Vedolizumab in Crohn’s disease with rectal fistulas and presacral abscess: A case report

Heng Yeh, Chia-Jung Kuo, Ren-Chin Wu, Chien-Ming Chen, Wen-Sy Tsai, Ming-Yao Su, Cheng-Tang Chiu, Puo-Hsien Le

ORCID number: Heng Yeh 0000-0002-3908-6927; Chia-Jung Kuo 0000-0003-2845-6248; Ren-Chin Wu 0000-0003-1439-0874; Chien-Ming Chen 0000-0001-7829-1504; Wen-Sy Tsai 0000-0001-6873-2863; Ming-Yao Su 0000-0002-5229-3074; Cheng-Tang Chiu 0000-0002-7347-8052; Puo-Hsien Le 0000-0002-1100-5371.

Author contributions: Yeh H wrote up the first draft, revise the drafts, and a major contributor in writing the manuscript; Kuo CJ contributed acquisition and analyze the data; Wu RC contributed interpret the histological examination of the biopsy samples; Chen CM contributed acquisition and analyze the images; Tsai WS, Su MY and Chiu CT contributed acquisition and analyze the data; Le PH contributed study design, interpretation of the data, revised the drafts of the paper and a major contributor in writing the manuscript.

Informed consent statement: The study participant provided informed written consent prior to study enrollment.

Conflict-of-interest statement: The authors have no conflict of interest to declare.

CARE Checklist (2016) statement:

Abstract

BACKGROUND
Fistula and intraabdominal fistula are common complications of Crohn’s disease (CD), but complex rectal fistula with abscess formation is rare. Tumor necrosis factor antagonists combined with percutaneous drainage or surgical intervention is optimal treatment for fistulizing CD with intraabdominal abscesses. There is no study show the efficacy of vedolizumab in such complicated condition.

CASE SUMMARY
A 47-year-old man has decompensated liver cirrhosis, child B. He suffered from abdominal pain, bloody diarrhea, fever, and body weight loss. CD with rectoprostatic fistula, rectopresacral fistula, pre-sacral abscess and cyto-
A 47-year-old man has decompensated liver cirrhosis, child B, hepatitis C virus (HCV) and alcoholism related, complicated with hypoalbuminemia, hyperbilirubinemia, coagulopathy, thrombocytopenia, splenomegaly and esophageal varices, Form 1. He complained low abdominal pain and intermittent bloody stool for 6 mo. Appendicitis was diagnosed in local hospital, and he received appendectomy on 16th November 2019. However, he suffered from progressive low abdominal pain, bloody stool, dizziness, and intermittent fever up to 38 °C for four days. He also mentioned body weight loss 20 kg within one year. He was brought to our emergent department.

**Chief complaints**
Low abdominal pain and intermittent bloody stool for 6 mo.

**History of present illness**
A 47-year-old man has decompensated liver cirrhosis, child B, hepatitis C virus (HCV) and alcoholism related, complicated with hypoalbuminemia, hyperbilirubinemia, coagulopathy, thrombocytopenia, splenomegaly and esophageal varices, Form 1. He complained low abdominal pain and intermittent bloody stool for 6 mo. Appendicitis was diagnosed in local hospital, and he received appendectomy on 16th November 2019. However, he suffered from progressive low abdominal pain, bloody stool, dizziness, and intermittent fever up to 38 °C for four days. He also mentioned body weight loss 20 kg within one year. He was brought to our emergent department.

**INTRODUCTION**
Fistula affects up to 50% Crohn’s disease (CD) patients within 20 years of initial diagnosis. It includes perianal, rectovaginal, enterocutaneous and internal fistula, but no rectoprostatic fistula or rectopresacral fistula were reported. The treatment of fistula usually requires a combination of medical and surgical approach. As far as medical treatment is concerned, tumor necrosis factor (TNF) antagonists are most effective to treat fistulizing CD. However, some studies also noted the beneficial effect of vedolizumab for fistulizing CD. We presented the patient of CD, complicated with rectoprostatic fistula, rectopresacral fistula and presacral abscess. He had complete fistula closure and deep remission after transverse colostomy and vedolizumab treatment for six months.

**CASE PRESENTATION**

**Chief complaints**
Low abdominal pain and intermittent bloody stool for 6 mo.

**History of present illness**
A 47-year-old man has decompensated liver cirrhosis, child B, hepatitis C virus (HCV) and alcoholism related, complicated with hypoalbuminemia, hyperbilirubinemia, coagulopathy, thrombocytopenia, splenomegaly and esophageal varices, Form 1. He complained low abdominal pain and intermittent bloody stool for 6 mo. Appendicitis was diagnosed in local hospital, and he received appendectomy on 16th November 2019. However, he suffered from progressive low abdominal pain, bloody stool, dizziness, and intermittent fever up to 38 °C for four days. He also mentioned body weight loss 20 kg within one year. He was brought to our emergent department.

**CONCLUSION**
Early vedolizumab and stool diversion are effective and safe in treating CD with complex rectal fistula with abscess formation.

