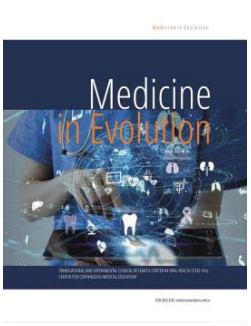
Anatomo-clinical correlations between total or partial edentation and digestive disorders



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Abstract

The functions of the dento-maxillary apparatus are essential for the preparation and formation of the food bowl, which reaches the lower segments of the digestive tract. In the absence of teeth, the process of digestion is much more difficult, which leads to significant disorders in food absorption. At the same time, due to the lack of teeth, dysfunctions occur at the temporomandibular joint, movements of the mandible (left-right laterality, propulsion/retropulsion, opening/closing the mouth) are no longer performed properly which ultimately leads to loading the stomach with food incorrectly processed, as well as prolonging digestion time.

Following the anamnesis performed on the group of patients, we noticed that there is a correlation between totally or partially edentulous patients and the appearance of digestive tract diseases. There is a causal relationship between edentations and the appearance of digestive disorders at patients over 45 years old.

Keywords: partial edentation, total edentation, digestive disorders

INTRODUCTION

The functions of the dento-maxillary apparatus are essential for the preparation and formation of the food bowl, which reaches the lower segments of the digestive tract.

Dentition, whether natural or artificial, plays an extremely important role in the normal development of an individual's life [1].

Also, the teeth have a very important role in chewing and preparing the food bowl as follows: the incisors have the role of cutting, canines tearing, crushing premolars and molars for grinding food. In the absence of teeth, the process of digestion is much more difficult, which leads to significant disorders in food absorption.

At the same time, due to the lack of teeth, dysfunctions occur at the temporomandibular joint, movements of the mandible (left-right laterality, propulsion/retropulsion, opening/closing the mouth) are no longer performed properly which ultimately leads to loading the stomach with food incorrectly processed, as well as prolonging digestion time.

Digestive disorders involve the digestive tract, which is also known as the gastrointestinal tract. The gastrointestinal tract includes the esophagus, liver, stomach, small and large intestines, gallbladder and pancreas. The most common symptoms of digestive disorders include bleeding, bloating, constipation, diarrhea, heartburn, pain, nausea and vomiting. Accurately diagnosing digestive disorders involves collecting a thorough medical history and conducting a physical examination. Some patients with digestive disorders may need more extensive diagnostic evaluations, including endoscopic procedures, lab tests and imaging.

Aim and objectives

The objective of this article is to demonstrate that there is a causal relationship between edentations and the appearance of digestive disorders at patients over 45 years old.

MATERIAL AND METHODS

Within the dental complex, SC PROXI-DENTA SRL Oradea, during one year (September 2017- August 2018) we have consulted and treated 600 patients, of which only 300 patients, both male and female, were eligible for the study. These patients are over 45 years old and are partially or completely edentulous. We have noticed that male patients represent a higher percentage of the total edentulous patients totally or partially.

We observed that patients at 45-55 years old have partial edentations, and those over 55 years old have total edentations.

Patients under 45 years old were not eligible for the study, with no edentations.

The patients were investigated on the ADEC PERFORMER 8000 dental unit, the consultations being performed with specific dental instruments (probe, forceps and dental mirror).

To the patients who came to our field of activity, the cephalic extremity, the dento-maxillary apparatus, following the anamnesis and the clinical examination performed, we noticed that a significant percentage of them have multiple pathology.

Following the anamnesis and the file completed by each patient (Figure 1), we noticed that they presented various digestive symptoms such as: nausea, vomiting, bloating, intestinal transit disorders (constipation, diarrhea), diffuse abdominal pain, epigastric pain. Also after the anamnesis, we found out that due to the presence of patients edentations, their mastication is defective.

