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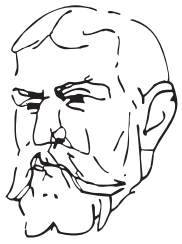

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CONTENTS

ORIGINAL ARTICLES

REVIEW ARTICLES

CASE STUDIES

ORIGINAL ARTICLE

MORPHOLOGICAL FEATURES OF CELLULAR INFILTRATION IN THE MUCOSA OF LARGE INTESTINE IN ULCERATIVE COLITIS AND IRRITABLE BOWEL SYNDROME

10.36740/WLek202101111

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ABSTRACT

The aim is to improve morphological diagnostics, including differential, of UC and IBS, identifying morphological features of cellular infiltration in the mucous membrane of the large intestine.

Material and methods: Autopsy and biopsy material – fragments of the mucous membrane of the large intestine was used in this study. All the material was divided into 5 groups. Group 1 included autopsy material from 6 cases, in which no general pathological processes in the gastrointestinal tract were detected during autopsy and microscopic examination. Group 2 included biopsy material from 34 patients with diagnosed UC of the 1st activity degree. Group 3 included the biopsy material of 27 patients with UC of the 2nd degree of activity. Group 4 included biopsy material from 19 patients, diagnosed with UC of the 3rd degree of activity. Group 5 included biopsy material from 82 patients with clinically diagnosed IBS. Histological, morphometrical, immunohistochemical and statistical methods of investigation were used.

Results: The mucous membrane of the large intestine in patients with ulcerative colitis of varying degrees of activity, compared with the physiological norm, has pronounced infiltration by plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes in the superficial parts of the epithelium, crypts, lamina propria. There is also an increase in the number and size of lymphoid follicles in the lamina propria. Predominant cellular elements in the infiltrate are plasma cells, T-lymphocytes, eosinophilic and neutrophilic leukocytes.

The growth of ulcerative colitis activity leads to an increase the inflammatory cell infiltration in the mucous membrane of the colon, as evidenced an increase the density of cellular infiltrate; the severity of inflammatory changes in crypts and an increase in the number of crypt abscesses; a decrease the number of cases with focal infiltration in the lamina propria and an increase the number of cases with diffuse infiltration; the spread of inflammatory cell infiltration from the superficial parts of the lamina propria to its deep parts with the subsequent involvement of its entire thickness; an increase the central trends of the indexes of the severity of all cellular infiltration, infiltration by plasma cells, T-lymphocytes, macrophages, neutrophilic leukocytes.

The mucous membrane of the large intestine in patients with irritable bowel syndrome has moderately pronounced cellular infiltration in the superficial epithelium and lamina propria, in comparison with the physiological norm. The number and size of lymphoid follicles increase. Inflammatory cell infiltration often spreads to the upper one third or two thirds of the thickness of the lamina propria, characterized by the presence of plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes. In this case, plasma cells, T-lymphocytes, mast cells and macrophages dominate. The indexes of the severity of all cellular infiltration, as well as infiltration by plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes, increases in the mucous membrane of the large intestine in irritable bowel syndrome in comparison with the norm.

In the mucous membrane of the large intestine in irritable bowel syndrome compared with ulcerative colitis of varying degrees of activity inflammatory cell infiltration is less pronounced. It often extends to one third or two thirds of the thickness of the lamina propria. There are fewer lymphoid follicles, cryptitis and crypt abscesses are not determined. The indexes of the severity of all cellular infiltration, as well as infiltration by plasma cells, T-lymphocytes, eosinophilic and neutrophilic leukocytes are lower.

Conclusions: The revealed features of cellular infiltration in the mucous membrane of the large intestine make it possible to improve morphological diagnostics, including differential, of ulcerative colitis of varying degrees of activity and irritable bowel syndrome.

KEY WORDS: ulcerative colitis, irritable bowel syndrome, large intestine mucosa, cellular infiltration, morphology

Wiad Lek. 2021;74(1):57-63

INTRODUCTION

Ulcerative colitis (UC), being one of the most serious and unsolved problems of modern medicine, is characterized by inflammation of the colon mucosa, involving rectum, and possible retrograde spread of the inflammatory process to the proximal part of the ileum [1].

