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## THE PROBLEM OF ANOREXIA NERVOSA DIAGNOSIS: A CASE STUDY

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### SUMMARY

#### Background:

Studies point out to the fact that 62% of people with eating disorders, before they turn up at a psychiatrist's, are treated by a gastroenterologist or general practitioner, 46% of them take drugs improving the peristalsis of the digestive tract and 38% undergo profound gastroenterological diagnostics. In 50-80% of patients suffering from anorexia nervosa (AN) disturbances of the digestive tract occur. Mortality in AN is up to 18% in the group of female patients aged 20 -30. Somatic complications and suicides are the main reason of deaths in those suffering from AN. Anorexia is a disease which is difficult in therapy due to the frequent lack of cooperation and true motivation to recover, rejection of obvious contents concerning the disease, manipulating family and therapists as well as using the help of various specialists.

#### Case study:

In our work we are presenting the process of accurate diagnosing, on the basis of the case study of a 28-year-old woman, who before she ended up at a psychiatrist's, had been treated gastrologically and surgically because of AN complications for many years. The psychiatric examination confirmed the existence of AN for 13 years. Gastrologists requested the patient to perform newer and newer, more detailed and invasive tests. The patient was advised to be on a diet and pharmacotherapy was introduced. All those activities had confirmed her in belief that her disorders were of a somatic nature, which considerably delayed the introduction of an appropriate treatment.

#### Conclusions:

All doctors should be equipped with basic knowledge on, and the ability to recognize, eating disorders. Every patient and young women in particular, with low body weight complaining about digestive ailments should raise a GP's and gastroenterologist's vigilance and suspicion of AN. Each clinician should bear in mind that symptoms such as body weight loss, refusal to take meals, pain ailments and vomiting may occur in a number of disorders of both a somatic nature (for instance, Crohn's disease, hyperthyroidism, Addison's disease, diabetes) and a psychic (anorexia nervosa, depression, schizophrenia). Each patient, and young women in particular, with low body mass and the digestive tract disturbances should raise the vigilance and suspicion amongst general practitioners, internists or gastroenterologists as to the existence of AN.

**Key words:** diagnosis, digestive tract disturbances, anorexia nervosa

## INTRODUCTION

In 1873, Gull and Lescgue were the first to give an account of anorexia. Russel (1970) is the founder of the first diagnostic criteria of AN. [1] In 1993 Garner distinguished the two types of anorexia nervosa: restrictive and bulimic ones, which were accepted by the classification of psychic disorders by the American Psychiatric Society (DSM-IV) [2]. In 1992 the World Health Organization (WHO) determined the diagnostic criteria of anorexia nervosa (AN).

The criteria of AN diagnosing (ICD-10) include:

- A. Body weight loss (in children: lack of weight growth) leading to the obtaining of a body weight at least 15% below the normal or expected weight at a specific age and height (Body Mass Index (IBM) below 17.5 kg/m<sup>2</sup>);
- B. Activities aimed at a reduction of body weight which are self-imposed through avoiding "fattening foods", self-administered vomiting, laxation, exhausting physical exercise and taking drugs (laxatives, anorexigenics or diuretics);
- C. Self-assessment of being an obese person, fear of putting on weight which leads to the imposition of a low threshold of body weight, the fear of obesity takes the form of obsessive-compulsive over-valued ideas;
- D. Endocrine disorders causing menstruation atrophy in women (exception-bleeding resulting from substituted hormone treatment in women using contraception pills), in men the loss of sexual involvement and potency; increase in the level of growth hormone and cortisol, disturbances of thyroid hormones metabolism and insulin secretion;
- E. Disorder of not meeting criteria A and B of bulimia nervosa. In the case of children, the additional criterion of AN diagnosis is the delay or stopping of phenomena connected with puberty: lack of growth, in girls – lack of breast development and primary lack of menstruation, in boys – stopped development of reproductive organs (they remain at the child state) [3]. In the currently prepared ICD-11, which is to be effective from 2015, the recommended change concerning eating disorders is the account of bulimia, in which they point to sitophobia being a frequent symptom preceding the disorders [4].