I. Identification data:
Name ...
Surname ...
Age ...
Gender ...
Environment: urban / rural ...

II. Number of daily meals (check the correct answer):
- 1 meal / day
- 2 meals / day
- 3 meals / day
- more than 3 meals / day

III. Did you have any of the following digestive symptoms? Answer with Yes/No
- nausea ...
- vomiting ...
- ballooning ...
- intestinal transit disorders: constipation ... / diarrhea ...
- diffuse abdominal pain ...
- epigastric pain ...

IV. What is the period of time after ingestion of food in which the symptoms described above appear? (check the correct answer)
- immediately after ingestion of food
- 2-3 hours after ingestion of food
- more than 2-3 hours after ingestion of food

Figure 1. Patient's medical file

Classification criteria:

I. by age groups (Figure 2)
II. by patient's gender (female/male) (Figure 3)
III. by environment of origin (urban/rural) (Figures 4,5)
IV. by type of edentation (partial: frontal or lateral; total) (Figures 6,7,8)
V. by the number of daily meals (Figures 9,10)
VI. according to the digestive symptoms (Figures 11,12)

the period of time after ingestion of food in which the digestive symptoms appear (Figures 13,14)

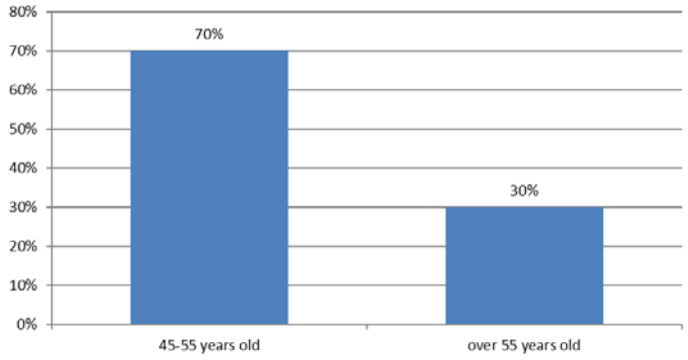


Figure 2. Classification by age groups

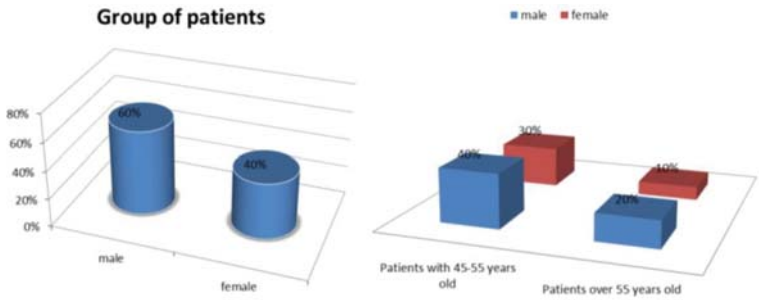


Figure 3. Classification by patient's gender (female/male) and age

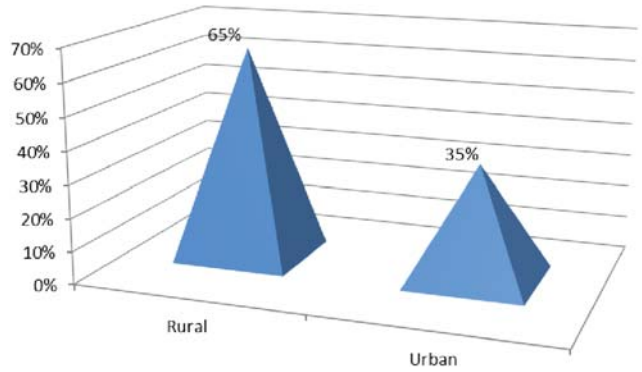
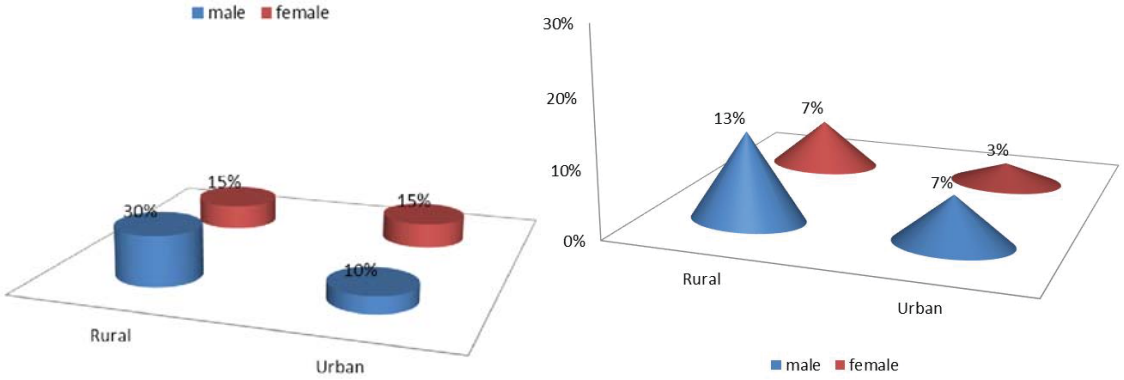


Figure 4. Classification by the origin of environment (urban/rural)



a b

Figure 5. Classification by the origin of environment and age (a: patients between 45-55 years old; b: patients over 55 years old

