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Original article

Ischemic colitis: Clinical, endoscopic and histologic spectrum of 254 cases

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SUMMARY

Aim: Ischemic colitis (IC) is generally considered a disease of elderly patients who have associated diseases. It is classified into the non-gangrenous type, and gangrenous type. The aim of this study is to re-evaluate the clinical, endoscopic and histological features of IC in the Greek population.

Methodology: We retrospectively analyzed the clinical characteristics, endoscopic and histologic findings in 254 patients (110 men and 144 women) with IC, diagnosed by early endoscopy or surgical management.

Results: In non-gangrenous type (percentage: 84%) (127 women, 87 men), the patients´ age range was from 22 to 96 years (mean: 67 years), and 19/214 patients (8.8%) were less than 50 years of age. The clinical features were: melena (54%), abdominal pain (14%) and bloody diarrhea (10%), and the early endoscopy (n=118) showed edema and focal hemorrhage of mucosa (31%). The histological findings were: mucosal atrophy, edema, hyperemia and mild acute inflammation). In gangrenous type (percentage: 16%) (17 women, 23 men), the patients' age range was from 57 to 89 years (mean: 73 years), and none of the patients were less than 50 years of age. The main symptom was acute abdominal pain (60%), and the histology showed acute ischemic necrosis of the bowel wall in the whole population (100%).

Conclusion: IC is a rare disease in the Greek population. The gangrenous type presents only in older patients (>50 years). The non-gangrenous type presents also in younger patients, especially females, and early endoscopy is essential for the accurate diagnosis of disease.

Key words: ichemic colitis, colon, clinicopathologic correlation.

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INTRODUCTION

The term "Ishemic Colitis" (IC) was used for the first time by Morson and Marton in 1966.[1] Intestinal Ishemia has recently been reviewed extensively.[2]

Ischemic colitis is caused by anoxia of the colonic and rectal wall due to defective regional blood supply. The colon is the most commonly defected site and most of the cases are idiopathic. However, there is a known association with colon adenocarcinoma, aortic aneurism surgery and ingestion of cocaine[3] and amphetamines.[4]

Athough IC is generally considered a disease of elderly patients, increase in the young population has been recently reported on. Concerning underlying disease and etiologic factors, the vascular factor is important in the elderly group of patients with a high percentage of paralytic constipation and a history of underlying diseases and laparotomy, while the peristaltic factor, especially spastic constipation, is important in the young group.[2]

Clinically it is classified into the non-gangrenous type (transient and stricture), and gangrenous type.[5] Histologically there are three types of the disease: a) the acute hemorrhagic phase b) the regenerative and c) the chronic, with their complications.

Most cases resolve spontaneously, and many are

subclinical. Patients may be hospitalized because of the pain, bleeding or severe diarrhea. The diagnosis is usually made by clinical history, endoscopic and histologic findings.

MATERIALS AND METHODS

Three thousand, six hundred and twenty-six (3626) cases of patients treated for the manifestation of large bowel disease between 1987 and 2000 were retrieved from the archives of Gastroenterology and Pathology Departments of "Sismanoglion" General Hospital. Two hundred and fifty-four (254) (percentage: 7%) cases of IC were histologically diagnosed (biopsies and surgical specimens).

We retrospectively analyzed the clinical characteristics, endoscopic and histologic findings in those patients (110 men and 144 women). Male patients were from 22-89 years of age and females from 30-96 years of age.

Statistical analysis was performed using the Statistica program on a PC Pentium II computer. The patients' gender, age, clinical data, endoscopic and histological findings were analyzed for any mutual associations.

RESULTS

From the total of 254 cases of IC, 214 were diagnosed on biopsiy (84%) and the rest on surgical specimens (16%). From the biopsy material the majority concerned the non-gangrenous type of IC and especially its subtype, the transient type (Table 1).

The patients were divided into two groups: Group A (non-gangrenous type), and Group B (gangrenous type). These cases were comparatively studied. The variables used were as follows: (1) sex, (2) age, (3) clinical features, (4) endoscopy characteristics, (5) histology findings.

A) Non-gangrenous type (Table 2):

Epidemiology: The disease affects both sexes, women

Table 1. DISTRIBUTION OF CLINICAL TYPES OF IC.

