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Original article

Eosinophilic colitis: Case series and literature review

Cristina Díaz del Arco[a,*], Carlos Taxonera[b], David Olivares[b], Mª Jesús Fernández Aceñero[a]

[a] Department of Surgical Pathology, Hospital Clínico, San Carlos, Madrid, Spain
[b] Department of Gastroenterology, Hospital Clínico, San Carlos, Madrid, Spain

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ABSTRACT

Introduction: Primary eosinophilic colitis (EC) in adults is a rare and poorly studied disease, with 3 case series, 2 database-based studies and 52 case reports published to date.
Methods: Retrospective study of all adult EC cases diagnosed in a large tertiary hospital (Hospital Clínico San Carlos, Madrid) between 2006 and 2016. We included all cases with a histopathological diagnosis of EC and we selected only those cases that were clinically recognized primary EC. We report their clinical, endoscopic and histopathological features and review the literature on this topic.
Results: We identified 22 primary EC cases. Patients were mostly women (77%) with a mean age of 41 years. 4 patients (18%) had coexistent allergic diseases. Most patients consulted with diarrhea (86%) and 3 patients also suffered from rectal bleeding. Blood tests showed peripheral eosinophilia in 4 cases (18%). 19 patients had no endoscopic lesions, 2 had features of unspecific colitis and one showed features suggestive of IBD. Mean and maximum number of eosinophils per high power field ranged from 16 to 199 and 20 to 253 (mean: 48 and 70). They were mainly located in the lamina propria and most cases were associated with signs of eosinophil activation. Most patients were treated by corticosteroids, diet or budesonide and the result of treatment was generally good. No complications or recurrences were reported.
Conclusions: EC etiology and pathogenesis is unknown. Its clinical, endoscopical and imaging features are not specific, and clear histopathological criteria are lacking. Identification of signs of eosinophilic activation could be helpful.

1. Introduction

Eosinophilic gastrointestinal disorders (EGIDs) are divided into three major subcategories: eosinophilic esophagitis (EE), eosinophilic gastroenteritis (EG) and eosinophilic colitis (EC) [1]. EC is the least common of these entities [2]. Most cases of primary EC are idiophatic [3–5]. Secondary infiltration of the colonic wall by eosinophils may be caused by multiple conditions such as parasitic infections, drugs or inflammatory bowel diseases (IBD) [2,6]. Primary EC is, therefore, a diagnosis of exclusion. It is a rare and ill-defined condition with an unclear pathogenesis and a poor response to treatment. In our literature search we have found only 3 case series, 2 database-based studies and 52 case reports related to primary EC in adult patients. To the best of our knowledge, this is the largest case series reported from a single institution.

2. Material and methods

We have included all adult EC cases diagnosed in a large tertiary hospital (Hospital Clínico San Carlos, Madrid) between 2006 and 2016. We have identified all cases with a histopathological diagnosis of large bowel mucosa with more than 20 eosinophils per high-power field (hpf) following the standard criteria for the diagnosis of EC, and we have reviewed their medical records to select only those cases that were clinically recognized primary EC, after exclusion of all other possible causes of eosinophilia. 106 cases met the histopathological criteria for EC and 22 of them were finally diagnosed as primary EC. Clinical, endoscopic and microscopic features of these cases were assessed.

3. Results

We identified 22 EC cases. Clinical findings are summarized in Table 1.There were 17 women (77%) and 5 men. Age ranged from 15 to 89 years (mean: 41). 4 patients had asthma or allergic rhinitis, 2 patients had history of colorectal carcinoma and one patient had been diagnosed with familial adenomatous polyposis. Chronic use of NSAIDs was documented in one patient. None of them had family history of EC. As for the clinical picture, in 3 cases EC was an incidental or

* Corresponding author at: Department of Surgical Pathology, Hospital Clínico, San Carlos, C/Profesor Martín Lagos s/n, 28040 Madrid, Spain.
E-mail address: crisdelarco@gmail.com (C. Díaz del Arco).

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Table 1
Clinical findings of EC cases.