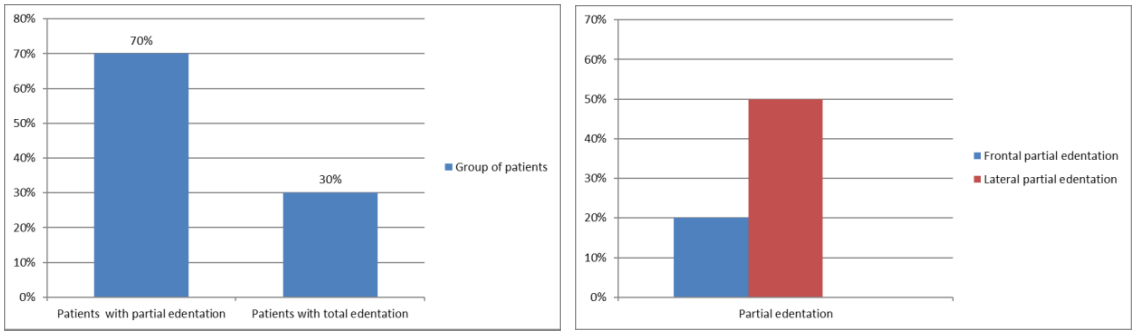


Figure 6. Classification after type of edentation

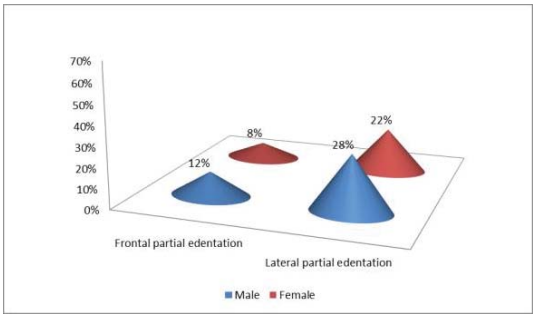


Figure 7. Gender ratio to partial edentations

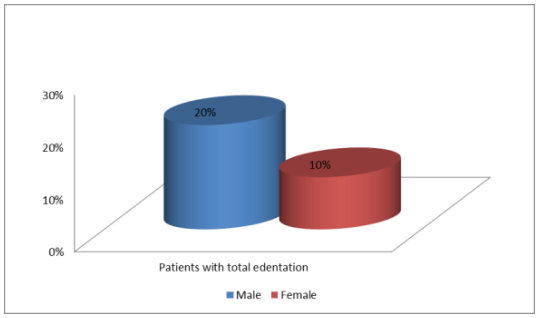


Figure 8. Gender ratio to total edentations

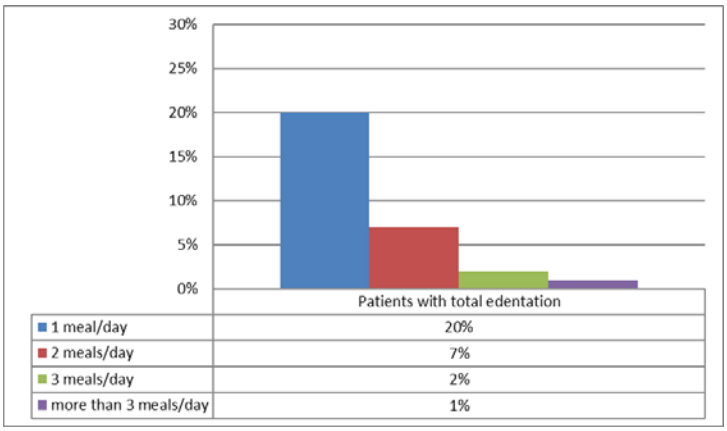


