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# Nutritional therapy of ulcer disease – case report by process of nutritional care

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**Abstract**

*Peptic ulcer disease is characterized by nonspecific symptoms that are often overlooked, which is why the disease is usually detected in an advanced stage. Although there are numerous causes, infection caused by Helicobacter pylori is considered the main factor in the development and progression of peptic ulcer disease. By eradicating the infection and providing adequate nutritional therapy, the symptoms of the disease can be reduced, and healing and recovery can be accelerated. The aim of this paper is to present the process of nutritional care for patients with ulcers treated at the Clinical Hospital Center "Zvezdara" in Belgrade. The nutritional assessment was conducted through a conversation with the patient, taking anthropometric measurements, and collecting other relevant data from medical records. Nutritional problems were identified, and nutritional interventions based on current guidelines for the nutritional therapy of ulcer disease were implemented. The success in resolving the identified nutritional problems is demonstrated through nutritional evaluation.*

**Key words:** *nutritional history; malnutrition; nutritional care process; professional nutritionist-dietitian; peptic ulcer disease.*

## INTRODUCTION

The incidence of chronic gastrointestinal diseases related to lifestyle and diet, such as dyspepsia, gastritis, gastroesophageal reflux disease, and peptic ulcer disease, is steadily increasing, especially in developed countries [1,2]. It is estimated that 50.8% of the population in developed countries, more often women, suffer from gastric problems. Chronic gastrointestinal diseases are characterized by nonspecific symptoms such as epigastric pain, bloating, digestive difficulties, and discomfort [3].

The main risk factors for the development of gastrointestinal tract diseases include: excessive body weight, an improper diet low in dietary fiber and high in saturated fatty acids and industrially processed food, fried food, lack of physical activity, exposure to stressors, alcohol and tobacco consumption and the use of nonsteroidal anti-inflammatory or steroid medications [4].

An ulcer is a localized lesion of the stomach lining (peptic ulcer) or the intestinal lining (duodenal ulcer) caused by the harmful effects of gastric juice or the juices of the upper small intestine. It most commonly occurs a few centimeters from the pylorus or along the lesser curvature of the antral part of the stomach [5]. The fundamental cause of ulcer disease is an imbalance between the rate of gastric juice secretion and the level of protection provided by the gastroduodenal mucosal barrier and the neutralization of gastric acid by duodenal juice [5].

The main cause of gastric ulcer disease is an infection by the bacterium *Helicobacter pylori*, which slowly penetrates the gastric mucosa, particularly the antrum and corpus, as well as the initial part of the duodenal mucosa, causing a series of inflammatory reactions and chronic damage to the mucosa. The bacterium releases enzymes (urease, lipase, and protease) that can dissolve the natural protective barrier of the mucosa. Urease, which breaks down urea into ammonia and carbon dioxide, causes a local increase in pH, protecting the bacterium from the harmful effects of gastric acid. On the other hand, lipase and protease break

down the stomach mucus, contributing to mucosal damage [6,7].

Infection with *Helicobacter pylori* affects 70-90% of the adult population in developing countries, while in developed countries, the incidence is lower, ranging from 25-50%. The presence of the bacterium increases the risk of developing duodenal ulcers and stomach cancer [8]. The likelihood of developing peptic ulcer disease is 10 times higher in infected individuals, with 80% of people with duodenal ulcers and 60% of those with gastric ulcers also having an infection caused by *Helicobacter pylori* [9]. Among other causes of peptic ulcer disease, chronic hyperacidity stands out, which can be triggered by bacterial or viral infections, psychological disorders, nonsteroidal and steroid medications, or chemotherapeutic agents [5].

The predominant symptom of peptic ulcer disease is pain localized in the epigastric region. In the case of a peptic ulcer, the pain increases when eating, as the volume of the meal stretches the wall of the damaged mucosa, and the food directly irritates the damaged mucosa. In the case of a duodenal ulcer, pain can be relieved by eating, as mixing gastric acid with food reduces its acidity and irritating effect on the intestinal mucosa. The course of the disease is chronic with periods of recurrence [9]. The most common possible complications of peptic ulcers are: bleeding, perforation, penetration, pyloric stenosis, and malignant alteration [10].