Case	Age	Sex[a]	Other dis[b]	IF[c]	Diarrhea Severity[d]	Rec[e]	E PE[f]	En[g]	Treat[h]	TR[i]	FU[j]
1	36	F	TA AST	Y	Y/NS	N	N 0.6%	NL	Y NS	N	13
2	51	F	–	Y	N	N	N 6.7%	NL	Y Mes	N	13
3	44	F	AR	N	Y/N3	N	Y 21.4%	IBD	Y D + B + C	Y	14
4	26	F	–	N	Y/N1	N	N 5.9%	NL	NS	NS	14
5	35	F	–	N	Y/N2	N	N 3%	NL	Y B	NS	14
6	30	F	CRC	N	Y/N1	N	N 1.6%	NL	Y C	NS	15
7	25	M	–	N	Y/N3	Y	Y 11.6%	NL	Y B	Y	16
8	89	M	–	N	Y/N3	N	N 1.5%	NL	Y D + C	Y	17
9	75	F	–	N	Y/NS	N	N 1.4%	NL	Y Colch	Y	18
10	34	F	–	N	Y/N3	N	N 1.7%	NL	Y C	Y	25
11	41	F	AR AST	N	Y/N2	Y	N 4.9%	NL	NS	NS	28
12	48	F	–	N	Y/N1	N	NS	NL	NS	NS	35
13	42	F	–	N	Y/N1	N	N 0.1%	NC	Y M	Y	73
14	5	F	–	N	Y/NS	N	Y 36.8%	NL	Y C	Y	9
15	53	F	FAP	Y	N	N	N 1%	NC	Y B	Y	19
16	71	F	CRC	N	Y/N3	N	N 0.8%	NL	Y B	NS	20
17	19	M	–	N	Y/N3	N	N 2.5%	NL	Y D	Y	21
18	15	F	–	N	Y/N2	N	NS	NL	Y C	NS	21
19	44	M	–	N	Y/N3	Y	N 3.2%	NL	Y D + C	Y	30
20	27	F	–	N	Y/N3	N	Y 8.6%	NL	Y C	NS	56
21	24	M	AR	N	Y/N1	N	N 1.5%	NL	No	NS	34
22	31	F	–	N	Y/N3	N	N 3.3%	NL	Y D	Y	34

[a] Sex. F: female. M: male.
[b] Other diseases. TA: Tubular adenoma with low-grade dysplasia. AST: Asthma. AR: Allergic rhinitis. CRC: Colorrectal carcinoma. FAP: Familial adenomatous polyposis.
[c] IF: incidental finding. Y: Yes. N: No. NS: Not specified.
[d] Diarrhea and severity of diarrhea: N1: 1-2 stools above normal per day. N2: 3-4 stools above normal per day. N3: 5 or more stools above normal per day.
[e] Rec: rectorrhagia.
[f] E and PE: peripheral eosinophilia and percentage of eosinophils.
[g] Endoscopy. NL: No lesions. IBD: inflammatory bowel disease. NC: Non-specific colitis.
[h] Treat: treatment. Mes: mesalazine. D: diet. B: budesonide. C: corticosteroids. Colch: colchicine.
[i] TR: treatment response.
[j] FU: follow-up (months).

unsuspected finding. 19 patients presented with diarrhea, and diarrhea severity was recorded in 17 of them: 9 patients had N3 diarrhea (5 or more stools above normal per day), 5 had N1 diarrhea (1–2 stools above normal per day) and 3 had N2 diarrhea (3–4 stools above normal per day). 3 patients also suffered from rectal bleeding. Blood tests showed peripheral eosinophilia in 4 cases (8.6%, 11.6%, 21.4% and 36.8%). The percentage of eosinophils ranged from 0.6 to 36.8 (mean: 5.9, median: 2.7). 19 patients had no endoscopic lesions, two had features of unspecific colitis and one showed features suggestive of IBD.

Histopathological findings of EC cases are summarized in Table 2. The mean number of eosinophils per hpf ranged from 16 to 199 (mean: 48) and the maximum number of eosinophils per hpf ranged from 20 to 253 (mean: 70). Eosinophils were mainly located in the lamina propria (in 7 cases they were superficial and in 1 case submucosal extension was observed) (Fig. 1). However, most endoscopic biopsies do not include the submucosa and they never include the muscularis propria or serosa. Signs of eosinophil activation such as degranulation, eosinophilic microabscesses or eosinophilic epithelial permeation were seen in 8 (36%), 1 (4.5%) and 16 (72.7%) cases respectively (Figs. 2 and 3). Fibrosis and edema were identified in 5 (22.7%) and 8 (36%) cases. Eosinophils were associated with lymphoplasmacytic infiltration in 4 cases (18%) and acute inflammation in 1 case (4.5%). Follicular lymphoid hyperplasia was seen in 8 cases (36%). Architectural distortion was present in 2 cases and mucosal atrophy was identified in 2 cases. 2 cases had intestinal metaplasia and 3 cases showed loss of epithelial mucin. None of the cases showed mucosal erosion.

Allergic tests were performed and they were found to be negative in all patients. Total IgE was only assessed in cases 3 and 12 (519 and 124 UI/ml). Secondary causes for gastrointestinal eosinophilia were also excluded. 18 patients were treated but just one patient was