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Case Report
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Recurrent Plantar Fasciitis as First Extraintestinal Manifestation of Inflammatory Bowel Disease [Crohn's Disease]

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Abstract

Background: Extra-intestinal manifestations (EIMs) of inflammatory bowel disease (IBD) occur frequently and contribute to morbidity and reduced quality of life. The musculoskeletal, ocular and cutaneous organ systems are frequently involved in IBD-related EIMs. Plantar fasciitis is a musculoskeletal system-related extraintestinal manifestation of IBD. The purpose of this article is to focus on plantar fasciitis as first extraintestinal manifestation of Crohn's Disease, and the importance of its early diagnosis as a warning sign of future development of seronegative enteropathic arthritis [EA] that can reduce quality of life significantly. However, it's important to note that not all patients with plantar fasciitis will go on to develop EA.

Case Presentation: A nineteen-year-old young girl presented with a six-month history of episodic chronic non-bloody diarrhea, diffuse abdominal pain, and significant weight loss along with recurrent plantar fasciitis. Her bowel symptoms and plantar fasciitis both responded well to oral systemic corticosteroid therapy.

Conclusion: Recurrent plantar fasciitis as first extraintestinal manifestation of Crohn's disease carries much significance as this can be a potential marker of development of enteropathic arthritis in the future. So, clinicians should be more vigilant regarding the diagnosis of asymptomatic plantar fasciitis. In this case plantar fasciitis resolved with oral corticosteroid which was actually given to reduce gut inflammation.

Keywords: *Plantar fasciitis; Extraintestinal manifestation; Crohn's disease*

Introduction

Crohn's disease (CD) is an inflammatory bowel disease affecting any portion of the gastrointestinal tract, usually the terminal ileum and the colon, with clinical manifestations such as diarrhea, fever, and weight loss [1]. Both Crohn's disease and ulcerative colitis (UC) are linked to several chronic inflammatory conditions that impact other organ systems and are frequently seen in IBD patients [2]. In clinical practice, there is a predominance of intestinal involvement and common symptoms such fever, stomach pain, weight loss, bloody/watery diarrhea, and anemia are present [3]. Clinical presentation of CD may include complications such as enterovesical fistulas, abscesses, strictures, and perianal disease. CD also classically presents with "skipping lesions," unlike ulcerative colitis (UC), which presents with continuous lesions [4]. IBD predominantly affects the gastrointestinal system but it is associated with a large number of extraintestinal manifestations (EIMs) [5]. There are two types of extra-intestinal manifestations: Immune-related manifestations of IBD and autoimmune disorders independent of intestinal activity [6]. With a predominance of asymmetric joint involvement typically affecting the knees and ankles and the disease reflecting

gastrointestinal activity, peripheral arthritis (PA) manifests in 2.8%–31% of IBD patients and 6% to 50% cases, enthesitis is a frequent seronegative arthropathy [7]. It is believed that the inflammatory processes involved in Crohn's disease may also contribute to the development of arthritis in susceptible individuals [8]. When a patient has plantar fasciitis, they typically complain of discomfort that is confined to the plantar medial aspect of the heel along the insertion of the plantar fascia. "Plantar fasciitis" indicates an inflammatory process to the plantar fascia [9]. Getting adequate therapy for the underlying cause is crucial when foot pain, specifically plantar heel pain is caused by intestinal inflammation. Ankle and heel joint and tendon discomfort should subside as Crohn's disease symptoms are treated and minimized [10]. The exact mechanisms underlying the relationship between plantar fasciitis and the development of EA in Crohn's disease are not fully understood [11]. IBD should be treated by halting disease development, individually modifying treatment approaches and thorough screening for long-term consequences. Here, we present a case of a patient with multiple intestinal ulcers associated with recurrent plantar Fasciitis. The purpose of this article is to focus on the plantar fasciitis as first extraintestinal manifestations of Crohn's Disease and to reveal that IBD-related recurrent plantar fasciitis responds excellently to systemic steroid therapy.

