International Journal of Science and Research Archive
eISSN: 2582-8185
Cross Ref DOI: 10.30574/ijsra
Journal homepage: https://ijsra.net/

(RESEARCH ARTICLE)

Prevalence of digestive cancers in inflammatory bowel diseases associated with primary sclerosing cholangitis

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International Journal of Science and Research Archive, 2025, 16(02), 926-930

Publication history: Received on 10 July 2025; revised on 16 August 2025; accepted on 18 August 2025

Article DOI: https://doi.org/10.30574/ijsra.2025.16.2.2396

Abstract

Introduction: Primary sclerosing cholangitis (PSC) is a rare inflammatory and fibrosing disease of the bile ducts, frequently associated with inflammatory bowel disease (IBD), and conferring an increased risk of cholangiocarcinoma and colorectal cancer (CRC).

Objective: To determine the prevalence of digestive cancers in IBD associated with PSC in a Moroccan hospital center.

Methods: A retrospective, descriptive, single-center study conducted between July 2018 and July 2023. All patients with IBD and PSC confirmed by MRCP were included. Clinical, biological, endoscopic, and follow-up data were analyzed.

Results: Among 424 IBD patients, 3 had associated PSC (prevalence: 0.70%), with a mean age of 37.3 years and a male-to-female ratio of 2. There was one case of ulcerative colitis (UC) and two cases of Crohn's disease (CD). PSC was always diagnosed after IBD (mean delay: 4.5 years for CD, 20 years for UC). All patients received ursodeoxycholic acid (UDCA) in combination with specific treatment for IBD. Screening colonoscopies for CRC were normal. One patient (UC) developed distal cholangiocarcinoma and died after surgical treatment.

Conclusion: Although rare, the IBD–PSC association warrants annual colonoscopic surveillance and regular screening for cholangiocarcinoma due to the high oncological risk.

Keywords: Primary Sclerosing Cholangitis; Inflammatory Bowel Disease; Colorectal Cancer; Cholangiocarcinoma

1. Introduction

Primary sclerosing cholangitis (PSC) is a chronic cholestatic disease of unknown etiology, characterized by progressive inflammation and fibrosis of the intrahepatic and/or extrahepatic bile ducts. In Western countries, it is frequently associated with inflammatory bowel disease (IBD), mainly ulcerative colitis (UC) [1,2].

This association is of major prognostic significance, as PSC is not only a major risk factor for cholangiocarcinoma (CCA) but also an independent risk factor for colorectal cancer (CRC) in IBD [3–5].

International guidelines recommend annual colonoscopy from the time of PSC diagnosis, regardless of the type of IBD [6]. However, prevalence data from countries with a low incidence of IBD, such as Morocco, remain scarce. The aim of this study is to determine the prevalence of digestive cancers in IBD–PSC association in our center, and to analyze the clinical, diagnostic, and outcome characteristics.

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2. Materials and Methods

Study type: retrospective, descriptive, single-center study

- **Period:** July 2018 – July 2024
- **Location:** Department of Hepato-Gastroenterology and Proctology "Médecine B," CHU Ibn Sina, Rabat
- **Population:** all patients with IBD (UC or Crohn's disease) and PSC confirmed by imaging (MRCP)
- **Exclusion criteria:** secondary PSC (post-surgical, ischemic, lithiasic)
- **Data collected:** demographic characteristics, type and location of IBD, interval between IBD and PSC diagnosis, therapeutic modalities, colorectal cancer screening results, occurrence of digestive cancer
- **Surveillance:** annual colonoscopy with segmental biopsies, regular liver function tests, hepatobiliary imaging as per guidelines

3. Results

Among 424 IBD patients, 3 had associated PSC, corresponding to a prevalence of 0.70%.

- **Mean age at PSC diagnosis:** 37.3 years
- **Male-to-female ratio:** 2 (2 men, 1 woman)
- **Type of IBD:** 1 pancolitis UC, 2 Crohn's disease cases (1 ileocolonic, 1 pancolonic with LAP)
- **Interval between IBD and PSC diagnosis:** 4.5 years (CD), 20 years (UC)
- **PSC diagnosis method:** abnormal liver function tests, confirmed by MRCP

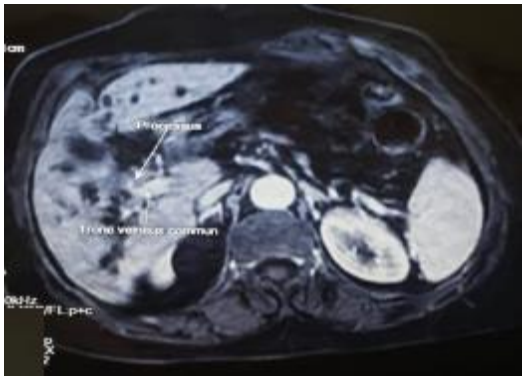

Figure 1 MRI appearance suggestive of perihilar cholangiocarcinoma

- **Treatments received:** UDCA for all, 5-ASA for UC, immunosuppressants for 1 CD patient, infliximab + immunosuppressants for the other CD patient
- **CRC screening:** normal colonoscopies for all patients
- **Outcome:** one case of distal cholangiocarcinoma (UC patient) with death following surgical treatment; favorable course for the other two patients with normalization of liver function tests