Distribution of AN in girls aged 11-15 equals 0.1% and 1% at the age of 16-18. In boys, the frequency of anorexia is 10 times lower than in girls. The starting point of anorexia usually falls on the period of adolescence, hardly ever before puberty.

The disease may take the form of one episode with recurrences or may be a chronic disorder. The review of the test results published in medical bases for the years 1966-2010 (Medline/PubMed, PsycINFO, Embase, ScienceDirect, Ingenta Select, Ovidiusz, Wiley-BlackwellInterscience) has confirmed the highest index of mortality among patients with AN. Mortality in relation to the duration of observation and the clinical characteristics of the observed groups equals from 0 to 18% in the group of female patients aged 20-30 [13,5]. The main reason for AN patient deaths are somatic complications and suicides [19]. General destruction of the organism, diselectrolitemia and dehydration are the reasons for the

somatic complications caused by making self induced vomiting and overdosing on laxatives and diuretics [6].

Initially, persons suffering from AN hide the fact that they have reduced food consumption. A reduction in the body mass is usually accompanied by temporary mood improvement, the impression of being more psychically and physically effective, in numerous cases one may also observe excessive activity. Gradually, the concentration on avoiding eating grows and a patient develops patterns of behavior aimed at a limitation in the number of meals taken. Those patterns of behavior become rigid and are not prone to changes. The perception and sensing of the body shape and size is the key to patient criticism while others view this in an opposite way. The fear of eating and gaining weight becomes stronger. In the course of AN development, other disorders also appear such as anxiety, depression, impairment of cognitive functions (attention, memory, concentration), disturbance of the satiety and hunger center (as a result of primary or post-chronic malnutrition, secondarily intensified neurotransmission within the central nervous system), organic damage of the central nervous system (hypothalamic - pituitary insufficiency); tissue atrophy and other somatic symptoms.

The tests conducted show that 62% of those with eating disorders follow the regular path of consulting a general practitioner or a gastroenterologist before they contact a psychiatrist, 46% take drugs improving the peristalsis of the digestive tract and 38% undergo a profound gastroenterological diagnostics [25].

The subject literature is lacking in data on the number of digestive tract operations performed as a result of AN complications before the diagnosis of the psychical disorder.

More and more data point to the growing significance of pro-anorexia. Pro-ana virtual reality unites people employing a restrictive diet, treating it as the lifestyle. Rejection of the disorder's existence is pathognomonic for the psychopathology of AP [1]. The moment slimming transforms into disease is difficult to establish [27]. The majority of pro-ana members reach Quetelet's index (BMI) below the correct weight and almost half of them meet the weight criterion for anorexia [17]. The pro-ana community constitutes a safe haven for those suffering from AP who do not submit themselves to any treatment [28]. In our study we present the process of AN diagnosis based on the case of a twenty-eight-year old woman who before she consulted a psychiatrist had been gastrologically treated for a thirteen-year period of eating disorders.

The patient was hospitalized for the first time at the surgical ward in May 2005 when she was 21. Laboratory tests revealed anaemia though ECG and X-ray of the chest were without any significant deviations from the norm. Because of pylorostenosis the patient underwent stomach resection performed in the Rydygier way. In April 2009, due to the sustaining of digestive system ailments, colonoscopy was carried out. The presence of a five-millimeter polyp was revealed. The second hospitalization at the gastroenterological ward in March 2010 was caused by chronic constipation. BMI – 14.2. FHR 46 minute. The USG of the abdominal cavity and gastrointestinal passage excluded the presence of organic

changes within the small intestine, pointing to lazy peristalsis. The patient was diagnosed with the following: chronic constipations, *Ascarislumbricoides* infection, the condition after partial stomach resection because of major dyspepsia and Gilbert's syndrome in history.