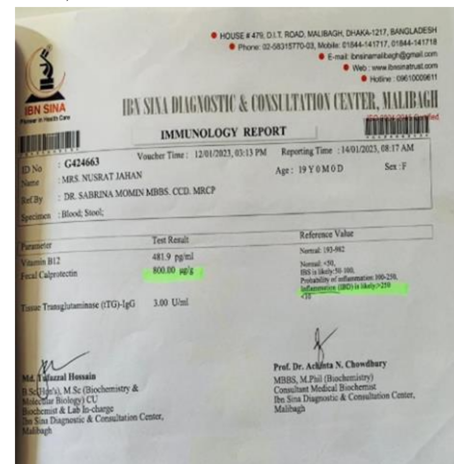
Case Presentation

A nineteen-year-old young girl presented with a six-month history of post-prandial fullness, diffuse abdominal pain, nausea, and occasional vomiting. During the six-month period, she also experienced several episodes of non-bloody diarrhea with high-grade fever and significant weight loss. She also developed two episodes of severe heel pain, each episode of which was associated with loose motions. The heel pain was consistent with a diagnosis of plantar fasciitis.

The patient described her pain as feeling like a stabbing at the base of her heel. Her pain was very bad first thing in the morning as she got out of bed. It would subside and feel more like a dull aching after some time of moving around. On physical examination, she was anemic and nutritional status was below average, and had abdominal tenderness without any lump. Upon visual examination of the soles of the feet, there is no swelling or redness around the heel. She has no tenderness to palpation over the tibia, fibula, malleoli, tarsals, metatarsals, metacarpophalangeal joints, or digits. She had tenderness to palpation over the medial calcaneal tubercle and discomfort with passive dorsiflexion of the first toe. She has a normal strength of dorsiflexion and plantar flexors. She had a normal range of motion with inversion, eversion, and plantar flexion. There was no evidence of any joint inflammation. She was put on conservative management to facilitate recovery, including appropriate footwear at work, stretching, and massage along with the oral corticosteroid [40 mg per day]. She responded well to systemic steroid therapy which was actually given to alleviate the gut inflammation and steroid injection in plantar fascia was not required for this patient.

Discussion

This study presents a patient who had all the typical symptoms of crohn's disease including diffuse abdominal pain, nausea, and occasional vomiting, several episodes of non-bloody diarrhea with high-grade fever and significant weight loss. The patient had several intestinal ulcers and recurrent plantar fasciitis as extraintestinal manifestations of inflammatory bowel disease (Crohn's Disease).



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IMMUNOLOGY REPORT

ID No : G424663 Voucher Time : 12/01/2023, 03:13 PM Reporting Time : 14/01/2023, 08:17 AM
Name : MRS. NUSRAT JAHAN Age : 19 Y 0 M 0 D Sex : F
Ref.By : DR. SABRINA MOMIN MBBS. CCD. MRCP
Specimen : Blood; Stool;

Parameter	Test Result	Reference Value
Vitamin B12	481.9 pg/ml	Normal: 193-982
Fecal Calprotectin	800.00 µg/g	Normal: <50, IBS is likely:50-100, Probability of inflammation 100-250, Inflammation (IBD) is likely>250
Tissue Transglutaminase (tTG)-IgG	3.00 U/ml	<10

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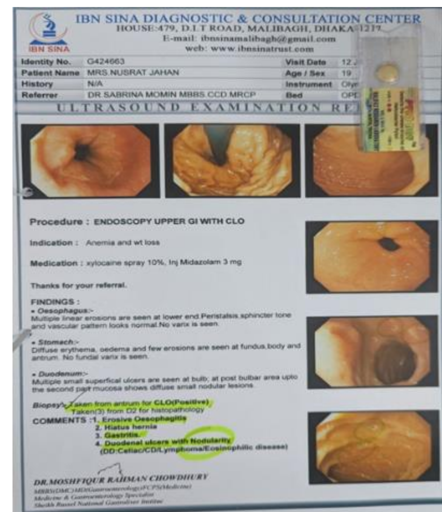
Biochemist & Lab In-charge
Ibn Sina Diagnostic & Consultation Center, Malibagh

Prof. Dr. Achinta N. Chowdhury
MBBS, M.Phil (Biochemistry)
Consultant Medical Biochemist
Ibn Sina Diagnostic & Consultation Center, Malibagh

Figure 1: *Immunology Report 14.01.2023.*



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Identity No.	G424663	Visit Date	12.
Patient Name	MRS.NUSRAT JAHAN	Age / Sex	19
History	N/A	Instrument	Oly
Referrer	DR.SABRINA MOMIN MBBS.CCD.MRCP	Bed	OPD

ULTRASOUND EXAMINATION RE

Procedure : ENDOSCOPY UPPER GI WITH CLO

Indication : Anemia and wt loss

Medication : xylocaine spray 10%, Inj Midazolam 3 mg

Thanks for your referral.

