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Colonic Diverticulosis and Risk of Large Bowel Adenomas

Uchyłkowatość jelita grubego a ryzyko występowania gruczolaków jelita grubego

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Abstract

Background. The problem of the colonic diverticulosis, one of the most common diseases of the large bowel, as a risk factor for colonic adenomas and adenocarcinomas has not been fully clarified. The published results of the studies regarding this problem are contradictory.

Objectives. Evaluating the relationship between colonic diverticulosis and colonic adenomas.

Material and Methods. The group studied consisted of 3011 consecutive patients (1776 women, 1235 men, age 17–100 years, mean age 52.50 ± 16.36) which had endoscopic examination of the large bowel in the Endoscopy unit of the Department of Gastroenterology and Hepatology, Wrocław Medical University. Retrospective analysis encompassed age, gender, presence and location of diverticula and presence and location of adenomas and adenocarcinomas.

Results. Diverticula were found in 425 patients (14.11%). Adenomas were found in 65 (15.3%) patients with diverticulosis and 190 (7.3%) patients without diverticulosis (OR = 2.28). Left-sided adenomas were found in 44 (10.35%) patients with left-sided diverticula and in 127 (4.9%) patients without diverticulosis (OR = 2.4). Colorectal cancer was present in 2.82% (n = 12) of patients with diverticulosis and in 3.79% (n = 98) of patients without diverticulosis. The presence of adenomas in relation to the presence of diverticula was statistically significant (chi-square analysis; p < 0.001). The presence of colorectal cancer in relation to the presence of diverticula was not statistically significant (p = 0.219).

Conclusions. The results of our study suggest that the presence of left-sided colonic diverticula may be considered as a risk factor for colonic adenomas (Adv Clin Exp Med 2011, 20, 5, 623–626).

Key words: colonic diverticulosis, colonic adenomas.

Streszczenie

Wprowadzenie. Nie wyjaśniono jednoznacznie, czy uchyłkowatość jelita grubego, jedna z najczęstszych chorób okrężnicy, stanowi czynnik ryzyka rozwoju gruczolaków jelita grubego. Opublikowane wyniki badań poświęconych temu problemowi są sprzeczne.

Cel pracy. Ocena związku między uchyłkami a gruczolakami jelita grubego.

Materiał i metody. Grupę badaną tworzyło 3011 kolejnych pacjentów (1776 kobiet, 1235 mężczyzn, w wieku 17–100 lat, średni wiek 52.50 ± 16.36), u których przeprowadzono badanie endoskopowe jelita grubego w pracowni endoskopowej Kliniki Gastroenterologii i Hepatologii AM we Wrocławiu. W retrospektywnej analizie oceniano: wiek, płeć, obecność i umiejscowienie uchyłków, obecność i umiejscowienie gruczolaków i gruczolakoraków.

 Wyniki. Uchyłki stwierdzono u 425 (14.11%) pacjentów, a gruczolaki – u 44 (10.7%) pacjentów z uchyłkowatością a 127 (4.9%) pacjentów bez uchyłkowatości. Raka jelita grubego rozpoznano u 2,82% (n = 12) pacjentów z uchyłkowatością i 3,79% (n = 98) pacjentów bez uchyłkowatości. Obecność gruczolaków w zależności od obecności uchyłków była istotna statystycznie (test χ2; p < 0.001). Obecność raka jelita grubego w zależności od występowania uchyłków nie była istotna statystycznie (p = 0.219).


Słowa kluczowe: uchyłkowatość jelita grubego, gruczolaki jelita grubego.
Epidemiological studies have demonstrated that there is an increase in the prevalence of colonic diverticulosis and colorectal cancer in Western countries.

The incidence of colonic diverticulosis increases with age and thus this condition is the most common structural abnormality of colon in the elderly. Despite its prevalence, the etiopathogenesis of colonic diverticulosis remains unclear. Painter and Burkitt described this condition as a fiber deficiency disease of Western civilization [1]. Additionally, some experimental and epidemiological studies have also demonstrated the crucial role of fiber deficiency in diverticula development. Even so, the exact role of fiber in the disease pathogenesis is not fully elucidated and remains controversial [2]. In Western countries, diverticula most often develop distally to the splenic flexure of the colon. In two Polish studies, the left colon was affected with diverticulosis in 70% and 93% of cases, respectively [3, 4]. For most of patients, diverticulosis is asymptomatic. However, diverticulosis can be complicated with diverticulitis, bleeding and segmental colitis associated with diverticulosis (SCAD) [5, 6].

Colorectal cancer is the most frequent malignancy of the digestive tract. In the ranking of incidence of malignancies, colorectal cancer is in the second place among males and females in Poland [7]. Colonic adenomas are a well known precancerous condition. They share some features with diverticulosis, with regard to etiological factors. First, environmental factors, mostly nutritional, are suggested to play a role in colonic adenomas development. Second, the prevalence of colonic adenomas increases with age. Third, colonic polyps also usually do not produce any symptoms.

However, the results of the studies regarding the association between diverticula and polyps are conflicting. Additionally, as dietary factors, at least partly, are implicated in diverticulosis and colorectal cancer etiology, they cannot be extrapolated from other geographical areas, where people have a different diet.

The study was aimed to evaluate the relationship between colonic diverticulosis and adenomas.