Treatment of peptic ulcer disease involves medication therapy along with correction of diet and other lifestyle habits. Therapy to eradicate Helicobacter pylori bacteria includes antibiotics, antacids, and proton pump inhibitors that reduce gastric acid secretion and provide an opportunity for the gastric mucosa to regenerate and heal. Antacids neutralize the acidic environment of the stomach and promote ulcer healing [10,11]. Medications to reduce gastric acid production are recommended in the acute phase of the disease, but over a longer period, they may interfere with the absorption of calcium, protein digestion, iron, vitamin B9, and B12 [12].

The most common therapy consists of a combination of two antibiotics – amoxicillin and clarithromycin in combination with proton pump inhibitors. Research shows that *Helicobacter pylori* is capable of developing resistance to antibiotics, leading to the need to replace conventional antibiotic therapy in certain cases. Essential oils have the ability to penetrate through the bacterial cell wall, destroying the membrane and enzymes secreted by the membrane, thereby preventing the development of resistance to these substances. Certain spices have been found to be effective in treating infection: savory (Satureja hortensis) and Greek oregano (*Origanum vulgare* subsp. *vulgare*, *Origanum vulgare* subsp. *hirtum)*, thyme (*Thymus vulgaris*) [8,13].

In addition to medication therapy, patients are advised to change their lifestyle habits and avoid foods that cause discomfort and irritation to the gastrointestinal tract because proper food choices greatly influence the course and prognosis of the disease [2,4]. The purpose of medical nutritional therapy (MNT) is to prevent hypersecretion of gastric juices to alleviate symptoms and promote the recovery of affected tissues, as well as to eliminate the causes of the disease. The optimal energy value of the ulcer diet should maintain or normalize individual nutritional status. The total daily energy intake should consist of 10-15% protein (1.2-1.5 g/kg body weight), 50-60% carbohydrates (without a higher concentration of disaccharides to avoid fermentation), and 25-30% fat [14,15].

Due to the inflammatory state caused by the infection, patients with peptic ulcer disease have increased protein and certain micronutrient needs [16,17]. In addition to basic macronutrient needs, there are expressed requirements for micronutrients such as zinc (40 mg), and selenium (400 μg), which are important antioxidants needed for tissue regeneration. The intake of probiotics can be beneficial in both the acute and chronic phases of the disease [18,19]. Common recommendations for peptic ulcer disease include avoiding spicy food, coffee, and alcohol [19,20]. Although milk was previously believed to have a beneficial effect, it has been found that milk's acid-neutralizing effect lasts very briefly due to its high calcium and protein content, so 2-3 hours after consumption, milk increases gastric acid secretion [19].

Infection with *Helicobacter pylori* can affect nutritional status and impair the absorption of vitamins and minerals making it desirable to increase intake of vitamin A (3000 μg) and C (500 mg), iron (45 mg), and vitamin B12 (2.4 μg) [14,15]. Epidemiological studies have identified certain dietary factors that may be associated with better recovery and prevention of peptic ulcer disease recurrence. A diet rich in soluble dietary fibers reduces the risk of duodenal ulcers by 45-60%. Soluble dietary fibers are found in oatmeal, bran, various types of legumes, barley, as well as some fruits (apples, oranges), vegetables (carrots), and seeds (flaxseed, psyllium, nuts) [15,21]. Increased intake of vitamin A through food (liver, broccoli, kale, spinach, sweet potatoes, green leafy vegetables) and supplements is associated with a 54% lower risk of peptic ulcer disease [6].

The use of omega-3 fatty acids is recommended due to their anti-inflammatory effects [21-24]. Chronic alcohol use is not advised as it promotes the development of Helicobacter pylori infection, and the ammonia produced by this bacterium contributes to the development of inflammatory processes [21-24]. Coffee, with or without caffeine, stimulates acid secretion and worsens symptoms [21]. Probiotics can be beneficial during therapy as they inhibit the growth of Helicobacter pylori [17,25]. The use of natural sources of probiotic cultures such as yogurt, kefir, kombucha, and sauerkraut is recommended [26]. The use of anti-

oxidants, especially vitamin C, in smaller doses over a longer period of time is a significant factor in eradicating Helicobacter pylori infection. It is recommended to take 500 to 2000 mg of vitamin C daily for a period of three months [17].

