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Intra-Abdominal Abscesses In Crohn's Disease: What Approach For The Gastroenterologist?

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Abstract :
Intra-abdominal abscesses develop in 10%–30% of patients with Crohn's disease (CD), representing a serious complication that requires multidisciplinary management. This study evaluates the epidemiological, clinical, and therapeutic aspects of intra-abdominal abscesses in fistulizing CD. We conducted a retrospective descriptive study, over four years (January 2020 to August 2024) involving patients diagnosed with fistulizing Crohn's disease in our department. Our results show among 72 patients with fistulizing CD, 48% developed intra-abdominal abscesses, with a mean age of 32 years and a slight male predominance. The abscess was the initial manifestation in 9 patients (26%), whereas 26 patients (74%) had a pre-existing diagnosis of Crohn's disease. The disease was predominantly localized in the ileocolic region (87.5%). The most common symptom was abdominal pain (92%), with fever present in 24% of cases. CT scan was the primary imaging modality (80%), followed by abdominal ultrasound (20%). Radiological findings identified a single abscess in 80.6% of cases. The mean abscess size was 41.8 mm, and the most common locations were the right iliac fossa (48.5%), the psoas muscle (24.2%), and the hypogastric region (15.2%). Therapeutic management primarily involved radiological drainage in 54% of cases, with a failure rate of 27%, in 46% of cases, antibiotic therapy alone was effective, achieving a 90% success rate. Following infection control, maintenance treatment was mainly based on combination therapy (38%). Additionally, surgical resection was required in 32% of cases (drainage failure or symptomatic stenosis). At six months, clinical remission was achieved in 76% of patients, while abscess recurrence occurred in 22%. Unfortunately, two patients died from septic shock.

Keywords: *Intra-abdominal abscess, Fistulizing Crohn's disease, Antibiotic therapy, Radiological drainage, Surgical treatment, Biologic therapy.*

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I. Introduction :

The natural course of Crohn's disease (CD) can lead to the development of intra-abdominal or pelvic abscesses in approximately 10%–30% of patients, classifying the disease as 'fistulizing' [1,2]. Intra-abdominal abscesses are considered serious complications of CD as they indicate active disease. Their management requires a multidisciplinary and personalized approach. This study aims to evaluate the epidemiological, clinical, paraclinical, and prognostic characteristics of intra-abdominal abscesses in Crohn's disease

II. Materials And Methods :

We conducted a retrospective and descriptive study over a four-year period, from January 2020 to August 2024, including patients with a fistulizing phenotype of Crohn's disease complicated by intra-abdominal abscesses, followed in the Hepato-Gastroenterology Department. The inclusion criteria were the presence of an intra-abdominal abscess confirmed by imaging. Patients who underwent surgery due to a misdiagnosis of appendicular abscess, as well as those with residual postoperative abscesses were excluded from the study.

III. Results:

During the study period, among the 72 cases of Crohn's disease with a fistulizing phenotype, 35 patients developed an intra-abdominal abscess, accounting for 48% of cases. A slight male predominance was observed, with a male-to-female ratio of 1.3. The mean patient age was 32 years (range: 16–55), and the average disease duration was six years. The abscess was the initial manifestation in 9 patients (26%), whereas 26 patients (74%) had a pre-existing diagnosis of Crohn's disease. Regarding disease localization, 87.5% of cases involved the ileocolic region, while 12.5% were strictly ileal. The most frequently reported symptom was abdominal pain (92%), while fever was present in 24% of cases. Biological findings revealed elevated C-reactive protein (CRP) in 84.8% of patients and leukocytosis in 71%.