The UC prevalence in the world is 50-230 cases per 100 thousand population, the annual increase in patients is 5-20 cases per 100 thousand population. The highest incidence is in North America, Northern Europe and Australia, less often this pathology is recorded in Asia, South America and Japan. Among the white population, this pathology occurs 3-5 times more often than among African Americans, among Jews – 3.5 times more often than among non-Jewish people [2].

To date, etiology and pathogenesis of UC are not sufficiently studied. UC is characterized by a long course and

ORIGINAL ARTICLE

STOMACH BEZOARIS, CAUSES OF DEVELOPMENT, DIAGNOSIS AND METHODS OF TREATMENT

10.36740/WLek202101125

Oleh O. Vorovskiy, Yuliia Yu. Shushkovska, Oksana I. Afanasiuk
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ABSTRACT

The aim: Is to determine the tactics and methods of treatment of bezoars of the gastrointestinal tract.

Materials and methods: From 2001 to 2019, 17 patients were diagnosed with "bezoar".

Results: Due to the "weariness" of the clinic, the diagnosis was made in the first 3 days only for 3 (17,6 %) patients. On the basis of the obtained average pH values for 4 (23,5 %) patients established moderate hypoacid, for 4 (23,5 %) - pronounced hypoacid, for 6 (35,3 %) - anacid. For 5 (29,4 %) patients, the bezoars were withdrawn on the first attempt, while the other 5 (29,4 %) were "lumped". In the course of fibrogastroscopic examination, all patients were diagnosed with impaired motor-evacuation function of the stomach: gastroesophageal and duodenogastric refluxes, presence of passive discharge of the contents of the stomach into the esophagus.

Conclusions: Therefore, the preconditions for the development of bezoars may be: hypo- and anacid, impaired motor-evacuation function of the stomach, chronic gastric ulcer, cognitive impairment. Endoscopic method should be preferred in the treatment, on condition of its failure - laparoscopic gastrotomy with bezoar extraction.

KEY WORDS: gastric bezoar, intragastric pH-metry, endoscopy

Wiad Lek. 2021;74(1):128-131

INTRODUCTION

Bezoars are foreign bodies formed as a result of swallowing of substances that are not digested in the stomach and accumulate in the lumen of the gastrointestinal tract (GIT). The most common location for bezoar is the stomach. There are several types of bezoaris. Phytobezoar is the most common type of bezoar, which occurs in about 75 % of all types of bezoar, and is formed as a result of the use of a large number of bezorogenic products of plant origin, including grapes, persimmon (diospirobesoar), dates, figs, dogwood, cherries and sweet cherries, corn, pineapple [1, 2, 3]. Such types are also distinguished: lactobesoir - accumulation of lactose and casein (is common for children) [4]; pharmacobezoir – caused by the use of tableted drugs [5], which include: aluminum hydrochloride gel, intestinal aspirin, sucralfate, cholestyramine, nifedipine [6, 7]; Sebobezoar - is formed by refractory animal fats in the form of fatty conglomerates, shellacobezoar (or pixo- or desmobezoar) - resins and bitumen [1, 8]; trichobezoar - the aggregation of hair between the folds of the stomach [9, 10], which occurs more often in women up to 30 years [11], is associated with mental illness and bad habits: trichotomomania (tearing hair) and trichophagia (swallowing hair), it can "tail" spread to the intestine (Rapunzel syndrome) [12]; polybezoar - mixed genesis [1, 8].

It is believed that risk factors for the development of bezoar are a decrease in gastric motility, which may be due to: gastroparesis, postoperative adhesive disease, cystic fibrosis, intrahepatic cholestasis, diabetes mellitus, hypothyroidism and renal failure. Patients with impaired chewing function, psychiatric illnesses also fall into the risk category of bezoar formation [5].

The publications indicate that this pathology on the early stages of the disease has a low symptomatic clinical picture and depends on the location of the bezoar, its structure and size, duration of the disease. This category of patients is characterized by dyspeptic complaints, weight loss, which appear later. As a rule, bezoars are diagnosed when they cause pylorus obstruction, intestinal obstruction, ulcerative ulcers of the mucous membrane, and subsequently - GI bleeding [13, 14, 15]. Fibrogastroduadenoscopy (FGDS), radiological imaging techniques such as ultrasound (ultrasound) and computed tomography (CT) of abdominal cavity (OCP), direct abdominal radiography, X-ray diffraction are used for the diagnosis of bezoars. The radiographs of the radiographs appear as spotty or homogeneous floating masses [16, 17, 18].