For optimal intake of vitamin C, it is recommended to consume berries and strawberries (blueberries, blackberries, currants) [23]. Another antioxidant advised is capsaicin, found in hot peppers and chili, but in some cases, it may exacerbate existing symptoms [15,24]. Regular consumption of green tea may have beneficial effects on infection treatment due to the catechin content, which has antioxidant and antibacterial properties [15]. Vitamin B12 deficiency occurs in 80-90% of patients with peptic ulcer disease due to long-term use of antacids and proton pump inhibitors, which disrupt the bioavailability of this vitamin. The recommendation is to consume 2.4 μg of vitamin B12 daily through animal-derived sources (milk, meat, and eggs) and supplementation if necessary [14,19].

The absorption of folate may be impaired due to chronic use of antacids, which make the pH environment of the jejunum alkaline. It is recommended to consume 400 μg of folic acid daily, which is found in legumes (lentils, chickpeas) and meat. The use of drugs that reduce gastric acid can interfere with protein digestion [15,21]. Iron absorption may also be impaired, leading to sideropenic anemia. Acute and chronic gastrointestinal bleeding from ulcer lesions leads to occult blood loss. The recommendation is to intake 45 μg of iron daily in the form of heme iron from meat. Consumption of fruits and vegetables rich in vitamin C enhances the absorption of non-heme iron [2,15,21]. Malnutrition is very common among individuals with peptic ulcer disease [19,20].

Upon admission for hospital treatment, it is estimated that one-third of patients with peptic ulcer disease have malnutrition. If this issue is overlooked, on average, two-thirds of these patients experience a worsening of their nutritional status during hospitalization. Although various means of assessing nutritional status are available, malnutrition is often overlooked or neglected [16,17]. Malnutrition is associated with adverse disease outcomes, including delayed wound healing, decreased resistance to infections, loss of muscle mass, and prolonged hospital stays.

In the treatment of peptic ulcer disease, changes in dietary habits are necessary. Discipline is advised not only in the consumption of recommended foods (**Table 1**) but also in the regularity of meals. Meals should be smaller in quantity and consumed at the same time each day. Rapid intake of larger amounts of food can damage the gastric mucosa. Food that reaches the stomach without sufficient mechanical processing leads to increased secretion of gastric acid and longer retention in the stomach [26].

Reduction of excess body weight is desirable [12]. Proper cooking methods are also significant in the dietary regimen. Cooking methods such as boiling, steaming, and stewing with reduced amounts of oil and added water are recommended. To achieve results in terms of alleviating or eliminating symptoms, complete avoidance of deep-fried foods, overcooked foods, and strong spices is advised [12,26].

**Table 1.** Recommended food intake for ulcer disease [14,15,21,26].

| | | **Food groups** |
|---|---|---|
|  | Foods that should be avoided | *Vegetables*: chili, black pepper,<br>*Fruit:* lemon<br>*Meat:* processed meat products, seasoned meat<br>*Oils:* fried food<br>*Sweets and drinks*: concentrated sugar, chocolate, coffee, black tea, carbonated drinks |
|  | Moderately used food | *Legumes:* beans<br>*Vegetables*: broccoli, cauliflower, cabbage, cucumber, onion<br>*Fruit:* tropical fruit eg. orange, pineapple, citrus juices<br>*Dairy products:* fatty cheeses (Gorgonzola, Trappist, Mascarpone)<br>*Meat:* fatty meat, sausages (mayonnaise, ketchup, strong spices) |
|  | Recommended foods | *Legumes:* lentils, chickpeas, soybeans;<br>*Vegetables*: leafy green vegetables, carrots, beets, green beans, spinach, zucchini, leeks<br>*Fruit:* apple, banana, watermelon<br>*Dairy products:* milk, yogurt, sour milk, low-fat cheeses<br>*Meat:* chicken, fish, beef<br>*Oils:* cold-pressed vegetable oils (e.g. olive) |

The meal plan should be adjusted to the individual. In the initial phases, the goal is to contribute to recovery, while later focusing on preventing exacerbation and recurrence of the disease [25,27,28]. Nutritional interventions and strategies falling within the scope of practice of dietitians in hospital settings include:

1. Development of a meal plan – providing appropriate nutrition during and after hospitalization according to individual patient needs to ensure adequate nutrient intake;

2. Education on dietary specifics in peptic ulcer disease – dietitians should educate patients on the spe-

cific dietary requirements for those with peptic ulcer disease, including foods to consume or avoid during different stages of the disease;

3. Nutritional counseling – dietitians should inform patients about specific strategies to alleviate symptoms and prevent recurrence through proper dietary choices, meal preparation, and eating habits.