FINDINGS :
• Oesophagus:-
Multiple linear erosions are seen at lower end.Peristalsis,sphincter tone and vascular pattern looks normal.No varix is seen.
• Stomach:-
Diffuse erythema, oedema and few erosions are seen at fundus,body and antrum. No fundal varix is seen.
• Duodenum:-
Multiple small superfical ulcers are seen at bulb; at post bulbar area upto the second part mucosa shows diffuse small nodular lesions.

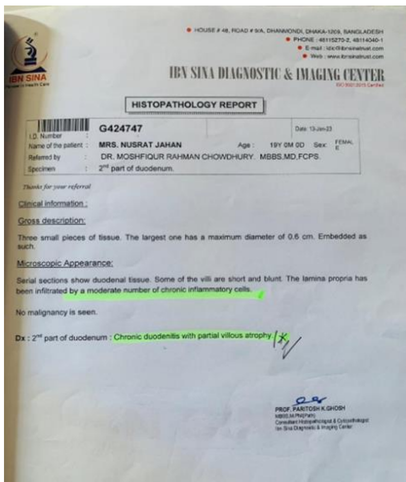
Biopsy: Taken from antrum for CLO(Positive)
Taken(3) from D2 for histopathology

COMMENTS : 1. Erosive Oesophagitis
2. Hiatus hernia
3. Gastritis.
4. Duodenal ulcers with Nodularity
(DD:Celiac/CD/Lymphoma/Eosinophilic disease)

DR.MOSHFIQUR RAHMAN CHOWDHURY

Figure 2: *Endoscopy Upper GI with CLO (Positive)*

Findings: 1. Erosive oesophagitis 2. Hiatus hernia 3. Gastritis 4. Duodenal ulcers with Nodularity.



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HISTOPATHOLOGY REPORT

I.D. Number :	G424747		Date: 13-Jan-23
Name of the patient :	MRS. NUSRAT JAHAN	Age : 19Y 0M 0D	Sex: FEMALE
Referred by :	DR. MOSHFIQUR RAHMAN CHOWDHURY. MBBS,MD,FCPS.		
Specimen :	2nd part of duodenum.		

Thanks for your referral

Clinical information :

Gross description:

Three small pieces of tissue. The largest one has a maximum diameter of 0.6 cm. Embedded as such.

Microscopic Appearance:

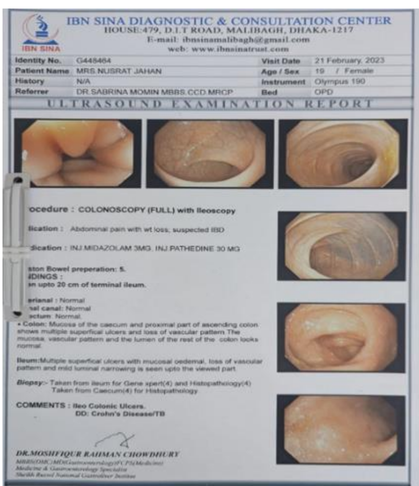
Serial sections show duodenal tissue. Some of the villi are short and blunt. The lamina propria has been infiltrated by a moderate number of chronic inflammatory cells.

No malignancy is seen.

Dx : 2nd part of duodenum : Chronic duodenitis with partial villous atrophy.

PROF. PARITOSH K.GHOSH

Figure 3: *Histopathology Report (2nd part of duodenum) 13.01.2023 Chronic duodenitis with partial villous atrophy.*



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Identity No.	G448464	Visit Date	21 February, 2023
Patient Name	MRS.NUSRAT JAHAN	Age / Sex	19 / Female
History	N/A	Instrument	Olympus 190
Referrer	DR.SABRINA MOMIN MBBS.CCD.MRCP	Bed	OPD

ULTRASOUND EXAMINATION REPORT

ocedure : COLONOSCOPY (FULL) with Ileoscopy

lication : Abdominal pain with wt loss, suspected IBD

dication : INJ.MIDAZOLAM 3MG, INJ.PATHEDINE 30 MG

ston Bowel preperation: 5.
IDINGS :
en upto 20 cm of terminal ileum.

erianal : Normal
nal canal: Normal
ectum: Normal.
• Colon: Mucosa of the caecum and proximal part of ascending colon shows multiple superficial ulcers and loss of vascular pattern. The mucosa, vascular pattern and the lumen of the rest of the colon looks normal.

