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ORIGINAL ARTICLE

Complicated Crohn's Disease is Associated with Adverse Outcomes in Patients Hospitalized for Acute Abdominal Pain

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ABSTRACT

Background: To determine long-term outcome in Crohn's disease patients hospitalized for acute abdominal pain.
Methods: Retrospective chart review of consecutive Crohn's disease patients hospitalized for acute abdominal pain at the tertiary referral centre.
Results: Between 2015 and 2020, 65 patients (35M, 30F, mean 42 years) were hospitalized because of acute abdominal pain. 83% of patients had ileocolic disease and 39% of patients presented with complicated (stricturing or penetrating) disease. 32 patients (49%) had been hospitalized previously and 14% had undergone intestinal resections in the past. Acute clinical signs other than abdominal pain were: vomiting (35%), fever (45%), abdominal distension (38%), diarrhoea (52%). Leukocytosis was noted in 52% of patients, elevated C-reactive protein level in 83% of patients and severe anemia in 18% of patients. Mean follow-up time was 43 months. During the follow-up period, 14 patients (21%) underwent surgery – 6 during the same hospitalization and 8 later. The hospital readmission rate was 40%. Two patients died. Complicated disease was associated both with hospital readmission (Hazard ratio 3.9, p=0.05) and need for surgery (HR 10.3, p=0.002). Also, history of previous hospitalizations was associated with an increased readmission rate (HR 6.8, p=0.012).
Conclusion: Ileocolic disease is the main cause of hospitalization for acute abdominal pain. Complicated (structuring or penetrating) disease should be diagnosed early and surveilled closely.

INTRODUCTION

Crohn's disease (CD) is a chronic idiopathic inflammatory bowel disease (IBD) marked by a transmural, asymmetric, discontinuous, and, occasionally granulomatous inflammation of the gastrointestinal tract [1]. CD usually starts with an inflammatory phenotype. Symptoms are heterogeneous, but commonly include chronic diarrhea and abdominal pain. Systemic symptoms of malaise, anorexia, weight loss and/or fever are also common [2]. If inappropriately treated, uncontrolled inflammation may be complicated by intestinal strictures, intestinal perforation, abscesses and/or fistulae which may necessitate hospitalizations and surgical interventions to restore bowel integrity and function [3-5]. Surgery for CD, however, is not curative and disease often relapses initiating again a relentless vicious cycle of inflammation and complications which may lead to additional surgical interventions. Eventually, this may end up to irreversible bowel damage and intestinal failure [6,7].

The clinical diagnosis of classic CD of the small bowel is based on a typical history, tender right lower quadrant fullness or mass, characteristic radiographic findings of the terminal ileum and endoscopic findings. Although granulomas are regarded as the characteristic feature of CD, their absence does not rule out the diagnosis [8]. Only half of the documented cases of CD reveal epithelioid granulomas in surgical specimens. CD can involve the appendix by extension from the terminal ileum or the cecum and present as an acute or subacute appendicitis [9]. About 25% of patients with ileal CD and 50% of those with colonic Crohn's disease have appendiceal involvement. A clinical picture similar to acute appendicitis is not an uncommon presentation of Crohn's disease. Although it is difficult to make an accurate diagnosis of this disease, many diagnostic armamentaria are available to suggest its presence. Most of the patients are treated conservatively yet a few may require surgical intervention especially presenting with complications like intestinal obstruction, perforations, abscess and fistula formations [10].

CD usually presents with abdominal pain especially due to involvement of ileum, blood stained diarrhoea and anaemia. Some may have low-grade fever, nausea, and vomiting. Fissures or cracks may be evident, and fistulas and abscesses may form in anal involvement [11]. It may also present with extraintestinal manifestations like skin or mouth lesions, pain in the joints, eye irritation, kidney stones, gallstones, and other diseases of the hepatobiliary system. Affected children may have delayed milestones. Severe cases of CD may have most common complication like intestinal blockage with thickening and fibrosis of the affected segment [12].

Objectives: The main objective of the study is:

- To determine long-term outcome in Crohn's disease patients hospitalized for acute abdominal pain.

METHODOLOGY OF THE STUDY

The data was collected from tertiary referral centre between 2015 and 2020. The data was collected from 65 patients from which there were 35 male and 30 female. The age range was 20 to 50 years with the mean age 42 years. Retrospective chart review of consecutive Crohn's disease patients hospitalized for acute abdominal pain at the tertiary referral centre. Clinical, epidemiological, socio-demographic and psychosocial data were extracted. The primary endpoint of our study was maximal abdominal pain, assessed with the abdominal pain item.