In May 2010, the patient in generally a good state again ended up at the Lublin Medical University Hospital, this time she was admitted to the gastroenterology and hepatology clinic. The woman complained about generalized pain ailments of the abdominal cavity, mainly after meals and intensified constipations (stool every 4-5 days, exclusively after taking laxatives). In the physical examination: underweight (BMI – 13), bradycardia (58/minute) and arterial blood pressure – 90/60mm Hg. The following laboratory tests were performed: blood cell count with smear; [ESR; CRP; urine analysis, assessment of liver and kidneys functioning; fat metabolism; concentration of amylase and iron, UIBC, TIBC; the level of glucose, B12 vitamin, folic acid and electrolytes; coagulation system; thyroid hormones (TSH, FT3 and FT4) and gonadotrophic hormones (FSH, LH, luteotropin); examination of feces to identify parasites' eggs and lambliae; Rheumatoid Factor], of which the following revealed abnormal values: total bilirubin and total cholesterol (slightly increased levels), folic acid (low level) and positive titre of ANA antinuclear antibodies. ECG record within the norm. Chest X-ray and ultrasonography of the abdominal cavity were correct. In gastroscopy: features of the oesophagitis and gastroenteritis. Non-specific motor disorders of the oesophagus body and cardia insufficiency were observed. In the ph-metric and the Billitec examination – features of bile reflux. The esophagography result remains within the norm with the exception of the presence of duodenal diverticulum. Diagnosis of the digestive system showed function disorders resulting from the surgical operation performed on the patient. The patient was again admitted to the gastroenterology and hepatology clinic in October 2010 as a result of agonizing neusea, pain in the epigastric region, the feeling of post-meal fullness and constipations. The woman was in a generally good condition at the moment of admission, BMI 12. Laboratory tests performed (blood cell count, ESR, coagulation system, total bilirubin, ALAT, ASPAT, alkaline phosphatase, GGTP, total protein, urea, creatinine, EFGR, sodium, potassium, glucose, fat metabolism, amylase, CRP, iron, B12 vitamin, folic acid, urine analysis) did not show any deviations from the norm. In ECG bradycardia. FHR – 44/min. The ultrasonographic image of the parenchymal organs of the abdominal cavity was correct. Gastroscopy revealed features of oesophagitis (A according to LA) and chronic gastroenteritis resulting from the bile reflux (this was also confirmed by a Billitec examination) as well as non-specific disorders of the theoesophagus body. Enterography without derivations from the norm with the exception of a slowing of the small intestine peristalsis, a widening of the descending coil of the duodenum and the initial sector of the large intestine. Electrography confirmed the presence of tachygastric and arrhythmia and anorectal manometry – disorders of the visceral sense of a considerable degree at the sustained anal reflex and disorders of dyssynergia of the bottom of the pelvis type 1 connected with a paradoxical

sphincter spasm of the anismus type. The examinations revealed improvement in the motor activity of the oesophagus and an intensification of the bile reflux symptoms. The fifth hospitalization took place at the gastrology and infectious diseases ward in May 2011, where the patient was admitted due to prolonged pain in the stomach, a weakening of appetite and constipations. In the blood tests carried out (blood cell count, urine analysis, amylase, lipase, GGTP, ALP, TBIL, GLU, UREA, CREA, albumins, total protein, Fe, TSH, electrolytes: Na and K, C, coagulation system) an increased concentration of transaminases: ALAT – 92 u and AST – 49u, was observed. Gastroscopy revealed the presence of a hiatal hernia and inflammatory changes of the stomach with extravasations. The documentation lacks the result of the tomography of the abdominal cavity performed. Apart from diagnosis of the somatic disorders, the patient was for the first time suspected of psychic anorexia. On discharge a check-up at the psychiatric outpatient clinic was advised; however, the woman did not consult a psychiatrist. In January 2012 the patient was again admitted to the gastrological ward, this time because of: skeletization, a total lack of appetite, pain ailments of the middle epigastrium and constipations. The battery of biochemical tests (blood cell count, urine analysis, AST, ALAT, amylase, lipase, GGTP, total protein, total bilirubin, iron, urea, creatinine, albumins, TSH, Na, K, Cl, coagulation system) was extended by the assignment of markers: neoplastic (CEA, CA), (HBs antigen and anti HCV) and autoimmunological antibodies (ANA, AMA, SMA, LKM). The chest X-ray and gastroscopy were repeated – without any significant deviations from the norm. The patient was also examined by a psychiatrist. For the first time, among numerous diagnoses resulting from a many-year period of self-starvation, a diagnosis of psychic anorexia occurred. The seventh hospitalization took place in February 2012 at the internal diseases ward with the sub-ward of intensive therapy where the patient was admitted due to considerable asthenia, very low values of arterial blood pressure, post-meal pains of the epigastrium and constipations. The patient's clinical state required a erythrocytes and albumins concentrate transfusion. The patient was diagnosed as suffering from: psychic anorexia, secondary anemia, hypoproteinemia, liver damage and erythrocyturia. Gynecological consultation revealed uterus hypoplasia. The patient was transported to a psychiatric hospital. Hospitalization at the psychiatric clinic lasted 3 months. The woman did not agree to her stay at the psychiatric hospital but stayed there due to the direct threat to her life and her low BMI value – 10.8. Having reached the BMI level of 13.7, the patient decided on discharge against her doctors' advice. During hospitalization, the woman did not obtain insight into the disease and denied the presence of AN. The psychiatric examination revealed the presence of eating disorders lasting since the age of 15. The patient followed a restrictive diet. For many years she had not consumed bread, her meals were mainly liquids (dairy products), followed intensive physical workout, she periodically provoked vomiting. She had been menstruating irregularly since the age of 12 and her last menstruation was in December 2011. In the psychological examination the patient presented herself as a resourceful person, effec-