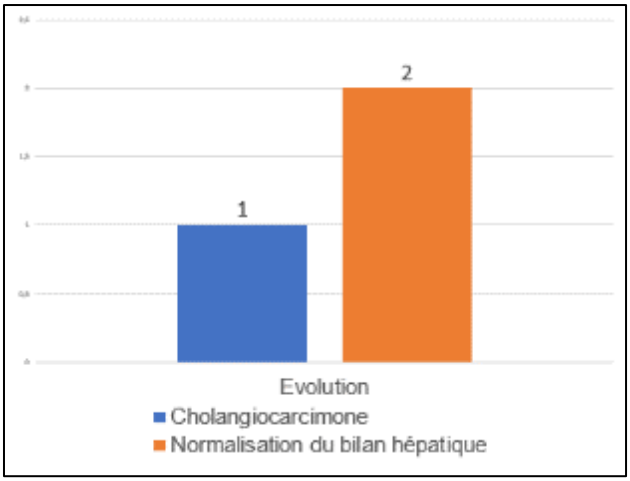

Figure 2 Outcome of patients with PSC

4. Discussion

Primary sclerosing cholangitis (PSC) is a chronic cholestatic disease of poorly understood etiology, characterized by progressive inflammation and fibrosis of the intra- and/or extrahepatic bile ducts [1]. It is strongly associated with inflammatory bowel disease (IBD), particularly ulcerative colitis (UC), and carries an increased risk of serious complications, including cholangiocarcinoma (CCA) and colorectal cancer (CRC) [2,3].

4.1. Prevalence and epidemiological data

In our study, the prevalence of the IBD–PSC association was 0.70% (3 cases out of 424 patients followed for IBD). This figure is lower than that reported in North American and European series, where prevalence ranges from 2% to 7% [4–6]. This difference could be explained by the low incidence of IBD in our setting, the single-center recruitment, and the small sample size. The observed demographic profile, with a mean age of 37.3 years and a male predominance (M/F ratio = 2), is consistent with data from the literature [7]. Large series report a mean age at diagnosis between 35 and 40 years and a marked male predominance [8,9].

4.2. Distribution of IBD types

In Western countries, PSC is associated with UC in 70–80% of cases and with Crohn's disease (CD) in 10–20% of cases [7,9]. In contrast, our series shows a higher proportion of CD (2 cases out of 3), which could reflect local epidemiological characteristics or a bias related to the small sample size. The observed locations (ileocolonic and pancolic with LAP) are consistent with those described in studies of IBD associated with PSC [10].

4.3. Temporal relationship between IBD and PSC

In our cohort, PSC was diagnosed after IBD in all cases, with a mean delay of 4.5 years for CD and 20 years for UC. These data are consistent with those of Lindor et al., who report that PSC generally occurs several years after the diagnosis of IBD but can precede it in rare cases [10]. The diagnosis of PSC is often suspected due to unexplained liver test abnormalities and confirmed by imaging (MRCP), as in our study.

4.4. Risk of colorectal cancer

PSC is an independent risk factor for CRC in IBD patients, with a relative risk estimated between 4 and 10 compared with isolated IBD [11]. This risk is particularly high in patients with pancolic UC or extensive colonic CD and increases with the duration of IBD. The pathophysiology of this increased risk may involve persistent mucosal inflammation, immune dysregulation, and a shared genetic susceptibility [3,5]. In our series, no dysplasia or CRC was detected, which may be related to the relatively short mean duration of PSC in two patients, as well as annual colonoscopic surveillance.

4.5. Risk of cholangiocarcinoma

CCA is the most feared complication of PSC, with a 10-year cumulative risk of 8–15% [12,13]. This cancer often occurs within the first few years after the diagnosis of PSC and has a poor prognosis, with a median survival of less than 2 years in the absence of curative treatment [5]. In our series, one patient with UC and PSC developed distal cholangiocarcinoma,

confirmed surgically, but the outcome was rapidly fatal. This case illustrates the importance of regular screening with imaging (MRCP or endoscopic ultrasound) and CA 19-9 measurement, even though this marker lacks specificity.

4.6. Recommended surveillance

International guidelines, particularly those of the ECCO and EASL, recommend annual colonoscopy from the time of PSC diagnosis in any patient with IBD, with segmental biopsies throughout the colon, even in the absence of endoscopic abnormalities [6]. For CCA screening, an annual MRCP or an ultrasound every 6 to 12 months is recommended, combined with CA 19-9 testing [8,9]. These strategies aim to detect neoplastic lesions early and improve prognosis.

4.7. Therapeutic management

The treatment of PSC remains symptomatic, aiming to slow disease progression and manage complications. Ursodeoxycholic acid (UDCA) is commonly used, although its impact on survival and CCA prevention remains controversial [14]. The treatment of IBD is based on 5-ASA, immunosuppressants, or biologics depending on the type and severity. In the case of resectable CCA, surgery is the treatment of choice, sometimes combined with liver transplantation in specialized centers [12,13].

4.8. Study limitations

The main limitations of our work are the small sample size, inherent to the rarity of the IBD–PSC association, the single-center setting, and the retrospective design of the study. Nevertheless, our results highlight the importance of reinforced, multidisciplinary surveillance in this context.

5. Conclusion

The IBD–PSC association is rare but serious, exposing patients to a major oncologic risk. In our setting, the prevalence is low, but the risk of cholangiocarcinoma is very real, as illustrated by one death in our series. Annual colonoscopic surveillance and regular hepatobiliary screening are essential to improve prognosis.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Statement of informed consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

Author contributions

All authors have contributed to the conduct of this work. All authors also declare that they have read and approved the final version of the manuscript.

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