From a radiological perspective, the initial imaging modality was an abdominal CT scan in 80% of cases. an abdominal ultrasound was performed in 20% cases. Radiological findings identified a single abscess in 80.6% of cases and multiple abscesses in 19.4%. The average abscess size was 41.8 mm. The most common abscess locations were the right iliac fossa (48.5%), followed by the psoas muscle (24.2%) and the hypogastric region (15.2%). Therapeutic management was based on radiological drainage in 54% of cases, with failure observed in 27% of patients, requiring surgical drainage. Intravenous antibiotic therapy was systematically administered. In 46% of cases, antibiotic therapy alone was sufficient, particularly for small abscesses, with a success rate of 90%. Once the infectious episode was controlled, maintenance treatment included combination therapy in 38% of patients, biologics in 20%, and immunosuppressants in 10%. Additionally, surgical resection was performed in 32% of patients, either due to drainage failure or the presence of symptomatic ileal or colonic stenosis. At six-month follow-up, clinical remission was achieved in 76% of patients, while 22% experienced abscess recurrence. Unfortunately, two patients succumbed to septic shock.

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IV. Discussion :

Crohn's disease is a chronic inflammatory disorder of the digestive tract that can progress to severe complications, including intra-abdominal abscesses. These abscesses result from transmural inflammation, leading to perforations and the formation of purulent collections within the abdominal cavity. The prevalence of intra-abdominal abscesses in Crohn's disease is estimated to range between 10% and 30% [3]. This complication predominantly affects young adults. In our study, the mean age of patients with Crohn's disease (CD) and intra-abdominal abscesses was 32 years, which is consistent with data reported in the literature [4-6]. Intra-abdominal abscesses are more frequently observed in patients with ileal or ileocecal involvement**,** as these sites are commonly affected by the disease. In our study, 87.5% of patients had ileo-colic involvement**,** while 12.5% had isolated ileal disease. These findings align with those of Bedioui et al**,** who studied 32 patients with CD complicated by intra-abdominal abscesses and reported ileo-colic involvement in 86% of cases [4]. Conversely, another study found a predominance of isolated ileal involvement (65%)**,** with colonic disease observed in 35% of cases [6]. Intra-abdominal abscesses may be the initial presentation of CD or develop during the disease course. In our study, 26% of patients presented with an abscess as the first manifestation, whereas 74% had a pre-existing diagnosis of CD. These findings are comparable to those of Nguyen et al., who reported 30% of abscesses as the initial presentation and 70% occurring later in the disease course [5]. The clinical presentation of intra-abdominal abscesses in Crohn's disease is often non specific. In our study, abdominal pain was the most frequently reported symptom, affecting 92% of patients. This is consistent with the findings of De Groof et al, who observed a similar frequency (90%) in patients with intra-abdominal abscesses [7]. Fever was present in 24% of cases, slightly lower than the 30-40% reported by the Tunisian study [4]. This discrepancy may be due to differences in initial management, as some patients may have received empirical antibiotic therapy before hospital admission, altering the clinical presentation of infection. Additionally, a palpable abdominal mass has been reported in 30**-**50% of cases in various studies [6].

Regarding diagnostic modalities, Abdominal CT scan was the primary imaging technique used in our study (80% of cases), followed by abdominal ultrasound (20%). Our findings are in agreement with those of Bedioui et al., where CT was performed in 91% of patients, demonstrating high sensitivity in detecting intra-abdominal abscesses [4]. Nguyen et al**.** also emphasized that abdominal CT is the gold standard, providing accurate evaluation of abscess size, location, and anatomical relationships [5]. Regarding abscess size, we observed a mean diameter of 41.8 mm, which is slightly smaller than the 52 mm reported in the Tunisian study [4]. The most common locations in our study were the right iliac fossa (48.5%), followed by the psoas muscle (24.2%) and the hypogastric region (15.2%). The predominance of the right iliac fossa is consistent with the literature, reflecting the frequent involvement of the terminal ileum in Crohn's disease.