**Material and Methods**

The group studied consisted of 3011 consecutive patients (1776 women, 1235 men, age 17–100 years, mean age 52.50 ± 16.36) which had endoscopic examination of the large bowel in the Endoscopic unit of the Department of Gastroenterology and Hepatology, Wroclaw Medical University. Retrospective analysis encompassed age and gender of patients, the presence and location of diverticula and adenomas and the presence of adenocarcinomas.

Findings located proximally to the splenic flexure were considered as right-sided and the findings located distally to the splenic flexure were considered as left-sided.

**Results**

Diverticula were found in 425 patients (14.11%). Diverticula in the sigmoid and descending colon were observed in 93.41% and 37.17% of those patients, respectively.

The mean age of patients with diverticulosis (65.96 ± 10.72) was higher than the mean age of patients without diverticulosis (p < 0.01). The mean age of patients with polyps (67.62 ± 9.849) was higher than the mean age of patients without polyps (p = 0.0000). The mean age of patients with CRC (62.19 ± 12.89) was higher than the mean age of patients without CRC (p = 0.0000).

Adenomas were found in 65 (15.3%) patients with diverticulosis and 190 (7.3%) patients without diverticulosis (OR = 2.28) (Fig. 1). Left-sided adenomas were found in 44 (10.35%) patients with left-sided diverticula and in 127 (4.9%) patients without diverticulosis (OR = 2.4). The location and pathological type of polyps are presented in Table 1.

Colorectal cancer was present in 2.82% (n = 12) of patients with diverticulosis and in 3.79% (n = 98) of patients without diverticulosis. The presence of colorectal cancer in relation to the presence of diverticula was not statistically significant (p = 0.219).

![Fig. 1. Prevalence of diverticula and adenomas in the study group](image-url)

**Ryc. 1. Występowanie uchyłków i gruczolaków w grupie badanej**
Our study has demonstrated that colonic adenomas, constituting a risk factor of colorectal cancer, are found more often in patients with colonic diverticulosis than in patients without colonic diverticulosis. The association of diverticulosis and adenomas may hypothetically result from the fact that, first, the prevalence of both conditions increases with age, and second, a dietary factor is suggested to play a role in the development of them. The results of studies regarding the association between colonic diverticulosis and adenomas are conflicting. Moreover, as environmental factors may play a role in the pathogenesis of the studied conditions, the observed result can be a consequence of different local milieu. On the other hand, Hirata et al. demonstrated that patients with diverticulosis have a 1.7-fold increased risk of colonic adenomatous polyps as compared to those without. This study was conducted in Japan, where diverticulosis mostly affects the right colon, similar to other Asian countries. Additionally, the authors suggested that, regardless of the segment with diverticular disease or race, patients with diverticular disease have a higher risk of colonic neoplasia. In another study, Meurs-Szojda et al. did not find any relationship between diverticulosis and polyps and/or colorectal cancer. The authors analyzed 4241 colonoscopies. Diverticulosis was diagnosed in 25% of patients and polyps in 30% of patients.

Dietary factors, as well as being overweight and obesity, seem to be implicated in the pathogenesis of both of the conditions studied, colonic diverticulosis and adenomas/adenocarcinomas. For example, visceral obesity and insulin resistance have been demonstrated to be risk factors for colorectal adenoma. Central obesity and dyslipidemia were found to be independent risk factors for colorectal adenoma in 4122 Chinese individuals. The increased risk of colorectal adenoma in subjects with abdominal obesity was also suggested by the results of a study conducted by Kim et al. in South Korea. A high intake of fruits and vegetables and lower intakes of red and processed meat seem to protect against colorectal adenoma. Moreover, a higher intake of red and processed meat, potatoes and refined carbohydrates is related to a higher risk of colorectal adenoma. Many studies have suggested that dietary factors participate in the development of colonic diverticulosis. In a Polish study, 42.7% of patients with diverticulosis were found to be overweight and 17.1% were obese. Yet the role of diet in the development of the one of the most common diseases of the large bowel has not been fully clarified.

**Table 1. Localization and pathological type of adenomas in patients with diverticulosis**

<table>
<thead>
<tr>
<th>Location</th>
<th>AV</th>
<th>ATV</th>
<th>AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectum (Odbytnica)</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Sigmoid colon (Esica)</td>
<td>2</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Descending colon (Zstępnica)</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Transverse colon (Poprzechnicza)</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Ascending colon (Wstępniaca)</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Caecum (Kątnica)</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total (Razem)</td>
<td>9</td>
<td>3</td>
<td>53</td>
</tr>
</tbody>
</table>

AV – villous adenoma.
ATV – tubulovillous adenoma.
AT – tubular adenoma.
AV – gruczolak kosmkowy.
ATV – gruczolak cewkowo-kosmkowy.
AT – gruczolak cewkowy.
The limitation of our study is the fact that the study group consisted of hospitalized, symptomatic patients. It would be interesting to test the relationship between diverticulosis and adenomas in asymptomatic individuals, e.g. people participating in a colorectal cancer screening program.

Patients with diverticulosis were shown to have a higher risk of colonic adenomas when compared to patients without diverticulosis. Based on our findings, the presence of diverticulosis should be included in the colonic adenomas risk stratification.

References

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