A retrospective multicenter study showed that more than a third of patients were not diagnosed with gastric bezoars during primary endoscopic examination [19], which required additional diagnostic imaging techniques to help establish the diagnosis. Thus, on CT, phytobezoaris appear to be clearly defined, rounded or ovate masses with heterogeneous density [20].

In the treatment of phytobezoars the following methods are offered: chemical dissolution of bezoar (L-cysteine and metoclopramide together with cellulose, papain with cellulose, pineapple juice, saline, soda, hydrochloric acid,

Fig. 1. Phytobezoar stomach

pancreatin, 1-2 % zinc chloride, and even zinc chloride, and cola) [14, 21], removal with endoscopic devices, laparotomy [22, 23], laparoscopic treatment approach is preferred over open surgery [24].

Thus, according to various authors, there is no single concept in the diagnosis and methods of treatment, the criteria for the use of surgical treatment are not fulfilled.

THE AIM

The aim is to determine the tactics and methods of treatment of bezoars of the gastrointestinal tract.

MATERIALS AND METHODS

From 2001 to 2019, 17 patients were diagnosed with "bezoar". The age of patients ranged from 25 to 82 years, the average was 58,0 ± 2,5 years. By gender, there were 13 men (76,5 %), women - 4 (23,5 %). For all patients, this diagnosis was established during treatment in hospitals of different profiles. 12 (70,6 %) patients were over 60 years old with comorbid pathology. In the hospitalization period, 10 (58,8 %) patients had cardiac pathology first, 5 (29,4 %) had neurological pathology, and only 2 (11,8 %) had a gastrointestinal chronic obstruction clinic. were hospitalized in the surgical ward.

For 15 (88,2 %) patients a short-term intragastric pH-metry was used to study the acid-forming and acid-neutralizing functions of the stomach under basal conditions and after stimulation with pentagastrin. The average pH levels in different departments of the stomach were measured using an AG-1rN-M acidogastrograph developed at National Pirogov Memorial Medical University, Vinnytsya (State Registration Certificate No. 6226/2007 dated March 16, 2007).

In most cases, the diagnosis was made endoscopically, for 3 (17,6 %) patients with ultrasound ultrasound, for 2 (11,8 %) - with CT. In 10 (58,8 %) cases, the bezoaras were removed endoscopically, in 7 (41,2 %) operatively, 5 of them (29,4 %) - laparoscopically.

RESULTS

The diagnosis of "bezoar" was established for all patients within 10 inpatient days. In the first 3 days, this pathology was diagnosed only for 3 (17,6 %) patients who were diagnosed with "stenosis of the exit from the stomach of oncological genesis", which was caused by the "weariness" of the clinical picture. In the FGDS study, in one case, sebobezoar was accepted as a malignant tumor, the diagnosis was made during the second study, which was managed to eliminate with the help of laparoscopic gastrostomy.

The patients' main complaints were: unreasonable vomiting, which was usually associated with overeating; early saturation; feeling of stomach overflow after breakfast; burping with "rotten eggs"; weight loss with preserved appetite. There was a diagnosis of "Stenosis of the stomach cancer oncology genesis". In the group of patients with cardiac pathology, complaints came first: breast and epigastric pain, shortness of breath, and dyspeptic complaints - in the second place. For patients with a neurological clinic, the dyspeptic symptoms were hidden by the root syndrome of osteochondrosis of the lumbar spine. Thus, in 15 (88,2 %) cases, this pathology had "hidden" or asymptomatic clinical picture.

In the study of acid-forming and acid-neutralizing functions of the stomach by intragastric pH-metry, moderate hyperacid was diagnosed from 15 (88,2 %) for 1 patient (5,9 %), 4 (23,5 %) - moderate hypoacid, for 4 (23,5 %) - pronounced hypoacid, for 6 (35,3 %) - anacid. During the FGDS in all patients were found signs of impaired motor-evacuation function of the stomach, namely, gastroesophageal and duodenogastric refluxes - for 14 (82,4 %) people, the presence of passive discharge of the contents of the stomach into the esophagus - for 4 (23,5 %).