Figure 9. Classification by number of daily meals at patients with total edentation

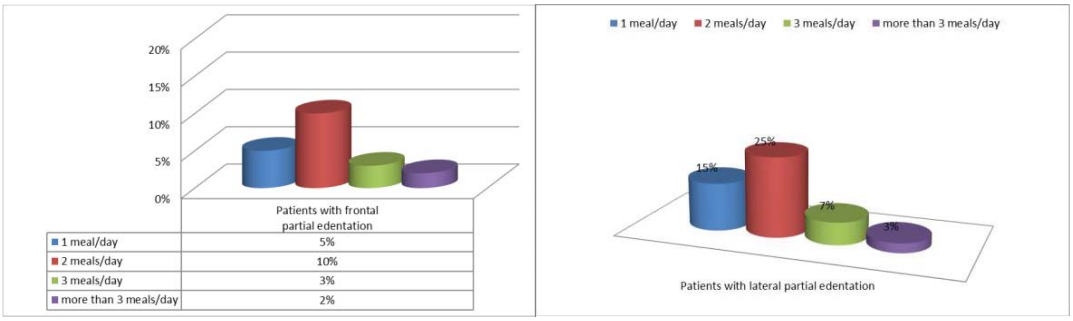


Figure 10. Classification by number of daily meals at patients with partial edentation

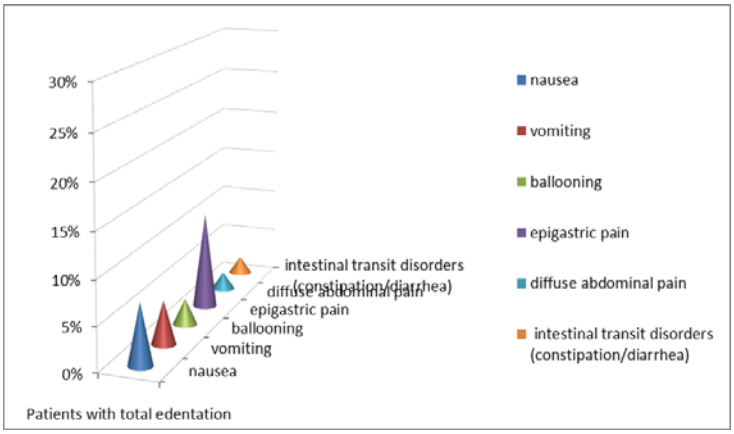


Figure 11. Classification according to digestive symptoms in total edentulousness