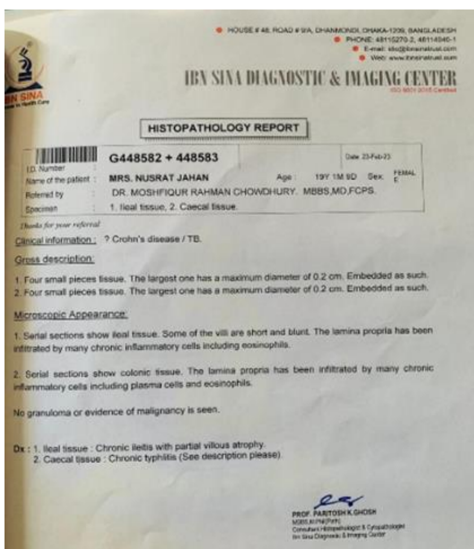
Ileum: Multiple superfical ulcers with mucosal oedemal, loss of vascular pattern and mild luminal narrowing is seen upto the viewed part.

Biopsy:- Taken from ileum for Gene xpert(4) and Histopathology(4)
Taken from Caecum(4) for Histopathology

COMMENTS : Ileo Colonic Ulcers.
DD: Crohn's Disease/TB

DR.MOSHFIQUR RAHMAN CHOWDHURY

Figure 4: *Colonoscopy (Full) with Ileoscopy Ileo Colonic Ulcers.*



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HISTOPATHOLOGY REPORT

I.D. Number :	G448582 + 448583		Date: 23-Feb-23
Name of the patient :	MRS. NUSRAT JAHAN	Age : 19Y 1M 9D	Sex: FEMALE
Referred by :	DR. MOSHFIQUR RAHMAN CHOWDHURY. MBBS,MD,FCPS.		
Specimen :	1. Ileal tissue, 2. Caecal tissue.		

Thanks for your referral

Clinical information : ? Crohn's disease / TB.

Gross description:

1. Four small pieces tissue. The largest one has a maximum diameter of 0.2 cm. Embedded as such.
2. Four small pieces tissue. The largest one has a maximum diameter of 0.2 cm. Embedded as such.

Microscopic Appearance:

1. Serial sections show ileal tissue. Some of the villi are short and blunt. The lamina propria has been infiltrated by many chronic inflammatory cells including eosinophils.

2. Serial sections show colonic tissue. The lamina propria has been infiltrated by many chronic inflammatory cells including plasma cells and eosinophils.

No granuloma or evidence of malignancy is seen.

Dx : 1. Ileal tissue : Chronic ileitis with partial villous atrophy.
2. Caecal tissue : Chronic typhlitis (See description please).

PROF. PARITOSH K.GHOSH

Figure 5: *Histopathology Report 23.02.2023 Ileal tissue: Chronic ileitis with partial villous atrophy Caecal tissue: Chronic typhlitis.*