In the treatment of this pathology, preference was given to endoscopic methods. For 5 (29,4 %) patients, bezoars were withdrawn on the first attempt, the other 5 (29,4 %) - this manipulation was performed several times with the method of "lumping", small residues were moved independently on the digestive tract. For seven (41,2 %) patients, where the bezoars had a dense structure and considerable size, an operative method of treatment was applied, which included gastrostomy and extraction of the bezoar from the lumen of the stomach. 5 (29,4 %) patients had this surgery laparoscopically, 2 (11,8 %) with the clinic of stenosis of the exit from the stomach on the background of cognitive impairment were forced to perform gastrostomy laparotomy access. According to the morphological structure of bezoars, they were divided as follows: phytobezoaris - 9 (52,9 %), where the fruit bones were the basis (Fig. 1); trichobezoaris - 6 (35,3 %), consisting of hair and pieces of matter; sebobezoaris - 2 (11,8 %), the basis of which was the so-called "combined fat" of canned food.

DISCUSSION

During the study it was found that this pathology mainly affects older people. Thus, out of 17 (100,0 %) for 9 (52,9 %) patients, this pathology was more than 75 years old,

characterized by significant comorbidity of the disease, including cognitive impairment, which contributes to the inadequacy of complaints, "hidden" of the clinic and its low symptomatic the course. This statement confirms the morphological composition of bezoaris, in which 9 (52,9%) had phytobezoaris with the basis of the bones of berries and in 6 cases (35,3 %) - trichobezoaris, which were based on hair and pieces of matter.

Our study of acid-forming function of the stomach makes it possible to state that patients with impaired motor-evacuation functions of the gastrointestinal tract, with hypo- and anacid of the stomach, are at risk of developing this pathology.

By far, FGDS has the highest diagnostic value. However, diagnostic alertness should be exercised when conducting other studies, such as ultrasound ultrasound and CT, differential diagnosis with oncopathology, peptic ulcer, etc.

Conservative treatment of these formations is considered unpromising, since the use of various chemical compounds that, according to other authors, dissolve the formation data, can adversely affect the gastric mucosa and other organs and systems of the body.

In the treatment of bezoaris, it is desirable to give preference to endoscopic extraction, which can be performed on the early stages of the disease, when the formation is small, "loose" in structure, amenable to fragmentation ("lumping" method). In the case of involuntary surgery, for the elderly a less invasive method is recommended - laparoscopic gastrotomy with bezoar extraction, which contributes to the early activation of patients and the reduction of postoperative complications in the older age category.

CONCLUSIONS

Therefore, the preconditions for the development of bezoars may be: hypo- and anacid, impaired motor-evacuation function of the stomach, chronic gastric ulcer, cognitive impairment. In the treatment endoscopic method should be preferred, if it is impossible to carry out - laparoscopic gastrotomy with bezoar extraction.

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REVIEW ARTICLE

ABORTION, HUMAN RIGHTS AND MEDICAL ADVANCES IN DIGITAL AGE

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ABSTRACT

The aim: The article analyzes the impact of abortion on human rights and women's health in the light of medical and technological advances of the digital age.

Materials and methods: The methods of research were dialectic approach and general analysis of normative and scientific sources, analysis of the results of studies of women's mental health after abortions, analysis of judicial practice, especially decisions of the European Court of Human Rights, the results of author's own empirical studies, the formal legal method, the comparative legal method and the historical method.

It has been established that there is no strong evidence that abortion negatively affects a woman's mental health, including no evidence that the emotional consequences are deeply personal, or are rather the result of societal pressure. Arguments were refuted about extending the protection of human rights regarding abortion to unborn children and their fathers.

Conclusions: The article emphasizes that the ethical burden on medical workers, especially in jurisdictions that require the approval of a doctor to legally terminate a pregnancy, increases significantly due to information flows and community expectations dictated by new medical advances.

KEY WORDS: abortion, digital age, medical advances, human rights, reproductive health

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INTRODUCTION

Medical ethics have traditionally received much attention, including aspects such as ethical research and presentation of results [1], clinical research ethics [2], balance of patient interests and research consent [3], clash doctors with ethically sensitive situations [4], the moral choice of doctors in sensitive matters and their right to participate or not to participate in certain medical practices, however, in the digital age, all these issues become especially acute. The issues are becoming yet more significant because of both, increasing flows of disparate information that affect all people in society, regardless of profession, and by new advances at the intersection of medicine and technology.