**Key Words:** Vedolizumab; Crohn's disease; Rectoprostatic fistula; Rectal pre-sacral fistula; Pre-sacral abscess; Case report

©The Author(s) 2021. Published by Baishideng Publishing Group Inc. All rights reserved.
**History of past illness**
Decompensated liver cirrhosis, child B, hepatitis C virus infection and alcoholism.

**Personal and family history**
Appendicitis was diagnosed in local hospital, and he received appendectomy on 16th November 2019.

**Laboratory examinations**
Lab data revealed hemoglobin 10.1 g/dL, platelet 66000/μL, white blood cell 7700/μL, segment 68.7%, lymphocyte 23.7%, international normalized ratio (INR) 1.5, aspartate aminotransferase (AST) 55 U/L, alanine aminotransferase (ALT) 95 U/L, total bilirubin 2.1 mg/dL, albumin 2.38 g/dL and CRP 22.81 mg/L. Cytomegalovirus (CMV) immunoglobulin (Ig) M, CMV DNA, Epstein-Barr virus (EBV)-VCA IgM, EBV DNA, human immunodeficiency virus (HIV) antibody (Ab), amebic Ab, Clostridium difficile toxin, culture for *Salmonella*, *Shigella* and *Campylobacter* were all negative. Positive CMV IgG, EBV-VCA IgG, stool pus stool and occult blood were noted.

**Imaging examinations**
Colonoscopy showed terminal ileal shallow ulcer (Figure 1A) and multiple complex rectal fistula tracts (Figure 1B and C) on 10th December 2019. Magnetic resonance imaging (MRI) noted decompensated liver cirrhosis with ascites (Figure 2A), rectoprostatic fistula (Figure 2B), rectopresacral fistula (Figure 2C) and pre-sacral abscess (Figure 2D) on 21st December 2019. Pathology revealed acute on chronic inflammation with granulation tissue, compactable with CD (Figure 3A). Besides, there was positive result of CMV immunohistochemistry (IHC) staining (Figure 3B), which was performed with a monoclonal antibody directed against the CMV pp65 antigen (Novocastra™ lyophilized mouse monoclonal antibody; Leica Microsystems, Wetzlar, Germany).

**FINAL DIAGNOSIS**
He was diagnosed to have CD and CMV colitis by endoscopy and pathological findings. The CD activity index (CDAI) was 526 points and Harvey-Bradshaw index (HBI) was 22 points. He also had rectoprostatic fistula, rectopresacral fistula and pre-sacral abscess diagnosed by MRI findings.

**TREATMENT**
He refused percutaneous abscess fine needle aspiration, and we kept Tazocin for abscess treatment for 27 d. Because of positive CMV IHC staining result, he also received intravenous ganciclovir for 17 d and then valganciclovir po treatment for two months. Transverse colostomy was performed for stool diversion on 25th December 2019. He couldn’t tolerant azathioprine due to pancytopenia and vedolizumab (300 mg 8 wk) was prescript since 22nd January 2020.

**OUTCOME AND FOLLOW-UP**
Follow-up sigmoidoscopy showed mucosal healing without any fistula tract (Figure 1D) on 9th July 2020. The pathologist reported minimal inflammatory activity (Figure 3C). Lower gastrointestinal series mentioned no more fistula tract (Figure 4) on 21st July 2020. There was no more rectoprostatic or rectopresacral fistula (Figure 5A) and pre-sacral abscess (Figure 5B) in MRI. After vedolizumab treatment for 6 mo, the CDAI was 42 points and HBI score was 0 point. His body weight body also increased 20 kg, back to the same level before the episode.

**DISCUSSION**
Fistulizing CD results in not only high morbidity but also impaired health-related quality of life[8]. Biologics combined with surgical intervention seems to be the best
Figure 1 Endoscopic findings. A: Terminal ileal shallow ulcer at diagnosis; B and C: Multiple rectal fistula tracts with inflammation; D: Mucosal healing without fistula tracts six months after vedolizumab treatment, severe months after diagnosis.

resolution. Although Infliximab has strongest evidence in fistulizing CD treatment\cite{7,8}, vedolizumab also showed its efficacy in some studies\cite{5,6}. However, vedolizumab has better safety profiles (less severe adverse events and infections) in real world studies\cite{9,10}.

Intra-abdominal abscess occurs in up to 20% of patients with CD\cite{11,12}. Adequate percutaneous drainage combined with early adalimumab treatment achieves up to 74% successful rate\cite{13}. In this case, it was difficult to drain the presacral abscess and patient refused, too. Therefore, we chose vedolizumab with transverse colostomy in treating the complex rectal fistula and presacral abscess without abscess drainage.

This patient received vedolizumab treatment one month after confirmed the diagnosis. Earlier initiation of biological treatment shortly after diagnosis (less than one year) in patients with moderately to severely active CD leads to improved long-term clinical outcomes\cite{14}. Besides, early stool diversion with transverse colectomy and early anti-viral treatment for CMV infection were crucial to achieve the good outcome in this case.