4. Coordination of nutritional care – actively engaging in the treatment process and educating family members about dietary specifics to provide support to patients [27,28].

The aim of this paper is to assess nutritional problems and potential interventions within the framework of nutritional care through a case presentation of a patient suffering from peptic ulcer disease.

## METHODOLOGY

The paper presents the process of nutritional care for patients with peptic ulcer disease from the Clinical Hospital Center "Zvezdara" in Belgrade. Data were collected through interviews with patients during July 2022 and by reviewing medical records after obtaining verbal informed consent from the participants and approval for data usage from the institution.

The process of nutritional care is a systematic approach to addressing nutritional problems devised by the American Dietetic Association (ADA). The process of nutritional care consists of four phases: nutritional assessment, nutritional diagnosis, nutritional intervention, and nutritional evaluation [29].

Nutritional assessment involves gathering all relevant data necessary for identifying and addressing nutritional problems. Within the nutritional assessment, the following data were collected:

a) Anthropometric measurements and indicators – height (HT), body weight (BW), body mass index (BMI), ideal body weight (IBW);

b) Biochemical parameters – complete blood count, coagulation factors, inflammation markers;

c) Clinical data – clinical data on admission collected as part of medical history, other medical conditions and their treatment methods, disease course with a special focus on appetite, gastrointestinal symptoms, and bowel movements;

d) Dietary data – dietary habits (meal frequency, portion size, eating speed, dining location, meal preparation methods, frequency of consumption of certain foods, awareness of proper nutrition, and dietary specifics in peptic ulcer disease).

Following the nutritional assessment, conclusions were drawn regarding the presence of specific nutritional problems, or nutritional diagnoses were established. For each nutritional diagnosis, goals were defined, and nutritional interventions were planned. Nutritional interventions involve counseling with the patient and family members based on current knowledge and recommendations of best practices for the diet of patients with gastric ulcer disease [29]. After the implementation of nutritional interventions, an evaluation was conducted to assess the achievement of goals and resolution of nutritional diagnoses.

## NUTRITIONAL CARE PROCESS OF PATIENTS WITH ULCERS

### General information

Patient Č.K. is a 67-year-old retiree from Belgrade who worked as a truck driver. He arrived at the emergency department of the Clinical Hospital Center (KBC) "Zvezdara" in Belgrade on the evening of June 27, 2022. He was hospitalized due to gastric bleeding.

### Clinical data

Upon admission, the patient complained of severe pain in the epigastric region, which occurred after 12 days of absence of bowel movements. Initially, the stools were hard and black like tar, then became loose, dark, and discolored. The patient denied nausea, vomiting, bloating, and heartburn. Among other symptoms and signs of the disease, the patient mentioned weakness and a loss of approximately 20 kg of body weight in one month. Objectively, the patient appeared slow and weak. Earlier in June of the same year, the patient was hospitalized at the Institute for Orthopedics in Belgrade due to a fracture of the neck of the femur resulting from a traffic accident.

Due to the development of abdominal pain and changes in the patient's blood count at the beginning of June, an esophagogastroduodenoscopy was performed, revealing the presence of gastroesophageal reflux disease and gastric ulcers measuring approximately 6-7 mm in diameter.

The patient reported a positive family history of peptic ulcer disease. He underwent colonoscopy on several occasions but was unsure if he had colon polyps. Over the past five years, he has experienced a burning sensation during urination, and occasional lower back pain due to calculi in both kidneys. Additionally, the patient suffers from gallstones (10 mm), hypertension, and type 2 diabetes for which he regularly takes medication (Monopril 20 mg, Diaprel 60 mg, Gluformin 1000 mg, Tenox 5 mg).

### Biochemical parameters

In the laboratory analyses, there is evidence of anemia along with elevated markers of inflammation (red blood cells $3.03\times10^{12}$/l, hemoglobin 8.4 g/dl, platelets 473×109/l, prothrombin time (INR) 1.1, C-reactive protein: 62.2 mg/dl).

### Anthropometric indicators

Based on the anthropometric measurements, the patient, with a body weight of 117 kg and a height of 188 cm, has a Body Mass Index (BMI) of 33.14 kg/m$^2$, indicating first-degree obesity. The ideal body weight for the patient would be 78.5 kg, but due to age and a larger skeletal frame, an ideal body weight with a tolerance of +10% is acceptable, which would be up to 86 kg. The patient's basal metabolic rate requires 2070 kcal, and the daily energy needs are around 3000 kcal, but for weight correction purposes, it is reduced to 2500-2600 kcal.