One of the ethically sensitive issues is abortion, which is also closely related to the discussion on human rights. First of all, it related with the right to life, which, of course, is fundamental, but at the same time is not an absolute right and may be limited in some cases. It must also be balanced with other rights, especially when it comes to abortion, with the right to privacy, freedom of choice, human dignity and bodily autonomy of women. An important and controversial aspect is the moment of the beginning of life, since its legal and medical definitions may not coincide. The terms "viable fetus", "premature baby", "newborn", "healthy baby" are used in different contexts and do not always have legal consequences. Moreover, for the implementation and protection of human rights it is extremely important to legally determine who we consider to be the owner of rights, to whom we give legal personality.

A separate issue is the gender aspect of abortion. Reproductive health is not a gender neutral issue. And the main burden, as well as social stigma, is imposed on women. In addition, attempts to give the human rights to the fetus in the womb, and attempts to increase the rights of fathers, are often associated with restrictions on the rights of women.

THE AIM

This article focuses on analyzing the impact of abortion on human rights and women's health in the context of the medical and technological advances in the digital age.

MATERIALS AND METHODS

The methods of research were dialectic approach and general analysis of normative and scientific sources – to form a complete picture of the relationship between sensitive issues, medical ethics, women's health and legal regulation in the digital age, analysis of the results of studies of women's mental health after abortions – to verify the assumptions about personal emotional consequences and public perception, analysis of judicial practice, especially decisions of the European Court of Human Rights – to bring together arguments about protecting and limiting of human rights,

including women's rights and third party rights in terms of abortion, as well as the results of our own empirical studies – to test the perception of ethically sensitive situations by lawyers and doctors, both practitioners and trainees. We also use a formal legal method – for studying legal documents, international treaties, human rights legislation of the European Union and the United States of America; a comparative legal method – to compare abortion laws of different countries; a historical method – for tracking changes in societal attitudes towards abortion and its legal regulation.

REVIEW AND DISCUSSION

For many years, it was believed that an abortion done even during the early stages of pregnancy extremely negatively affects the health of women, both physically and mentally. At the same time, real female mortality rate from complications after non-medical abortions and lack of access to legal termination of pregnancy remains quite high, especially in countries where abortions are socially or legally condemned. In particular, unsafe abortion is the leading cause of death among young women aged 10–24 in sub-Saharan Africa [5].

Modern medicine in many cases makes it possible to get by with minimal intervention and minimal consequences for a woman's physical health, therefore the focus of studying negative abortion consequences has shifted to the woman's mental health. However, there is no strong evidence that abortion actually negatively affects women's mental health. Studies from a decade ago showed that there is a low or moderate risk of adverse mental health outcomes, such as psychological disorders and post-stress conditions. In particular, women who had undergone an abortion experienced an 81% increased risk of mental health problems, and nearly 10% of the incidence of mental health problems was shown to be attributable to abortion; women who had an abortion were more likely to report adverse mental health outcomes compared with women who completed a pregnancy (OR 1.81, 95% CI 1.57 to 2.09) [6], although the study noted that the likelihood of mental complications after an abortion is affected by the desire for pregnancy, combined with social factors that make it impossible to continue, as well as conservative views on abortion. And this casts doubt on the fact that the negative effect stems from the fact of abortion itself, and not, for example, from public condemnation of its fact. Another study found that abortion was associated with small to moderate increases in risks of anxiety (AOR 1.28, 95% CI 0.97-1.70; $p<0.08$), alcohol misuse (AOR 2.34, 95% CI 1.05-5.21; $p<0.05$), illicit drug use/misuse (AOR 3.91, 95% CI 1.13-13.55; $p<0.05$), and suicidal behavior (AOR 1.69, 95% CI 1.12-2.54; $p<0.01$) [7], therefore, it was concluded that abortion may be associated with small to moderate increases in risks of some mental health problems.

