

# COLONIC MUCOSAL PSEUDOLIPOMATOSIS: OUR CLINICAL OBSERVATION

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## ABSTRACT

**Objectives:** Colonic mucosal pseudolipomatosis is an uncommonly seen condition and knowledge on its pathogenesis is still not enough. It is a benign entity and usually remains asymptomatic. **Patients:** During a 4 month period, we found pseudolipomatosis coli in 11 of 528 colonoscopy cases (2.08%).

**Results:** The pseudolipomatosis lesions presented as slightly elevated whitish-yellowish plaques measuring from a few millimeters to 2 cm for the longest dimension. The plaques extended over 5-6 cm segment. The lesions were localized in proximal colon. Biopsy specimen was taken from all these lesions and all biopsies were diagnosed as colonic mucosal pseudolipomatosis by pathologist. No related microorganisms or parasites were seen. We could not find any relation between the type of material used during bowel preparing and colonic mucosal pseudolipomatosis. We found that automated endoscope disinfectant machine was broken for almost 2 years and during this period the scopes disinfection was done manually by using anioxide 1000 solution (peracetic acid, 3% hydrogen peroxide). After repair of the machine and changing the solution, we haven't observed any case.

**Conclusion:** Stemming from manual colonoscopy disinfection, residual hydrogen peroxide may ease the formation of colonic mucosal pseudolipomatosis. After changing the solution and starting to use the machine, no patient with colonic mucosal pseudolipomatosis was diagnosed. Therefore using automated endoscope disinfectant machine is required.

**KEYWORDS** Colonic mucosal pseudolipomatosis, Peracetic acid, Automated endoscope disinfectant machine

## Introduction

Colonic mucosal pseudolipomatosis also described as the "snow-white sign", is an uncommonly seen condition and knowledge on its pathogenesis is still not enough. Since 1985, when Snover et al. defined colonic pseudolipomatosis, many mechanisms were blamed as an explanation. It is a benign entity and usually remains asymptomatic [1-5].

During 4 months period of observation, we detected this condition in 11 of our patients. Here colonic pseudolipomatosis,

which is not well-known by many endoscopists, is discussed together with our series.

## Methods

During 4 months, we found pseudolipomatosis coli in 11 of 528 colonoscopy cases(2.08%). Colonoscopy is performed with Olympus (EXERA II, CLV-180) video colonoscope.

The simple method of ratio for statistical analysis was used to provide percentages.

## Results

During 4 months (January 2018- May 2018); we found pseudolipomatosis coli in 11 of 528 colonoscopy cases(2.08%), 9 of these patients were female and 2 were male(Table 1). These diagnosed patients were between 29 and 71 years, with a mean age of 49.36 (std 12.67) The indications for colonoscopy were as

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**Table 1** Clinical features and colonoscopic findings in eleven patients with Colonic pseudolipomatosis.

NO	AGE AND SEX	Indication for Colonoscopy	Bowel preparing	Pseudolipomatosis places	Additional diagnosis
1	71 Y Female	Chronic abdominal pain	Phsofoda	Hepatic Flexura	Diverticulosis Coli
2	56 Y Male	Screening colonoscopy	Phsofoda	Tranvers Colon	Poliposis coli
3	42 Y Female	Chronic abdominal pain	Phsofoda	Hepatic Flexura	-
4	51 Y Male	Screening colonoscopy	Phsofoda	Tranvers Colon	-
5	33 Y Female	anemia	Phsofoda	Tranvers Colon	-
6	45 Y Female	anemia	Phsofoda	Hepatic Flexura	Rectal polip
7	44 Y Female	Chronic diarrhea	Phsofoda	Assendan Colon	-
8	59 Y Female	Screening colonoscopy	Phsofoda	Assendan Colon	Poliposis coli
9	64 Y Female	Screening colonoscopy	Sennacide A-B	Assendan Colon	Poliposis coli
10	49 Y Female	Screening colonoscopy	Sennacide A-B	Hepatic Flexura	-
11	29 Y Female	Anemia	Sennacide A-B	Assendan Colon	-

follows: screening colonoscopy for 5 patients, anaemia for 3 patients, chronic abdominal pain for 2 patients, chronic diarrhoea for 1 patient. Caecum was intubated in all cases. The pseudolipomatosis lesions presented as slightly elevated whitish-yellowish plaques measuring from a few millimetres to 2 cm for the longest dimension. The plaques extended over 4-6 cm segment (Figure 1,2).

The lesions were localized in the proximal colon (in the ascendant in 4 patients, in the hepatic flexura in 4 patients, in the transverse colon in 3 patients). In 4 patients, there were colon and rectum polyps, and polypectomy was performed. In 1 patient, diverticulosis coli was detected. In 6 patients, colonoscopy was normal except for pseudolipomatosis. None of the patients underwent a control colonoscopy latter. The biopsy specimen was taken from all these lesions, and all biopsies were diagnosed as colonic mucosal pseudolipomatosis by a pathologist. In all, no markable inflammation was observed in colonic mucosa. A lot of empty spaces looking like adipose tissue were present in the lamina propria, and they found to be negative for CD34 and D2-40 (vascular and lymphatic markers) and for S-100 protein (fat marker) (Figure 3,4).