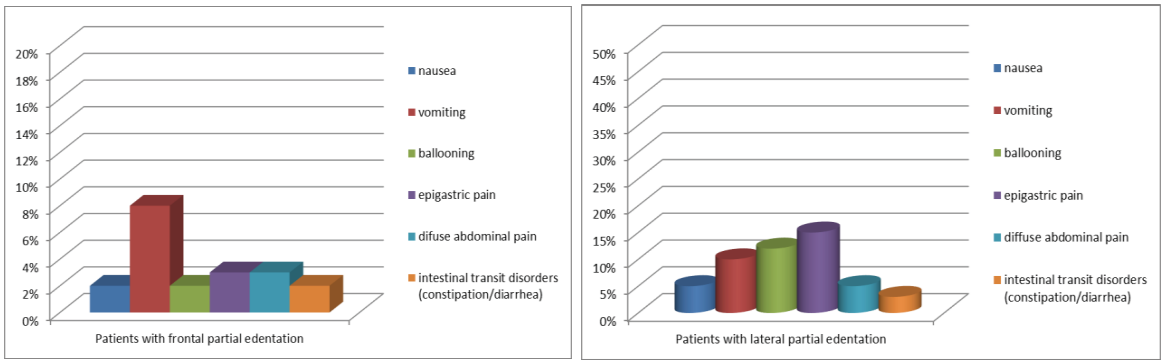


Figure 12. Classification according to digestive symptoms in partial edentulousness

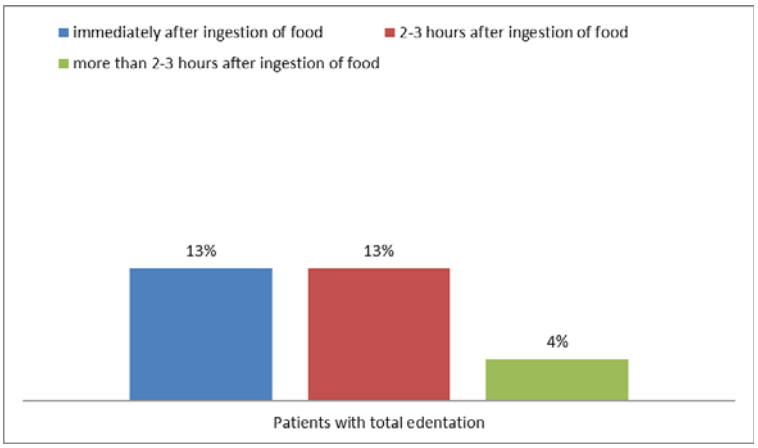


Figure 13. Classification by the period of time after ingestion of food in which the symptoms appear at patience with total edentation

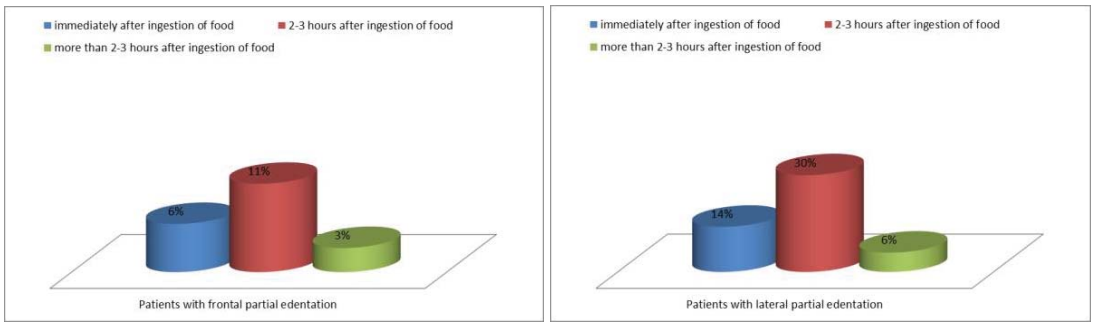


Figure 14. Classification by the period of time after ingestion of food in which the symptoms appear at patience with partial edentation

RESULTS

We have noticed that 70% of the patients with edentations are 45-55 years old and 30% are patients over 55 years old (Figure 2). 60% of all men have edentations compared to women who only 40% of them have edentations (Figure 3).