However, recent studies disprove this. In particular, a 5-year study, the control group of which consisted of women who were refused abortion on the basis of gestational age, showed that rates of depression are not significantly different between women obtaining abortion and those denied abortion; and rates of anxiety are initially higher in women denied abortion care [8]. Limiting access to abortion services does not have a positive effect on women and does not reduce the number of unwanted pregnancies. In particular, some researchers note that ensuring access to abortion services will not increase the likelihood that women will experience subsequent unintended pregnancies [9]. One of the latest sensational studies has shown that there is no evidence of emerging negative emotions or abortion decision regret; both positive and negative emotions declined over the first two years and plateaued thereafter, and decision rightness remained high and steady (predicted percent: 97.5% at baseline, 99.0% at five years); at five years postabortion, relief remained the most commonly felt emotion among all women [10]. These results were evaluated as evidence that emotions about abortion are related to the personal and, especially, social context, rather than stemming from the abortion process itself.

Thus, this is probably the attitude of society, and not real psychological problems that become the determining factor in the negative emotional consequences of abortion for women. Moreover, it was found that shortly after women were denied an abortion, they experienced higher stress than women who had an abortion [11]. This casts doubt on the benefits of prohibitions on abortion, even if we exclude the argument about the right to personal choice of women.

There are no studies that would reliably show how to separate a woman's truly personal internal emotions from those caused by social disapproval, so that one could evaluate the real emotional consequences and formulate recommendations regarding abortion, and, furthermore, argue that restricting access to abortion reduces emotional harm. Moreover, in conservative and religious societies, where this disapproval is much higher; the decision to terminate pregnancy is assessed as emotionally difficult by women and as extremely wrong by others. As noted, assert that the rate of abortions and the easy acceptance of abortion by a society is directly proportional with the secularization degree of that society [12].

The spectrum of attitudes towards abortion in societies ranges from acceptance to complete intolerance, and their legal provision ranges from a complete ban to full legalization. In recent years, the movement for protecting the right to life of the embryo (fetus) until birth has been gaining strength. An attempt to extend the protection of personal rights to the fetus, which is actually located inside another person, inside the woman's body, leads to a direct legal prohibition or a significant complication of the termination of pregnancy. This leads to absurd norms that extend the prohibition of abortion to violence. Ultimately, this threatens women's rights and negatively affects the reproductive health system, forcing it to be guided by non-medical considerations.

Significant changes to abortion law in the United States of America (USA) occurred in 2019. Several USA states have adopted a number of rules that limit the possibility of

having an abortion, for instance threatening doctors who perform abortions with huge jail terms. This does not take into account any reasons for the woman's reluctance to continue pregnancy, such as conception as a result of rape or incest. This is a worrying trend towards tightening legislation and government interference in the private sphere. It is doubly alarming if we recall that it is happening in a democratic and technologically developed country. At the same time, over 40 European states permit abortion where "there is a risk to the woman's health", and there is "abortion on demand" during the first trimester of pregnancy in over thirty European states [13, p. 557].

The prohibition or restriction of abortion is often justified by protecting the rights of the unborn child. But the problem is not only at what point the fetus begins to be considered a human, but also that such rights inevitably clash with the rights of a pregnant woman. For example, in the case "Vo v. France" the European Court of Human Rights (ECtHR) affirmed that an unborn child is not considered a person whose rights are directly protected by Article 2 of the European Convention on Human Rights (ECHR) [14], that is, the right to life. The court established that the rights and interests of the mother, including her right to life, health and privacy, will have priority. At the same time, ECtHR did not refute that an unborn child may have a "right to life", leaving this as a sensitive issue, at the discretion of the state.

In the case "A., B. and C. v. Ireland", in which the applicants relied on Article 8 of the ECHR, that is, the right to privacy, challenging the law, which imposed restrictions on the prohibition of abortion in the Republic of Ireland, the ECtHR ruled that the right to privacy does not include the right to abortion, although a woman's right to respect for her private life should prevail over other rights and freedoms, including the rights of an unborn child [15]. In addition, the court emphasized that Ireland violated the ECHR because it did not provide an accessible and effective procedure by which a woman could establish whether she has the right to legal abortion in accordance with applicable law. At the same time, the ECtHR noted that there is no doubt about the severity and sensitivity of moral and ethical problems arising in connection with the issue of abortion, as well as the importance of relevant public interests. Many researchers believe that the court should have expressed itself more specifically regarding important issues of human rights and who is the subject of these rights. In particular, the issues such as the status of the fetus under the right to life, and whether pregnancy has a "public aspect", have been left undecided or ambiguous, while great emphasis has been placed on the "role of the margin of appreciation in enabling states to strike their own balance between the fetus and the pregnant woman" [13, p. 556]. In addition, while the ECtHR attempts to portray the margin as a means of respecting domestic morals and cultural values, "the margin of appreciation is applied as a tool of evasion, yet these judicial politics amount to a disproportionate response to the violation of women's reproductive freedom" [16, p. 261].