The indications for colonoscopy and colonoscopic findings are shown in Table 1.

After the colonoscopic procedure and during follow up, all patients were asymptomatic. All patients were controlled 15 days after the procedure.

After the appearance of this condition, we investigated and looked for a possible aetiology. We took microbiologic examples from the colonoscopy and endoscopy unit. No related microorganisms or parasites were seen.

In the first 8 patients, fosfosoda (Phospho-soda; Recordati ilac) was used for colon preparing. We suspected that fosfosoda played a role in this condition: Later, we prefer to use sennacide A-B Calcium ( X-M solusyon; Yenisehir Lab ) instead of fosfosoda. However, 3 more patients were detected having pseudolipomatosis coli.

We found that automated endoscope disinfectant machine was broken for almost 2 years and during this period the scopes disinfection was done manually by using anioxide 1000 solution

(anioxide, peracetic acid, 3% hydrogen peroxide). Repair of the machine and changing the solution were demanded immediately, but it took about 2 months.

After then, we haven't observed any case.

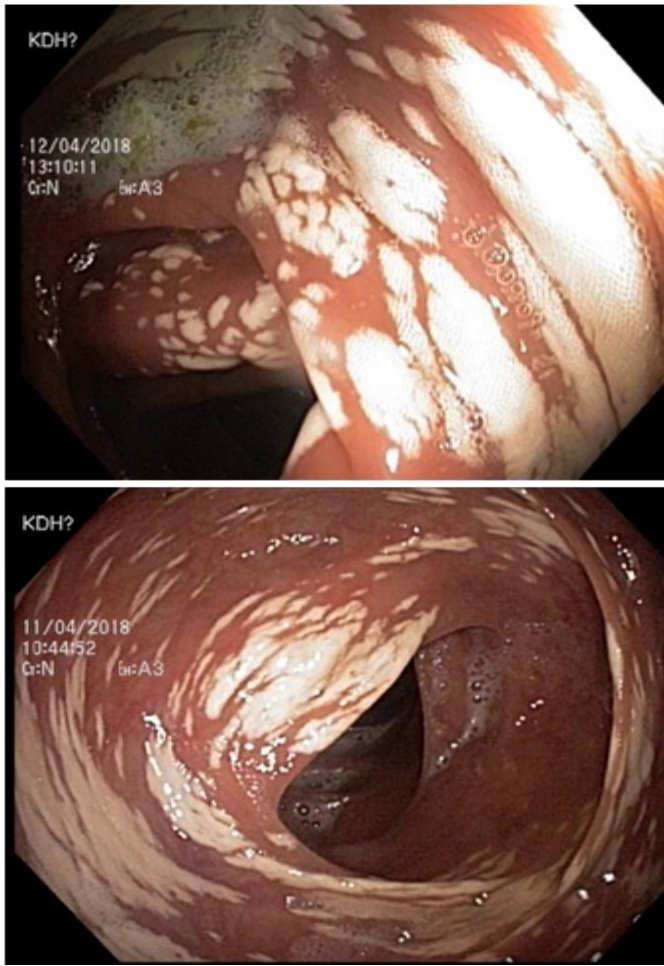
## Discussion

Colonic mucosal pseudolipomatosis was first defined by Snover et al. as an uncommonly seen benign condition. Its regression is usually spontaneous[1-3].

A lot of colonic mucosal pseudolipomatosis patient groups were unisex and in their 40s, but in our series, women were the majority with a rate of 9 out of 11, and the mean for age was 49.36. It is a rare condition with a frequency of 0.3%-1.7% among all colonoscopies performed [3,4]. The rate found for our series was 2.08%, which was significantly higher than the average. However, no cases were detected previously among 1200-1500 colonoscopies performed per year. To find the reason beyond this unexpected observation, we reinvestigated our colonoscopic procedures. Although this series is observed by a single endoscopist, the possibility of cases being endoscopist dependent or related to particular colonoscopic techniques has been excluded by Cammarota et al. [6]. Pseudolipomatosis' appearance on endoscopy is very characteristic, yet it is not familiar to many endoscopists. The distinction of these lesions from other pathologic conditions - such as pseudomembranous colitis, colonic lipomatosis and malakoplakia- is necessary[2,3].

Pseudolipomatosis appears as slightly elevated mucosal, whitish adherent plaques. These lesions are often multiple, and their size measures vary from a few millimetres to 4-5 cm[4,5]. In all our cases, pseudolipomatosis was observed as colonic segments in size of 4-6 cm.