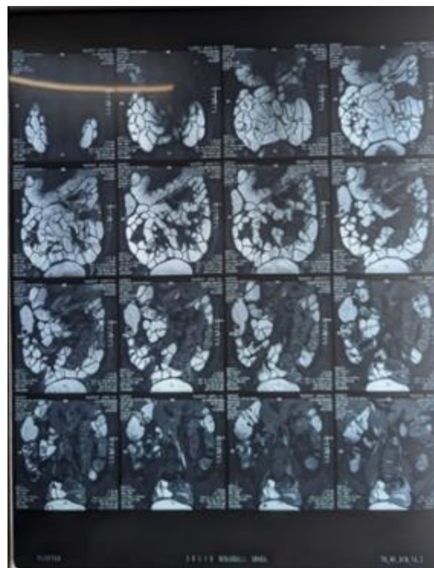


Figure 6: *MR Enterography.*

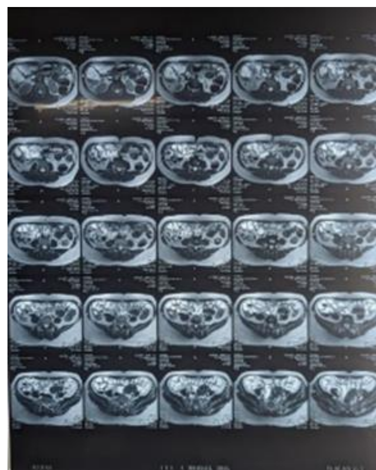
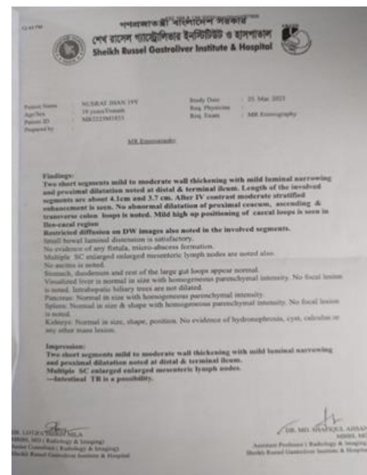


Figure 7: *MR Enterography.*



Sheikh Russel Gastroliver Institute & Hospital

Findings:
Two short segments mild to moderate wall thickening with mild luminal narrowing and proximal dilatation noted at distal & terminal ileum. Length of the involved segments are about 4.1cm and 3.7 cm. After IV contrast moderate stratified enhancement is seen. No abnormal dilatation of proximal caecum, ascending & transverse colon loops is noted. Mild high up positioning of caecal loops is seen in ileo-caecal region.
Restricted diffusion on DW images also noted in the involved segments.
Small bowel luminal distension is satisfactory.
No evidence of any fistula, micro-abscess formation.
Multiple SC enlarged enlarged mesenteric lymph nodes are noted also.
No ascites is noted.
Stomach, duodenum and rest of the large gut loops appear normal.
Visualized liver is normal in size with homogeneous parenchymal intensity. No focal lesion is noted. Intrahepatic biliary trees are not dilated.
Pancreas: Normal in size with homogeneous parenchymal intensity.
Spleen: Normal in size & shape with homogeneous parenchymal intensity. No focal lesion is noted.
Kidneys: Normal in size, shape, position. No evidence of hydronephrosis, cyst, calculus or any other mass lesion.

Impression:
Two short segments mild to moderate wall thickening with mild luminal narrowing and proximal dilatation noted at distal & terminal ileum.
Multiple SC enlarged enlarged mesenteric lymph nodes.
—Intestinal TB is a possibility.

Figure 8: *MR Enterography Findings.*

A variety of symptoms related to intestinal and extraintestinal manifestations might be present in people with inflammatory bowel disease. The most frequent extraintestinal IBD signs are musculoskeletal symptoms, which may be present in 30% of patients [12]. It has been observed that the predominance of untreated EIMs in IBD can lengthen the disease's course, reduce quality of life, promote intestinal fibrosis as a means of healing, promote cachexia related to IBD, increase the risk of malignancy, and generally increase morbidity and death [13]. Six months of history was given in this case study. In addition to stretching, massage, and the oral corticosteroid (40 mg per day), the patient was placed on conservative care to speed recovery. Systemic steroid medication, which was administered to her to reduce the inflammation in the gastrointestinal tract, had a positive effect on her. Both Crohn's disease and ulcerative colitis are systemic conditions that frequently affect other organs, even though the gastrointestinal tract is typically the primary area of concern. So, bowel is the major target of treatment. For this patient, a plantar fascia steroid injection was not necessary. Additional invasive procedures may be necessary if a patient's symptoms last six months or longer. With conservative treatments, 90% of patients will get better [14,15]. Nevertheless, it has been demonstrated that intensive early therapy and continued treatment of EIMs may prevent serious consequences [13]. More research is also needed to better understand the dose–response relationship of oral corticosteroid for the treatment of IBD with recurrent plantar fasciitis as first extraintestinal manifestation (Figure 1-8).

Conclusion

Plantar fasciitis has many causes such as calcaneal spur, autoimmune disease, rheumatologic disorders, and ankylosing spondylosis. Plantar fasciitis in Crohn’s disease patients as the first extraintestinal manifestation is much more significant as it sometimes indicates the risk of development of other musculoskeletal manifestations like arthritis in the future & hence warrants early surveillance and treatment for both symptomatic and asymptomatic plantar fasciitis in Crohn’s disease.

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