We noticed that out of the total number of edentulous patients, most come from rural areas, more precisely 65% compared to those from urban areas which are in a percentage of 35% (Figure 4).

The most patients aged between 45 and 55 years, who come from rural areas and have edentations are male, and those who come from urban areas and have edentations are female (Figure 5). Most patients over the age of 55, who come from both rural and urban areas and have edentations are male (Figure 5).

We observed that 70% of patients had partial edentations, and only 30% of them had total edentations (Figure 6). Of the 70% of partially edentulous patients, 50% had lateral partial edentations and 20% frontal partial edentations (Figure 6). Of the patients with partial edentations, the majority were male (Figure 7). Of the 30% of totally edentulous patients, 20% were male and 10% female (Figure 8).

Most totally edentulous patients had only one meal a day (Figure 9). Most frontal partial edentulous patients had only two meals a day (Figure 10). Most lateral partial edentulous patients had only two meals a day (Figure 10).

Of the total edentulous patients, most had epigastric pain and nausea. Of the frontal partial edentulous patients, most had vomiting. Of the lateral partial edentulous patients, most had epigastric pain and nausea.

In most totally edentulous men the digestive symptoms appeared immediately after ingestion of food, compared to totally edentulous women in whom the digestive symptoms appeared at 2-3 hours after ingestion of food (Figure 11).

Therefore, in totally edentulous patients, an equal percentage of digestive symptoms occurred immediately after ingestion of food and 2-3 hours after ingestion of food.

In both partially, frontally or laterally edentulous patients, digestive symptoms occurred 2-3 hours after ingestion of food (Figures 12,13).

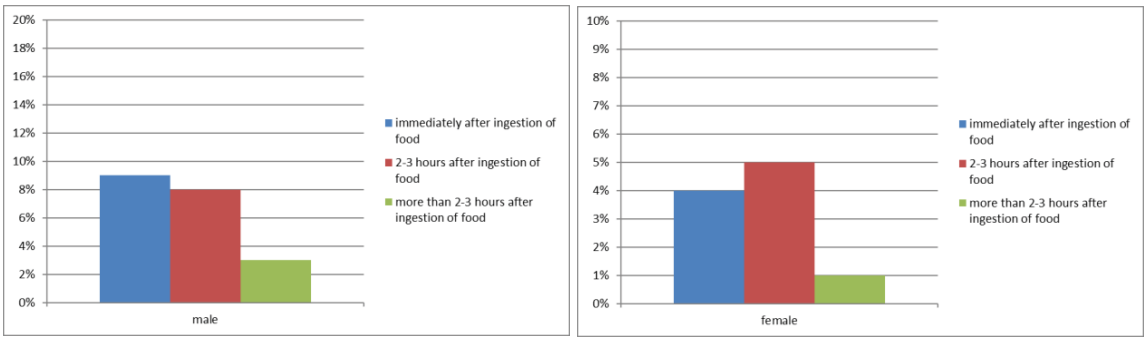


Figure 11. Classification by gender and the period of time after ingestion of food in which the symptoms appear at patience with total edentation