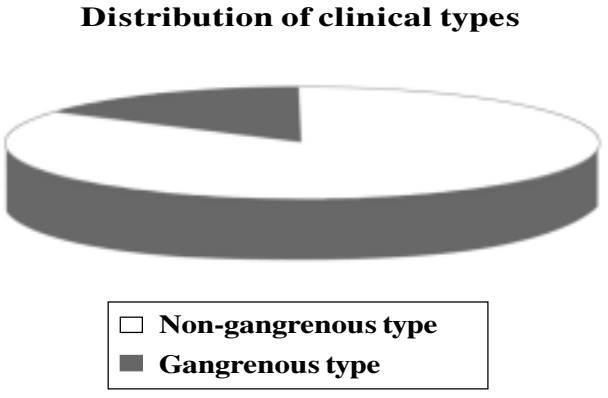


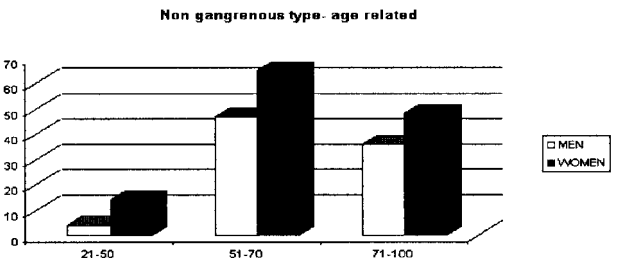
Table 2: RESULTS

NON GANGRENOUS TYPE (84,3 %)		
EPIDEMIOLOGY	CLINICAL FEATURES	HISTOLOGICAL FINDINGS
n=214 (84,3%)	Melena (54.2%)	Mucosal atrophy, edema, hyperemia,
Male: n= 87 (40,7%)	Abdominal pain (13.5%)	mild acute inflammation.
mean age: 66 years of age	Bloody diarrhea (10.2%)	
Female: n=127 (59.3%)		
mean age: 67 years of age		
Patients <50 years of age: n=19 (8.8%)		
GANGRENOUS TYPE (15,7 %)		
	EPIDEMIOLOGY	CLINICAL FEATURES
HISTOLOGICAL FINDINGS		
n= 40 (15,7%)	Acute abdominal pain (60%)	Acute necrosis of wall (100%)
Male: n= 23 (57,5%)		
mean age:73 years of age		
Female: n=17 (42.5%)		
mean age: 73 years of age		
Patients <50 years of age: n=0 (0%)		

(n=127) slightly more than men (n=87) (W/ M= 1.45).

The age range of patients was from 22 to 96 years. Nineteen patients (8.8%) were less than 50 years of age. The age range of females was from 30 to 96 (mean: 67 years), while that of the men was from 22 to 85 years (mean: 66 years) (Table 3).

Table 3: AGE AND SEX DISTRIBUTION OF CLINICAL TYPES OF IC



Clinical characteristics: The most common clinical features were: hemorrhage from the lower gastrointestinal tract (54.2%), abdominal pain (13.5%), and bloodless diarrhea (10.2%). The etiological factors of the disease, in most cases, were drugs and mucosal trauma.

Endoscopy features: Edema and focal mucosal hemorrhage were the most common (31%) findings, while in 3.3% the disease mimicked a neoplasm.

Histological findings: These were consistant with the characteristics of IC: mucosal atrophy, edema, hyperemia and mild acute inflammation (Figure 1).

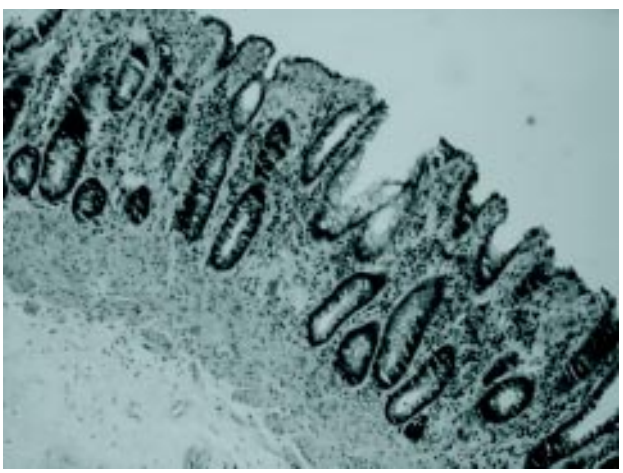


Figure 1. Histological section of large bowel with IC, showing ulceration and vascularity of the submucosa (H-E X 250).

B) Gangrenous type presented in the total of the surgical specimens (Table 2).

Epidemiology: The disease affects both sexes, men (n=23, 58%) slightly more than women (n=17, 42%) (M/ W= 1.35). The age range of patients was from 57 to 89 years. The age range of men was from 62 to 89 (mean: 73 years), that of females from 57 to 89 years (mean: 73 years). All patients were older than 50 years of age (Table 4).

Clinical characteristics: Acute abdominal pain was the main clinical feature in the majority of the cases (59%).

Endoscopy features: All patients were considered for immediate surgical resection because of the grave status on presentation, so no endoscopic findings are available.

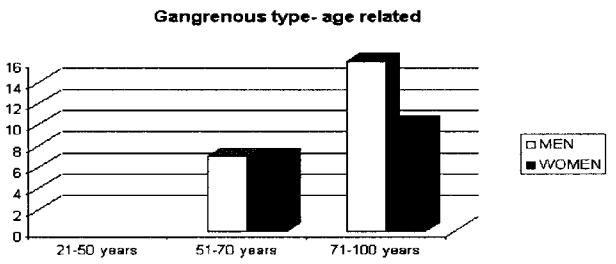
Histological findings: The main histological feature was the acute necrosis of the large bowel wall (~100%).