tive in her activities, having control over her life. Low results in negative self-esteem corresponded with the satisfaction from sustaining low body weight. The patient evaluated herself positively, viewed herself as a strong person with a high level of self-control. The examination revealed that her interpersonal relations were shallow, non-satisfying, she keeps people at a distance, thinks that others may cause her more harm than help. The patient was characterized by: a lack of ability for the mature expression of emotions, dominance of fear connected with the realization of tasks connected with adult life, in stressful situations reacting with escape, the avoiding of solutions to difficult situations. The psychological examination results obtained are evidence of the patient's lack of insight into the disease as well as showing her tendency towards dissimulation and manipulation.

The most frequently reported symptoms of the digestive system dysfunction in patients suffering from AN are: the feeling of fullness, meteorisms, post-meal pains of the epigastrium and recurring constipations. Digestive system disturbances occur in 50-80% of AN patients [7]. These mainly involve: prolonged stomach and duodenum emptying (mainly solids), slow-down of the passage through the small and large intestine, the ceasing of the stomach-anal reflex [8], acute liver insufficiency [9], proctoptosia [10]. In people with hard form of AN (BMI 10) an increased level of aminotransferases can be observed, which normalize during re-alimentation and along with an increase in body weight [11]. In about 50% of skeletized patients the increased concentration of amylase in the blood serum can be observed. This usually results from provoking vomiting similarly to painless swelling of the parotid glands, [12] caries and enamel loss [13]. In people overdosing on laxatives irritable bowel syndrome may develop. Stomach emptying is assessed in the categories of Half Emptying Time (HET). In psychic anorexia a slowing of HET (below 100 minutes) and its negative correlation with BMI [14] can be observed. This means that together with the progressive damage to the organism, the functions of the digestive system are worsening. Manometric assessment of stomach and duodenum motor function in non-treated patients points to a weaker peristalsis of the stomach cardia (low amplitude spasms) and that of the duodenum (with prolonged, non-propulsive tonic spasms of high amplitude). The above mentioned disturbances result from the dysfunction of the intrinsic enteric nervous system (ENS) and balance disturbances in the autonomic nervous system in favor of the sympathetic nervous system [15]. In a part of the patients during the period of re-alimentation, gastroenterological disorders may also appear. Some of them require immediate surgical intervention. These complications involve: oesophagitis with erosion, ulcers, oesophagus rupture caused by vomiting (Boerhaave syndrome) with the possible development of pyothorax, stomach ulceration complicated by mediastinal emphysema; duodenomegasia, pancreas inflammation (a result of too rapid re-alimentation or so-called refeeding pancreatitis brought about by food stasis in the duodenum and reverse bile reflux frequently complicated by paralytic ileus, symptoms of small and large intestinal occlusion sub-ileus and ileus; en-