### Nutritional habits before hospitalization

Before hospitalization, the patient had substantial meals, at least three times a day, with the main meal before noon, typically between 10 and 11 a.m. The patient stated that he enjoys eating but eats quickly. The most frequently consumed foods included pasta, lean meats, spicy dishes, and deli meats. He denied alcohol consumption and snacking between meals but mentioned frequently drinking carbonated beverages.

The patient smoked for 40 years, consuming up to five packs of cigarettes daily during his working years. He quit smoking five years ago. He reported no food allergies or intolerances. He drinks coffee once a day. The patient mentioned that he had not been following a specific nutritional regimen prescribed by a nutritionist despite being diagnosed with type 2 diabetes mellitus. He expressed partial interest in learning about the type of diet that would suit his current condition. The most significant steps of the nutritional care process are outlined in **Table 2**.

**Table 2.** Process of nutritional care of a patient with an ulcer disease.

| Nutritional diagnosis | Nutritional goals | Nutritional intervention | Evaluation |
|---|---|---|---|
| – Disturbance of the digestive function related to the ulcer, which is manifested by a clinically significant loss of body weight in the past month.<br>– Obesity related to inadequate eating habits and lack of physical activity, which is manifested by a body mass index of 33 kg/m2. | – The patient will adopt a diet plan in accordance with the needs for energy, nutrients, and regulatory substances. | – Creating a menu in accordance with energy needs, in order to achieve ideal body mass.<br>– Conversation with the patient in order to motivate him to change his diet and include dosed physical activity in his daily life after hospitalization.<br>– Regular monitoring of body mass. | – The patient accepted the recommended corrected energy intake of 2600 kcal.<br>– During hospitalization in the acute phase of the disease, there was an additional decrease in body weight by 2 kg. |
| – Deficit knowledge about the hygienic and dietary regimen due to ignorance of the underlying disease, which is manifested by excessive intake of spicy food and simple sugars. | – During the stay in the hospital, the patient will be informed about the importance of a hygienic and dietary regimen.<br>– The patient will be able to list which foods he can and should use in his daily diet.<br>– Family members will be informed about nutritional recommendations for anemia, ulcer disease, and other comorbidities. | – Patient education about the importance of diet therapy and lifestyle changes in order to alleviate symptoms and prevent complications of ulcer disease.<br>– Education of family members on proper nutrition through conversations and informative brochures on recommended nutrition. | – During the stay in the hospital, the patient was informed by a professional nutritionist-dietitian about the disease and the importance of a hygienic-dietary regime in treatment.<br>– The patient knows how to list the foods he should use in his daily diet.<br>– The patient is aware of the harmful effects of excessive intake of simple sugars and spicy and salted foods.<br>– Family members are included to be supportive in changing lifestyle and diet. |

