

## **Sigmoid volvulus: dietary and defecation habits**

**Neva Karatas<sup>1</sup>, Sabri Selcuk Atamanalp<sup>2</sup>**

<sup>1</sup>Department of Nutrition and Dietetics, Faculty of Health Sciences, Ataturk University, Erzurum, Turkey

<sup>2</sup>Department of General Surgery, Faculty of Medicine, Ataturk University, Erzurum, Turkey

**Corresponding author:** Sabri Selcuk Atamanalp, Prof. MD, Department of General Surgery, Faculty of Medicine, Ataturk University, 25040, Erzurum, Turkey

Ph: 0090.442.3447560, Fax: 0090.442.3446528, E-mail: ssa@atauni.edu.tr

### **ABSTRACT**

**Background:** Sigmoid volvulus (SV) is a colonic obstruction form, in which sigmoid colon wraps around itself. The aim of this study is to evaluate the role of dietary and defecation habits in the development of SV.

**Materials and methods:** The records of the largest single-centre SV series over the world including 1,036 patients treated over a 54.5-year period between June 1966 and January 2021, were reviewed.

**Results:** Of the patients, 589 (56.9%) had a high-fiber and vegetable diet habit, while 326 (31.5%) had chronic constipation. There was a significant decrease in the incidence of SV in the latter 27.5-year period when compared with that of the first 27 years (cases per year from 25.6 to 12.3,  $p<0.001$ ; cases per 100,000 persons per year from 9.2 to 2.2,  $p<0.001$ ).

**Conclusion:** Some dietary and defecation habits including chronic constipation and high-fibre diet may be responsible for SV and the decrease in the incidence of SV may be due to the westernization of dietary habits.

**KEY WORDS:** Sigmoid Colon, Volvulus, Dolichosigmoid, High-fibre diet, Constipation

## **INTRODUCTION**

Sigmoid volvulus (SV) is a colonic obstruction form, in which sigmoid colon wraps around itself.<sup>3,8</sup> Although the disease is sporadic worldwide, some regions in Latin America, Africa, Eastern and Northern Europa, Asia, and Middle East are endemic areas for SV.<sup>8,10</sup> SV is also endemic in Eastern Anatolia, where our university is located.<sup>2,3</sup> In the light of the comprehensive data of our university, including approximately 54.5 years of history and 1,036 cases of experience with SV, which is the largest single-centre SV series over the world,<sup>9</sup> we wanted to discuss the role of dietary and defecation habits in the development of SV.

## **MATERIALS and METHODS**

The records of 1,036 patients, who were treated over a 54.5-year period between June 1966 and January 2021, were reviewed retrospectively until June 1986 (612 cases), and prospectively thereafter (424 cases). The following criteria were noted: the incidence of SV, high-fiber and vegetable diet habit, and chronic constipation. Student's t test was used in statistical analysis and statistical significance was set at  $p < 0.05$ . This study was approved by the Institutional Review

Board (Ataturk University Faculty of Medicine B.30.2.ATA.0.01.00/16). All authors had access to the data and they reviewed and approved the final text.

## RESULTS

In our series, 589 patients (56.9%) had a high-fiber and vegetable diet habit, while 326 cases (31.5%) had chronic constipation. When the data of the first 27-year period compared with that of the latter 27.5 years, there was a significant decrease in the incidence of SV (cases per year from 25.6 to 12.3,  $p < 0.001$ ; cases per 100,000 persons per year from 9.2 to 2.2,  $p < 0.001$ ).

## DISCUSSION

A long redundant sigmoid colon, dolichosigmoid, is the well-known predisposing factor in the development of SV.<sup>6,7,10</sup> Although this anatomical prerequisite is occasionally congenital as it seen in childhood SV,<sup>7</sup> it is generally acquired, and high-fibre diet, chronic constipation, advanced age, male gender, and high altitude are primary etiological factors responsible for dolichosigmoid.<sup>5,6,8</sup> Fiber-rich and vegetable diet causes bulkiness of stool as a result of undigested dietary fiber, resulting in fecal loading. Similarly, chronic constipation and bed defecation habits, as it seen in mentally retarded persons, prolong colonic transit period, resulting in distention.<sup>8</sup> Chronic increased intraluminal pressure due to fecal loading and distention worsens the elastogenesis of the colonic wall, and over time, sigmoid colon elongates and enlarges, resulting in dolichosigmoid.<sup>1</sup> The high rate of our patients fed with high-fiber and vegetable diet as well as the relative outnumber of our chronic constipated patients support the role of the dietary and defecation habits in the development of SV.

Recent reports claim a decreasing incidence in SV in some endemic areas.<sup>4,8</sup> Similar results were found in our series. In consideration of an increase in life expectancy in addition to determinedness of the sex ratio and altitude, this decrease may principally be ascribed to westernization of dietary habits. In our country and region, alike in most of the countries of the world, refined and fast food consumption became widespread in recent years. A lesser cause of the present decrease may be improvement of living standards; the use of outdoor toilets, which could have led to delays in defecation habits resulting in constipation in the past, is not common nowadays.

In conclusion, high-fibre and vegetable diet as well as chronic constipation are though as predisposing factors in the development of dolichosigmoid and related SV. It seems that, due to the westernization of dietary habits, the incidence of SV will continue to decrease in our region as well as in some other endemic areas.

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