The data was collected and anlyzed using SPSS version 20.0. All the values were expressed in mean and standard deviation.

RESULTS

Between 2015 and 2020, 65 patients (35M, 30F, mean 42 years) were hospitalized because of acute abdominal pain.

Table 1: Gender related profile of patients

Gender	N (%)	p-value
M	35 (58.3%)	0.001
F	30 (46.15%)	0.002

83% of patients had ileocolic disease and 39% of patients presented with complicated (stricturing or penetrating) disease. 32 patients (49%) had been hospitalized previously and 14% had undergone intestinal resections in the past. Acute clinical signs other than abdominal pain were: vomiting (35%), fever (45%), abdominal distension (38%), diarrhoea (52%). Leukocytosis was noted in 52% of patients, elevated C-reactive protein level in 83% of patients and severe anemia in 18% of patients. Mean follow-up time was 43 months. During the follow-up period, 14 patients

(21%) underwent surgery – 6 during the same hospitalization and 8 later. The hospital readmission rate was 40%. Two patients died. Complicated disease was associated both with hospital readmission (Hazard ratio 3.9, p=0.05) and need for surgery (HR 10.3, p=0.002). Also, history of previous hospitalizations was associated with an increased readmission rate.

Table 2: Median patient interval (in days) for the five symptoms occurring in ≥20% of the sample

	Changes in bowel habits	Pain	Weight loss	Fatigue	General indisposition
Median (IQI) patient interval when presented without rectal bleeding	16 (5–31)	14 (3–28)	18 (4–29)	17 (4–29)	10 (0–29)
	N=30 (22.1%)	N=25 (18.4%)	N=17 (12.5%)	N=26 (19.1%)	N=11 (8.1%)
Median (IQI) patient interval when presented together with rectal bleeding	61 (12–112)	31 (13–119)	38 (22–74)	34 (5–96)	31 (0–57)
	N=58 (42.6%)	N=22 (16.2%)	N=12 (8.8%)	N=38 (27.9%)	N=16 (11.8%)

DISCUSSION

Crohn's disease (CD) is a type of inflammatory bowel disease (IBD) that may affect any part of the gastrointestinal (GI) tract, from the mouth to the anus, but commonly affects the terminal ileum. It is characterized by transmural inflammation with mucosal hyperemia with superficial ulcers in mild forms of the disease ranging to deep serpiginous ulcers, known as the characteristic "cobblestone" appearance, in moderate to severe forms [13-15]. In addition to weight loss, patient often complain of chronic diarrhea and right iliac fossa pain.

The real cause for CD is still unknown. Genetically, microbic, immunologic, environmental, vascular and psychosocial factors, smoking, oral contraceptives, non-steroid anti-inflammatory medications were blamed [16]. Patients may have a tendency to an inheritance of an aberrant immunologic response caused by one or more of these provocative factors [17]. It is most frequent at the ages 15 - 30 and 60 - 70 and it is bimodal. Colonic and distal CD is more seen at older people, and involvement of the ileum is more often seen at young patients. Women have it 1.1 - 1.8 times more often than men [18]. The disease causes generally complaints like fever with low temperature, abdominal pain and long lasting diarrhea and weight loss. CD appears at 45% at the ileum and colon, 20% only at the colon, 33% at the small intestine and 5% gastroduodenal area and perianal area [19]. CD's typical characteristic is remission and relapses. Complications which need surgery may occur with many patients. For patients with chronic or nocturnal diarrhea, abdominal pain, intestinal obstruction, weight loss, fever or night sweating, the diagnosis of CD should be considered. Together with this, while the disease continues with attacks and remissions, sometimes it can be difficult to get a diagnosis. CD is a chronic inflammatory disease of the gastrointestinal system and is able to imitate other inner abdominal pathologies during an acute attack (acute appendicitis, hollow organ perforation, etc.). Episodic abdominal pain by way of cramps is the most common indication of CD [20]. CD at the terminal ileum is mostly diagnosed during the exploration which is performed with the suspicion of appendicitis and the prognosis is very good. The acute disease is generally treated conservatively and two-thirds of the patients may not show indication for regional enteritis [21].

CONCLUSION

Ileocolic disease is the main cause of hospitalization for acute abdominal pain. Complicated (structuring or penetrating) disease should be diagnosed early and surveilled closely.

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