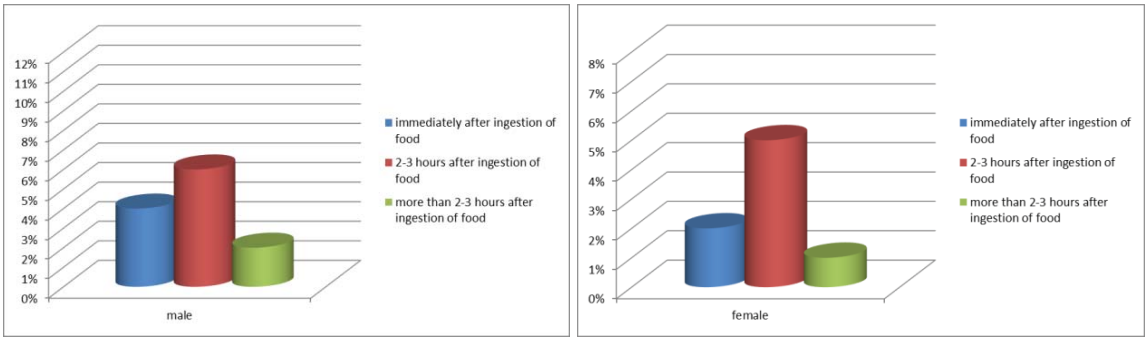


Figure 12. Classification by gender and the period of time after ingestion of food in which the symptoms appear at patience with frontal partial edentation

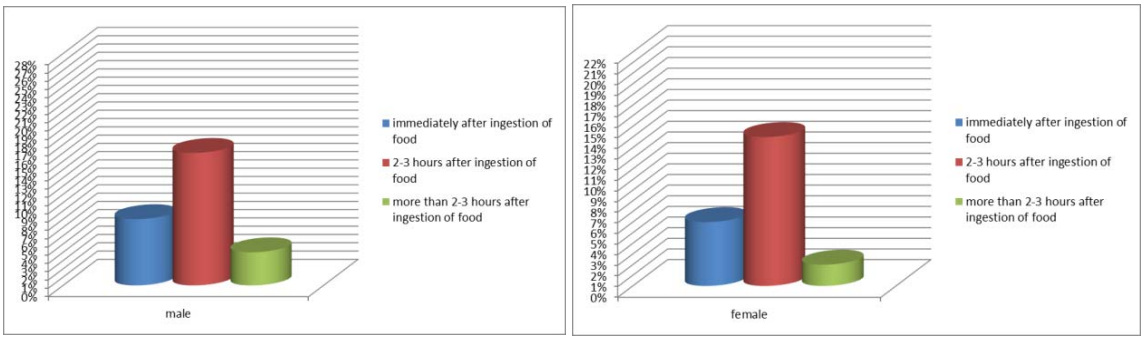


Figure 13. Classification by gender and the period of time after ingestion of food in which the symptoms appear at patience with lateral partial edentation

DISCUSSIONS

Overlooking the special needs of elderly individuals may lead to impaired chewing function, resulting in nutritional imbalances and increased burden on the digestive tract, causing more health disorders [2].

An adequate dentition is of importance for well-being and life quality. Despite advances in preventive dentistry, edentulism is still a major public health problem worldwide [3].

According to several studies, edentation can affect general health in several ways as indicated as follows: increased rates of chronic inflammatory changes of the gastric mucosa, upper gastrointestinal and pancreatic cancer, and higher rates of peptic or duodenal ulcers [3].

Mobile prosthesis wearers generally prefer a soft diet that does not require too much during mastication, so the result will be a nonprescriptive diet from a caloric and nutritional point of view, being the first step towards malnutrition and other illnesses of digestive system [4,5].

CONCLUSIONS

Therefore, following the anamnesis performed on the group of patients, we noticed that there is a correlation between totally or partially edentulous patients and the appearance of digestive tract diseases.

Contrary to the literature, where at these ages we should not encounter so many edentations at a patient, it can be seen from this clinical study: the lack of interest of the patient for the hygiene of his oral cavity; lack of periodic check-ups at the dentist.

Following the interpretation of the patients files, we noticed that they all present in different proportions, digestive symptoms specific to gastric ulcer.

As a result, we propose to study a group of patients with digestive symptoms specific to gastric ulcer in a gastroenterology department, to see if those patients have edentations in the oral cavity.

We also propose to study the cause-effect relationship between these dysfunctions and diseases of the lower segments of the digestive tract through laboratory investigations, immunohistochemistry, enzymatic dosing, pathogens (bacteria, Helicobacter pylori, etc.), trying to demonstrate this causal relationship.

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