DISCUSSION

Ischemic colitis (IC) is the most common manifestation of gastrointestinal ischemia.[2] IC has been considered to have relatively high prevalence in the elderly population with underlying vascular disorder.[6,7] Most of the cases occur in patients over 50 years of age, and the usual associations are arteriosclerosis, diabetes melitus, hypertension and vascular surgery.[3,4,67] Arteriosclerosis may lead to IC by intrinsic obstruction of colonic vessels.[8] However, this disease has recently to be on reported the increase in the young population, in association with collagen-vascular diseases (i.e., scleroderma), Wegener's granulomatosis,[9] Idiopathic Lymphocytic Phlebitis,[10] Amyloidosis,[11] and as a complication of the birth control pill.[12]

IC is classified into the non-gangrenous type (transient and stricture), and gangrenous type.[5] The non-gangrenous type is the most common form of IC, on presentation, affecting elderly patients (74 +/-10 years)

Table 4: AGE AND SEX DISTRIBUTION OF CLINICAL TYPES OF IC



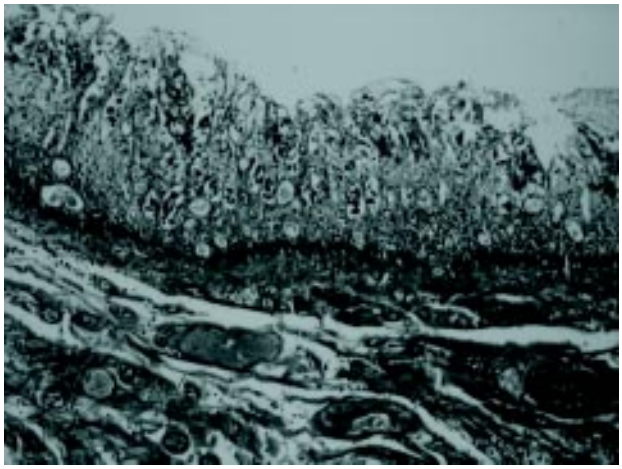


Figure 2. HEX100 IC Gangrenous type

with cardiovascular risk factors.[13] Hypertension and a history of cancer predict the gangrenous course in 85% of cases.[14]

The majority of patients with IC, excluding the gangrenous type, follow a benign clinical course in the absence of major vasculature occlusion. It usually presents as an acute abdominal illness with bloody diarrhea and meteorism. Common early radiographic signs are "gas within the bowel wall",[15] bowel-wall thickening with thumbprinting, and later, ulceration and strictures may be found.[16] Diagnosis is confirmed by colonoscopy and/or barium enema.

Endoscopy is valuable in revealing the sharp demarcation between viable and necrotic colonic mucosa that is a strong indicator of ischemia.[16] It may disclose ischaemic colitis, but cannot distinguish transmural from the clinically less important mucosal ischaemia.[17]

Microscopically, there is ulceration covered by granulation tissue, which extends into the submucosa.[1] Histologic reaction patterns within the colon are not disease-specific, but reflect mechanisms of injury and duration of disease.[18] The common histologic patterns of IC are correlated with clinical and endoscopic features and emphasize the importance of communication between pathologists and gastroenterologists.[18]

Ischemic changes in the bowel may produce reactive epithelial changes with sufficient atypia to simulate dysplasia.[19] Also, in adults, toxic megacolon is a relatively uncommon but potentially lethal, complication of ischemic colitis caused by cancer chemotherapeutic agents.[20]

IC appears to have two patterns of severity. Anatomical distribution is more variable than a developmental explanation of the vascular supply.[21] It is possible to predict the severity of the disease to some extent as represented by objective markers of inflammation (presence of ulcerative lesion in endoscopic findings in acute stage) by finding the time from onset of abdominal pain to detection of bloody stool.[21]

Non-gangrenous IC usually requires only conservative therapy, including repeated careful assessment, pain control, and fluid replacement, and is associated with a good prognosis.[16] Surgical management may be necessary if there are signs of deterioration, perforation, hemorrhage, or sepsis.[7,20]

Urgent surgery and high morbidity and mortality rates are hallmarks of the gangrenous type. Special consideration must be given to those patients in whom IC develops in the context of colon cancer or obstructive colonic lesions.[22] Absence of arterial flow in the wall of the ischemic colon on initial colour Doppler sonography is suggestive of an unfavourable outcome and is more closely associated with outcome than early clinical and laboratory findings.[23]

With the remarkable progress in diagnostic techniques, the recent increase in the incidence of arteriosclerosis and the gradually ageing population, a great deal of attention is now being focused on intestinal ischemia and this disease has come to be regarded as one of the clinically important pathological conditions.

Conclusions: IC encompasses a wide clinical spectrum from mild, reversible disease to severe, irreversible bowel injury. It is a frequent disorder of the large bowel in the elderly, and can mimic certain diseases. The clinical course varies. The progress of IC is gradual and conservative therapy is generally effective in treating this disease. Successful management of a patient with IC requires a high degree of clinical suspicion, early diagnosis, careful follow-up, and prompt recognition of persistent disease.

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