Concerning therapeutic management, Percutaneous drainage was performed in 54% of patients**,** with a failure rate of 27%**,** necessitating surgical management**.** These results are comparable to those of Gutierrez et al.**,** who compared the efficacy of percutaneous and surgical drainage**,** reporting an initial success rate of 74%**,** although 33% of patients required surgery within a year following drainage [6]. Other studies present varying results: Gervais et al**.** reported a 94% success rate for percutaneous drainage, whereas Yamaguchi et al**.** observed a lower success rate of 47%, suggesting variability in drainage efficacy based on abscess characteristics and patient factors [8,9]. For antibiotic therapy alone**,** our results indicate an effectiveness of 46%**,** particularly for small abscesses, with a 90% success rate. These findings align with De Groof et al.**,** who reported a success rate ranging from 37% to 50%**,** influenced by abscess size and the presence of a fistula [7]. In another study, Sahai et al. observed a success rate of 80% for abscesses smaller than 4 cm [10]. However, Bermejo et al**.** found that antibiotic therapy alone was associated with a higher recurrence risk, reaching 63% at

one year [11]. Current guidelines recommend that small abscesses (<30 mm) can be managed conservatively with antibiotics**,** whereas larger abscesses typically require drainage [12]. In our study, surgical resection was performed in 32% of cases, either due to percutaneous drainage failure or the presence of a symptomatic ileal or colonic stricture. Collard et al. analyzed the impact of elective surgery after successful medical treatment of intra-abdominal abscesses in CD and concluded that ileocolic resection reduces recurrence risk and improves long-term outcomes [13]. Comparatively, the Tunisian study reported that 78% of cases required surgery, mainly due to associated strictures [4]. A multicenter study evaluated the effectiveness of different therapeutic strategies in managing intra-abdominal abscesses complicating Crohn's disease. The results indicate that percutaneous drainage was found to be more effective and less invasive than surgery in many cases. Following abscess resolution, intestinal resection was associated with a lower risk of recurrence at one year. However, in patients who initiated anti-TNF therapy, the recurrence risk remained similar regardless of whether an intestinal resection was performed [14]. Another study showed that, after successful abscess drainage, treatment with anti-TNF agents could lead to abscess resolution. In some patients, biologic therapy could help avoid delayed surgery and reduce the long-term recurrence risk [15]. Regarding maintenance therapy in our study, 38% of patients received combination therapy, 20% were treated with biologics, and 10% with immunosuppressants, consistent with the ECCO 2023 recommendations, which advocate for an individualized approach integrating biologics and immunosuppressants after initial abscess management. At the six-month follow-up, 76% of patients achieved clinical remission, while 22% experienced abscess recurrence, comparable to the 31.2% recurrence rate reported by Nguyen et al**.** in medically treated patients versus 20.3% in surgically managed cases [5]. The mortality rate in our study was 5.7%, due to septic shock in two cases, aligning with literature estimates of 3-6%. Our study is limited by its retrospective, single-center design, which may not fully represent broader patient populations. The relatively small sample size also limits the statistical power of our conclusions. Additionally, the lack of long-term follow-up prevents the assessment of long-term treatment responses and the impact of different therapeutic strategies over time. In Morocco, access to biologics remains limited for the majority of patients due to financial constraints, lengthy administrative procedures for reimbursement, and reduced availability in public hospitals, delaying treatment initiation. This challenge directly impacts disease progression, contributing to a higher surgical rate (32%) in our study, compared to countries where biologics are introduced earlier, preventing complications. To improve outcomes, facilitating access to biologics, reducing diagnostic delays, and optimizing multidisciplinary care are crucial. A structured long-term follow-up strategy would also help reduce complications and surgical interventions, improving the overall prognosis of patients with Crohn's disease.

V. Conclusion :

Intra-abdominal abscesses are a common and serious complication of Crohn's disease, requiring a multidisciplinary and personalized approach. Early diagnosis and an optimized treatment strategy**,** combining antibiotics, drainage, and surgery when necessary**,** are crucial to improving patient outcomes. However, the risk of recurrence remains high**,** emphasizing the need for refined therapeutic approaches. In our context, managing these abscesses presents additional challenges to the gastroenterologist due to limited access to healthcare and biotherapies, primarily driven by financial constraints, which can impact treatment effectiveness and long-term prognosis.

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