

The prognosis was favorable since the patient reported significant improvement after 1 and a half weeks of starting treatment since she did not have dysphagia to liquids and began to eat a soft diet without discomfort. During the follow-up of the patient at the end of the antibiotic regimen after 3 weeks, she was asymptomatic and tolerated solid and liquid food. The patient was told about the need for another control endoscopy within 3 months, which she refused.

3. Discussion

Esophageal actinomycosis remains a rare infection. A review of the literature using the keywords Actinomyces and esophagus in a Pub Med search revealed only 1 case, not including the present one [4]. However, we analyze in an article the different types of esophagitic actinomycosis. There were 24 cases described

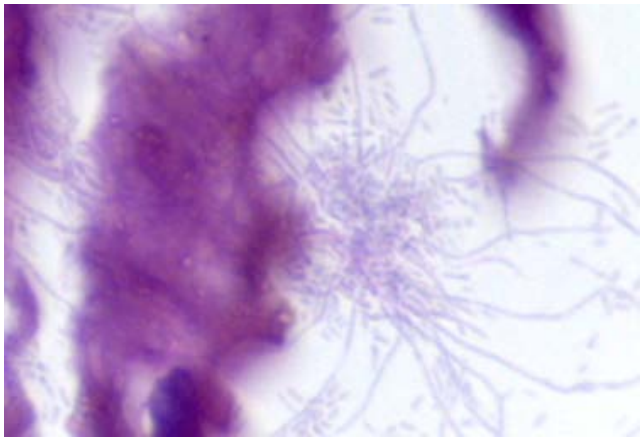

Figure 1. Esophageal biopsy with staining hematoxylin and eosin (40×): Intense predominantly lymphoid inflammatory infiltrate with epithelial changes associated with intraepithelial infiltration of filamentous structures. Esophageal epithelium with bacilliform structures consistent with actinomyces.

in the literature, according to the reviews of Murchan *et al.* [5] and Abdalla *et al.* [6] of them, nine were in patients with HIV infection; A new review of cases was carried out after what this article reported, finding 12 more cases of esophageal actinomycosis in patients with end-stage chronic kidney disease [7], non-small cell lung neoplasia (with a history of mediastinal radiation) [8], bronchogenic carcinoma [9], tracheal carcinoma [10], hematological malignancy [11], kidney transplant [12], diabetes [13], eosinophilic esophagitis [14], and immunocompetent [15] [16] [17], but no other cases in patients with HIV infection. but no other cases in patients with HIV infection. In total 37 cases of esophageal actinomycosis have been described in the world according to this case review including this article, and ten in patients with HIV infection.

The clinical characteristics of esophageal actinomycosis in immunosuppressed patients are nonspecific and difficult to distinguish from other causes of infectious esophagitis in immunosuppressed patients, with dysphagia and odynophagia being the most common symptoms. Radiological findings are also not specific. A barium esophagram in actinomycosis can show deep ulcers and multiple fistula tracts, as well as irregularities of the mucosal surface, small sections of strictures or simply ulcers, which are also seen in esophagitis caused by Candida, HSV and CMV. CT scan in the early stages of infection may reveal thickening of the esophageal wall with possible development of fistulas [13].

Therefore, to make the definitive diagnosis of this disease, the usefulness of endoscopic study with biopsy is important, both for microbiological culture and for histopathological evaluation.

In all the cases that have been reviewed, the diagnosis of esophageal actinomycosis was made by biopsies or cytology that revealed the classic sulfur grains, but in very few cases, there were positive cultures.

It is generally associated with immunocompromised patients, as occurs in HIV infection, use of corticosteroids, diabetes mellitus, neoplasms and organ transplants. Surgical management should be according to the severity of the case; surgical debridement used to remove necrotic tissue and drain abscesses [5].

In the case of the patient, the only history was acute SARS-CoV-2 infection and use of steroids, which could have caused a state of temporary immunosuppression, which favored the response to antibiotic treatment and the absence of development of complications.

4. Conclusions

Treatment of actinomycosis consists mainly of antibiotic therapy, with penicillin being the drug of choice. Tetracycline, erythromycin and clindamycin can be as an alternative in patients allergic to penicillin [17].

The pivotal symptom is dysphagia and definitive diagnosis requires a tissue culture of the affected organ or a biopsy that shows the classic sulfur granules.

Currently, antibiotic treatment with beta-lactams, such as amoxicillin/clavulanic acid, is still effective, as it was in our patient, who had a significant improvement by removing symptoms.

Ethical Considerations

The authors declare that they have met all ethical responsibilities regarding data protection, right to privacy and informed consent.

Authorization from the institution's ethics committee is not necessary since at no time do they fail to comply or violate patient anonymity rules, nor is any experimental procedure performed that puts the patient's integrity at risk.

The authors declare that this article does not contain personal information that would allow the patient described to be identified, which makes the patient's informed consent unnecessary for the publication of the article.