| | | | |
|---|---|---|---|
| – Negative health behavior related to eating habits, which is manifested by non-adherence to diet therapy for ulcer disease, diabetes, hypertension, gall bladder, and kidney calculus.<br>– Unbalanced diet related to excessive intake of simple sugars and salt, which is manifested by elevated blood sugar levels, elevated blood pressure, and obesity. | – The patient will understand the basics of the disease and the need to change the diet in order to prevent the worsening of ulcer disease, diabetes mellitus, high blood pressure, gall bladder, and kidney calculus. | – Patient education about the importance of avoiding foods that increase the secretion of stomach acid, as well as simple sugars and salted foods.<br>– Creation of a diet plan aligned with the specifics of the disease in agreement with the patient.<br>– Correction of established nutritional deficits and surpluses through a specific diet (balanced meals in terms of energy and composition of macro and micronutrients, smaller and more frequent meals, slower food intake, longer chewing).<br>-Monitoring changes in eating habits using a survey of the frequency and amount of food intake. | – The patient partially verbalized the permitted and prohibited foods in his diet, but he still showed insecurity and unwillingness to permanently change his lifestyle.<br>– The patient is aware of the harmful effects of excessive intake of simple sugars, spicy and salted foods.<br>– Control of blood sugar and blood pressure was established.<br>– During the hospitalization, the patient accepted the diet plan, which was determined by the nutrition survey that was conducted at the end of the hospitalization. |
| – Decreased appetite related to pain in the epigastrium. | – The patient will receive advice regarding the foods he should avoid in order to worsen the pain, that is, the foods he should eat in order to alleviate the pain. | – Education about foods and diet in order to prevent pain caused by ulcers. | – The patient knows which foods to avoid and which to eat in order to prevent the pain caused by the ulcer.<br>– The pain in the epigastrium area decreased at the end of hospitalization. |
| – Inadequate coping with the disease in connection with the lack of readiness to change the lifestyle and dietary regime, which is manifested by uncertainty and partial acceptance of advice. | – The patient will show greater willingness, commitment, motivation, and interest in treatment and adherence to diet therapy. | – Emotional support and encouragement of the patient.<br>– Conversation and educational activities are planned after improving the general condition, strength, and emotional energy of the patient.<br>– In order to reduce fear and insecurity, a conversation was held with the patient regarding the positive experiences of the treatment of the disease. | – The patient showed greater commitment and emotional stability upon discharge.<br>– The patient partially verbalized the permitted and prohibited foods in his diet, but he still showed insecurity and unwillingness to permanently change his lifestyle. |
| – High risk for bleeding related to the underlying disease.<br>– High risk of fluid balance disturbance due to bleeding. | – Anemia will not worsen, and blood parameters will improve.<br>– There will be no development of complications – re-bleeding and disruption of fluid balance. | – Creation of a nutrition plan in accordance with the acute condition.<br>-Education of the patient on the importance of following the diet plan and other advice related to nutrition in order to prevent the worsening of the disease. | – There was no re-bleeding or fluid balance disturbance during hospitalization.<br>– The patient knows how to list the signs and symptoms of worsening of the disease (bleeding ulcer).<br>– The patient acquired knowledge about the specifics of nutrition in order to prevent the worsening of the disease. |

## CONCLUSION

Adequate nutritional therapy, which involves meeting nutritional needs, reducing the intake of irritant foods, and changing dietary habits, can significantly contribute to controlling peptic ulcer disease. The nutritional problems of patients with ulcers were related to digestive dysfunction associated with the acute condition caused by the underlying disease, as well as inadequate dietary habits. Although the acute condition led to sudden weight loss, anthropometric indicators confirm that the long-term energy intake is in surplus.

Before implementing the nutritional care process, the dietary habits were not aligned with any of the patient's conditions. Nutritional interventions were based on creating meal plans tailored to the patient's specific needs, educating the patient about the dietary peculiarities of peptic ulcer disease, type 2 diabetes mellitus, hypertension, and cholelithiasis, and engaging in discussions to motivate the patient to change their dietary habits.

Nutritional interventions also involved counseling sessions with family members to achieve long-term effects on the patient's dietary changes. The goals were partially achieved. The patient acquired the necessary knowledge but showed partial readiness to implement it after discharge. The nutritional care process for the patient with peptic ulcer disease demonstrated a comprehensive approach to identifying and addressing nutritional problems during hospitalization. However, continuous nutritional monitoring of the patient after discharge is necessary to assess the achievement of long-term goals.

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# Nutritivna terapija ulkusne bolesti – prikaz slučaja po procesu nutritivne zaštite

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**Kratak sadržaj**

*Ulkusna bolest karakteriše se nespecifičnim simptomima koji se često zanemare zbog čega se bolest najčešće otkrije u odmaklom stadijumu. Iako postoje mnogobrojni uzroci, infekcija izazvana Helicobacter pylori se smatra glavnim uzročnikom nastanka i razvoja ulkusne bolesti. Eradikacijom infekcije i adekvatnom nutritivnom terapijom, simptomi bolesti se mogu umanjiti, ubrzati izlečenje i oporavak. Cilj rada je prikaz procesa nutritivne zaštite bolesnika sa ulkusom lečenim u Kliničko-bolničkom centru „Zvezdara" u Beogradu. Nutritivna procena izvršena je kroz razgovor sa pacijentom, uzimanje antropometrijskih mera i drugih relevantnih podataka iz medicinske dokumentacije. Utvrđeni su nutritivni problemi i sprovedene nutritivne intervencije zasnovane na aktuelnim smernicama za nutritivnu terapiju ulkusne bolesti. Uspešnost u rešavanju utvrđenih nutritivnih problema prikazana je kroz nutritivnu evaluaciju.*

**Ključne reči:** *nutritivna anamneza; malnutricija; proces nutritvne zaštite; strukovni nutricionista-dijetetičar; ulkusna bolest.*