CONCLUSION

Vedolizumab with loop transverse colostomy was effective in treating CD with complex rectal fistulas with pre-sacral abscess. Besides, early biological and anti-CMV treatments might also lead to the favorable outcome.
Figure 2 Magnetic resonance imaging at diagnosis. A-D: Liver cirrhosis (A) with ascites rectoprostatic fistula (B), rectopresacral fistula (C) with abscess presacral abscess (D).

Figure 3 Pathologic. A: Ulcer with acute on chronic inflammation and granulation tissue at diagnosis; B: Pathological presentations of cytomegalovirus (CMV) infection, immunohistochemistry stain (20 × objective) was performed with 1:200 diluted Novocastra™ lyophilized mouse monoclonal antibody against CMV pp65 antigen and showed strong focal CMV immunoreactivity with brownish areas; C: Minimal inflammatory cells infiltration six months after vedolizumab treatment, severe months after diagnosis.
Figure 4 Lower gastrointestinal series showed no more rectal fistula tract.

Figure 5 Magnetic resonance imaging seven months after diagnosis. A: No more rectal fistula tract; B: No more pre-sacral abscess.

REFERENCES

1 Siegmund B, Feakins RM, Barmias G, Ludvig JC, Teixeira FV, Rogler G, Scharl M. Results of the Fifth Scientific Workshop of the ECCO (II): Pathophysiology of Perianal Fistulizing Disease. J
Vedolizumab fistulizing CD presacral abscess

Crohns Colitis 2016; 10: 377-386 [PMID: 26681764 DOI: 10.1093/ecco-jcc/jjv228]

1 Schwartz DA, Loftus EV Jr, Tremaine WJ, Panaccione R, Harmsen WS, Zinsmeister AR, Sandborn WJ. The natural history of fistulizing Crohn's disease in Olmsted County, Minnesota. Gastroenterology 2002; 122: 875-880 [PMID: 11910338 DOI: 10.1016/S0016-5085(00)01204-3]

2 Geczy KB, Bemelman W, Kann M, Stoker J, Khanna R, Ng SC, Panés J, van Assche G, Liu Z, Hart A, Levesque BG, D'Haens G. World Gastroenterology Organization; International Organisation for Inflammatory Bowel Diseases IOIBD; European Society of Coloproctology and Roberts Clinical Trials; World Gastroenterology Organization International Organisation for Inflammatory Bowel Diseases IOIBD European Society of Coloproctology and Roberts Clinical Trials. A global consensus on the classification, diagnosis and multidisciplinary treatment of perianal fistulising Crohn's disease. Gut 2014; 63: 1381-1392 [PMID: 24951257 DOI: 10.1136/gutjnl-2013-306709]

3 Vavricka SR, Rogler G. Fistula treatment: The unresolved challenge. Dig Dis 2010; 28: 556-564 [PMID: 20926886 DOI: 10.1159/0003020416]

4 Schwartz D, Peyrin-Biroulet L, Lasch K, Audsul S, Danese S. P476 Efficacy and safety of 2 vedolizumab IV regimens in patients with perianal fistulising Crohn's disease: results of the ENTERPRISE study. J Crohns Colitis 2020; 14: S418-S419 [DOI: 10.1093/ecco-jcc/jjy203.605]

5 Feagan BG, Schwartz D, Danese S, Rubin DT, Lissoos TW, Xu J, Lasch K. Efficacy of Vedolizumab in Fistulising Crohn's Disease: Exploratory Analyses of Data from GEMINI 2. J Crohns Colitis 2018; 12: 621-626 [PMID: 29471381 DOI: 10.1093/ecco-jcc/jjy019]

6 Present DH, Rutgeerts P, Targan S, Hanauer SB, Mayer L, van Hogezaed RA, Podolsky DK, Sandes BE, Braakman T, DeWoody KL, Schaible TF, van Deventer SJ. Infliximab for patients with Crohn's disease complicated by intra-abdominal abscess: a GETAID-MICA study. J Crohns Colitis 2020; 14: S616 [PMID: 24951257 DOI: 10.1093/ecco-jcc/jjv228]

7 Yamaguchi A. The natural history of fistulizing Crohn's disease in Olmsted County, Minnesota. J Crohns Colitis 2016; 10: 377-386 [PMID: 26681764 DOI: 10.1093/ecco-jcc/jjv228]

8 Yamaguchi A, Sasaki M, Ikeda T, Takayama K, Funakoshi H, Fujii Y, Uchida Y, Sato K, Sato H, Nakahara Y, Nishida M, Kawanishi H, Minami H, Ochiai T, Yashiro S, Okada M, Ito K, Yamashita S, Ihara M, Kato Y, Kato S, Saito K, Saito S, Ando H, Nishino N, Ohno R, Noma M, Takeda Y, Yamao K, Hasegawa K, Okada K, Akiyama T, Kamata M, Obara Y, Sato K, Miyamoto Y, Hasegawa K, Matsui T, Sakurai T, Ueki T, Nakabayashi S, Yao T, Futami K, Arima S, Ono H. The natural history of fistulizing Crohn's disease in Olmsted County, Minnesota. J Crohns Colitis 2016; 10: 377-386 [PMID: 26681764 DOI: 10.1093/ecco-jcc/jjv228]