Acknowledgements

We want to thank Dr. Samuel Almeida for his histopathological contribution.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Clinical Practice Guides, México, CENETEC (2011) Prevention, Diagnosis and Treatment of Actinomycosis in Adults, Evidence Guide and Recommendations. http://www.imss.gob.mx/sites/all/statics/guiasclinicas/480GER.pdf

[2] Fernández Moreno, N., Ubiña Aznar, E., Rivera Irigoin, R., *et al.* (2005) Esophageal Actinomycosis as a Causa of Upper Digestive Bleeding. *Spanish Journal of Digestive Pathology*, **97**, 533-534. https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1130-01082005000700012

[3] Tercero-Lozano, M., García Robles, A., Carrillo Ortega, G., Colmenero-Lechuga, M. and Baeyens-Cabrera, E. (2013) Esophageal Actinomycosis in Inmmunocompetent Patient. *Andalusian Society of Digestive Pathology*, **36**, 448-450. https://www.sapd.es/revista/2013/36/6/08

[4] Rodríguez Lago, I., Calderón, A., *et al.* (2017) Primer caso clínico de actinomicosis esofágica en un paciente con esofagitis eosinofílica activa. *Gastroenterología y Hepatología*, **40**, 404-406. https://doi.org/10.1016/j.gastrohep.2016.04.012

[5] Murchan, E., Redelman-Sidi, G., Patel, M., DiMaio, C. and Seo, S.K. (2010) Esophageal Actinomycosis in a Fifty-Three-Year-Old Man with HIV: Case Report and Review of the Literature. *AIDS Patient Care STDs*, **24**, 73-78. https://doi.org/10.1089/apc.2009.0185

[6] Abdalla, J., Myers, J. and Moorman, J. (2005) Actinomycotic Infection of the Esophagus. *Journal of Infection*, **51**, e39-e43. https://doi.org/10.1016/j.jinf.2004.08.011

[7] Nagaraju, S.P., Kirpalani, D.A., Bhabhe, A.S., Prasad, R., Shah, H. and Kirpalani, A.L. (2014) Esophageal Actinomycosis in a Patient with End-Stage Renal Disease. *Hemodialysis International*, **18**, 522-561. https://doi.org/10.1111/hdi.12124

[8] Chandrasekhara, V., Zhang, L., Floyd, B.N.I. and Kochman, M.L. (2012) A Rare Cause of Esophageal Strictures: Actinomyces. *Gastrointestinal Endoscopy*, **75**, 1111-1112. https://doi.org/10.1016/j.gie.2011.05.047

[9] Murali, A., Shetty, S., Aravinth, S. and Venkatakrishnan, L. (2011) Esophageal Actinomycosis in a Patient with Bronchogenic Carcinoma Treated with Chemoradia-

tion. *Journal of Digestive Endoscopy*, **2**, 239.

[10] Thota, P.N., Liu, X. and Sanaka, M.R. (2015) Dysphagia Caused by Esophageal Actinomycosis. *Clinical Gastroenterology and Hepatology*, **13**, 21-22. https://doi.org/10.1016/j.cgh.2015.01.012

[11] Welling, R.D., Cardona, D.M. and Thompson, W.M. (2009) Esophageal Actinomycosis: A Case Report and Review of Radiographic Findings. *Journal of Radiology Case Reports*, **3**, 44-48. https://doi.org/10.3941/jrcr.v3i12.297

[12] Pillappa, R., O'Brien, T.F., Sullivan, J.L. and Weksler, B. (2016) Esophageal Actinomycoses Mimicking Malignancy. *The Annals of Thoracic Surgery*, **101**, 1967-1970. https://doi.org/10.1016/j.athoracsur.2015.07.044

[13] del Olmo Martínez, L., Aller de la Fuente, R., Velayos, B., Fernández, L. and González, J. (2009) Actinomicosis esofágica. *Revista Española de Enfermedades Digestivas*, **101**, 373. https://doi.org/10.4321/S1130-01082009000500015

[14] Kim, H.S., Cheon, J.W., Kim, M.S., Jung, C.K., Kim, K.R., *et al.* (2013) A Case of Esophageal Actinomycosis in a Patient with Normal Immunity. *The Korean Journal of Gastroenterology*, **61**, 93-96. https://doi.org/10.4166/kjg.2013.61.2.93

[15] Kim, G.E., Choi, Y.-J., Park, J.-S., Shin, Y.W. and Han, J.-Y. (2014) A Case of Esophageal Actinomycosis without Treatment in an Immunocompetent Patient. *The Korean Journal of Helicobacter and Upper Gastrointestinal Research*, **14**, 67-70. https://doi.org/10.7704/kjhugr.2014.14.1.67

[16] Korkmaz, H., Kutluana, U., Bugdaci, M.S. and Kucukosmanoglu, I. (2013) A Rare Presentation of Esophageal Actinomycosis in an Immunocompetent Patient. *Endoscopy*, **45**, E181-E182. https://doi.org/10.1055/s-0033-1344067

[17] Maquera Afaray, J., Perez Lazo, G., Magallanes, J. and Arenas, J. (2019) Actinomicosis esofágica en pacientes con infección por VIH. *Peruvian Journal of Gastroenterology*, **39**, 160-163. https://doi.org/10.17843/rpmesp.2018.351.3609 http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1022-51292019000200011&lng=es&tlng=es