terocolitisnecroticans, non-specific inflammatory states of the large intestine [16,17]. The most frequently described AN surgical complication occurring in 1% of patients is superior mesenteric artery syndrome (SMAS, Wilkie's syndrome, cast syndrome) involving pressure on the horizontal part of the duodenum caused by intestine mesentery [17]. The direct cause of SMAS is the rapid decrease of the adiposus layer in the area of the intestine mesentery and the retroperitoneal space. As a result of this, the remaining one-third of the duodenum at the level of the L3 vertebra is pressed between the descending artery and the upper mesenteric aorta. SMAS occurs in skeletized patients immobilized in bed for a prolonged period, in whom the loss of body weight reaching 35-50% in relation to the starting mass took place over a short period of time [17,18,19]. Another gastrological complication in patients suffering from AP described in the subject literature is acute gastrectasia resulting from the intake of large amounts of food [20,21,22]. In 65% of AN skeletized patients, gangrene and stomach perforation constitute a threat to life, thus requiring instant resection. A life threatening state is also connected with the occurrence of bulimic attacks (resulting from impaired stomach emptying) or treatment in the first weeks of hospitalization (because of compulsory realimentation) [23]. That is why re alimentation from the supply of 1000-1600 kcal/twenty-four hours and the gradual increase of the caloric supply by 70-100 kcal/kg/24h is recommended [24]. At the initial stage of treatment, and the increased oral supply, AN patient provoked vomiting, is a risk factor in the development of surgical complications. Acute gastrectasia appears after the intake of an exceptionally large amount of food. Incidentally, the stomach reaches the small pelvis and can be palpated in a per rectum examination. Appropriate treatment causes normalization of the stomach size within the period of 2-4 weeks, which guarantees that a patient obtains 80% of the due body weight.

In the clinical account of our patient, digestive system disturbances and emaciation prevailed. She had been gastrologically and surgically treated as a result of AN complications for 7 years. Relying on the results of functioning and radiological examinations, disorders of the digestive system nerving with disturbances of the visceral sense causing incorrect motor function in the range of the pipe organs of the digestive system not connected with auto-immunologically based diseases were viewed as the reason for the ailments described by the patient. Treatment by internists and the conducting of newer and more detailed and at the same time more expensive and invasive diagnostic examinations (laboratory, imaging and functional), dietary recommendation (ulcer, liver) and pharmacotherapy through drugs improving the peristalsis of the digestive tract made the patient convinced that she did not suffer from psychical disorder. Anorexia nervosa is a therapeutically difficult disease unit for the following factors: frequent lack of cooperation and true motivation to recover on the side of patients, rejection of obvious contents concerning disease, manipulation of family and therapists. It is assumed that a BMI <13.5 is the state of direct threat of life loss and anyone in this state shall be immediately submitted for treatment, firstly, at a general ward and next, after an improvement in life parameters and reaching an appro-

prate BMI at a psychiatric hospital. In spite of the fact that according to the exact diagnostic criteria a person diagnosed with AN is not mentally ill, in many countries this approach has been accepted, which allows one to save at least a part of the patients. In order to stop this mortal AN harvest the necessary steps to be taken are: accurate and early diagnosis, instant initiation of appropriate therapy (psychotherapy) and appropriate legal regulations enabling the treatment of AN patients against their will.

Every clinician should remember that syndromes such as: body weight loss, refusal to take meals, pain ailments and vomiting are present in a number of disorders, both somatic (Crohn's disease, hyperthyroidism, Addison's disease, diabetes) and psychiatric ones (psychic anorexia, depression, schizophrenia). Before the diagnosis of psychiatric disorder is set, the presence of organic changes should be excluded, neo-plastic processes in particular [28,29].

## CONCLUSIONS

All doctors should be equipped with a basic knowledge and ability to recognize eating disorders. Each patient and young women in particular, with a low body weight, complaining about digestive ailments should raise a GP's and gastroenterologist's vigilance and suspicion of AN.

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