In the pathological investigation of colonic mucosal pseudolipomatosis, numerous empty spaces which are negative for CD34, for D2-40(vascular and lymphatic markers) and for S-100 protein(fat marker) were observed in lamina propria [4-8]. These pathological findings were identical for all our patients. There are contradictive explanations for the aetiology and pathogenesis of this condition. One of these hypothesis proposes gas invasion by mechanical injury during the performed proce-



**Figure 1,2:** Colonoscopic findings of two patients with colonic mucosal pseudolipomatosis.

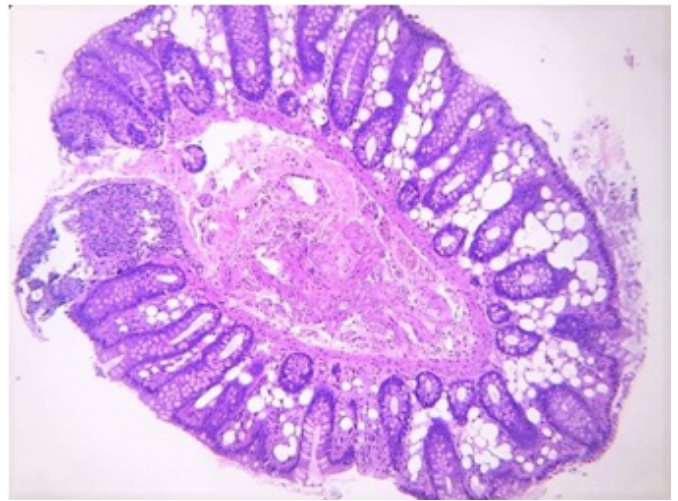
dures (such as biopsy, abrasive trauma or inflation of the colon) as a pathogenic mechanism [2-5].

In previous studies, lesions were suggested to be found in any part of the colon and to have a uniform distribution between right and left colons [2-5]. However, in our series, all lesions were located in the proximal colon. We concluded that the reason beyond this lesion concentration to only occur in this specific area may be the fact that the proximal colon was exposed to gas pressure more than the distal colon. This finding can support the hypothesis mentioned above.

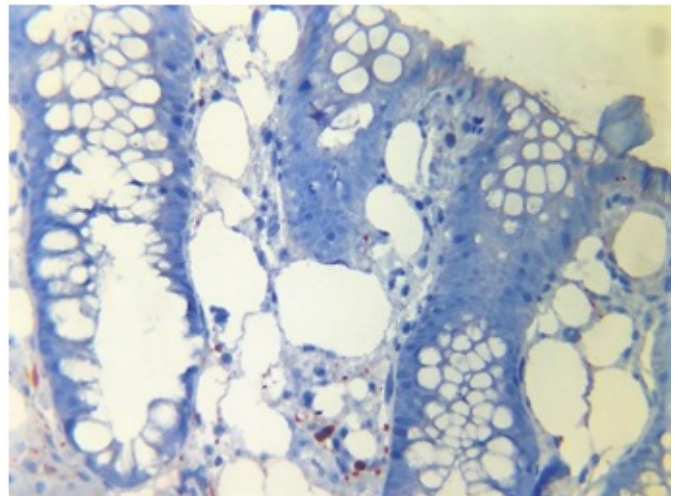
Another hypothesis suggests secondary chemical injury by disinfectants (especially by hydrogen peroxide) as the aetiology of colonic mucosal pseudolipomatosis. Residual hydrogen peroxide in the colonoscope after rinsing was blamed for this condition in some previous studies [2,5,6,9].

In our series, hydrogen peroxide was used. Usage of manual disinfection of colonoscopy may be insufficient in terms of hydrogen peroxide removal. Automated endoscope disinfectant machine better cleans the colonoscope from solutions compared to manual disinfection.

Since polypectomy was performed only for 4 patients, we didn't evaluate it as a key factor for this condition. We could not find any relation between the type of material used during bowel preparing and colonic mucosal pseudolipomatosis. Also, there wasn't any study about the effect of different agents on



**Figure 3:** Vacuolated space within the lamina propria in an otherwise normal colon mucosa (H&E, X40).



**Figure 4:** Vacuoles are negative with S-100 stain (x200, Immunohistochemistry).

pseudolipomatosis.

Like our cases, in one paper, infectious causes were excluded for this condition [6]. In the mentioned paper, it was observed that three patients' control colonoscopy was completely normal, and lesions had disappeared after 1 month. Also, Waring et al. diagnosed four patients, and after three weeks, control endoscopies were normal [4]. Because no symptoms were observed, control endoscopies were not considered as necessary.

After we started to use automated endoscope disinfectant machine and change hydrogen peroxide disinfectant, no patient with colonic mucosal pseudolipomatosis was diagnosed.

We concluded that colonic pseudolipomatosis rate found for our series was 3%, which was significantly higher than the average. We could not find any relation between the type of material used during bowel preparing and colonic mucosal pseudolipomatosis. Stemming from manual colonoscope disinfection, residual hydrogen peroxide may ease the formation of colonic mucosal pseudolipomatosis. After changing the solution and starting to use the machine, no patient with colonic mucosal pseudolipomatosis was diagnosed. Therefore using automated endoscope disinfectant machine is required.

## Competing Interests

No conflict of Interest.

## Ethics committee approval

This study was approved by Ethical Committee of Karamanoglu Mehmetbey University.

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