The case "Paton v. United Kingdom", in which a man sought an injunction to prevent his wife from having an abortion, showed that the issue of the rights of third parties could concern not only unborn children, but also their fathers. In this case, the husband tried to forbid his wife to have an abortion, referring not only to the rights of the unborn child, but also to the right of the father to make a decision as part of the right to privacy [17]. However, as a result it was established that the right to privacy cannot be interpreted so broadly as to extend to the father's statements about his wife's decision to terminate the pregnancy, forbid his wife to have an abortion or forbid the doctors to participate in it.

Thus, the argument about human rights is refuted by the fact that the subject of such rights in terms of abortion is a woman, but not third parties, including unborn children and their fathers.

In the digital age, many sensitive issues are becoming more complex, including those related to medical ethics.

On the one hand, unlimited opportunities open up, such as using AI to advance the health of people, instant exchange of experience of successful research and patient treatment strategies, processing of health-related data about various social groups, etc. In addition, other opportunities are greatly simplified, such as using information technology to improve the situation with abortion information: for instance, to collect faster and more accurate information, such as in the studies mentioned above, or to contact a public organization that provides safe abortion kits and direct instructions for women around the world.

On the other hand, some of the effects of digitalization seem unpleasantly alarming, as if we were in a world of dystopia. For example, the widely known case of Target, in which the company's analysts determined that the client was pregnant and started sending thematic ads before she shared this news with her family. Or numerous cases in which AI, based on user behavior on social networks, determined their interest in children's products and continued to display ads based on this, even if users hid it – for personal reasons, or because the pregnancy was interrupted, or in the case of the appearance of a stillborn child.

The future of medicine in the digital era is associated with individualization of treatment, including specific molecular treatment methods for a particular patient, integrated medical specialties, extremely fast exchange of information between doctors [18], and, probably, universalized medical databases. Improving human viability through technological advances is likely to increase. It is currently approximately 23–24 weeks in developed countries, although the extremely premature infant (less than 28 weeks gestation) and extremely low birth weight infant (ELBW) (< 1000 grams) remain at high risk for death and disability with 30–50% mortality [19]. And this creates a temptation for opponents of abortion to extend the protection of human rights to any fetus that has reached a certain survival threshold (and to all earlier stages of pregnancy), to make the starting point of protection the heartbeat, the degree of fetal formation or the degree of survival of premature babies outside the womb.

At the same time, the legal or actual prohibition of abortion, as well as a significant complication of women's access to safe termination of pregnancy, contribute to inequality and widen the gap, primarily economic, between vulnerable groups. In the digital age, this is further exacerbated by the digital divide. What could turn out to be a blessing for women becomes an additional burden for them. For example, in a number of countries, Internet access in households is predominantly in the hands of men. Therefore, women are deprived of important information about their health that could help them. And even more sadly, such information in the digital age is literally in one click.

The unresolved issue is the balance of human rights, first of all the balance between the protection of the fetus and the respect for a pregnant woman's rights. This is an issue of a wide margin of appreciation of states, despite "the emergence of a European consensus that the balance should fall in favor of the woman, at least when her health or well-being is at stake, or at the early stages of the pregnancy" [13, p. 565]. Although there is no doubt that legally women's rights are key, conservative and religious societies, as well as societies that are polarized regarding ethically sensitive issues, will have a negative effect on personal choice and its consequences.

In countries where a doctor's opinion is required to make a decision to legally terminate a pregnancy, the ethical burden on healthcare providers remains quite serious. In particular, in the United Kingdom, where abortion should be available due to maternal health, doctors have a responsibility to ensure its legality and acceptability. Moreover, ethical evaluative categories are used because two doctors judge in "good faith", that the pregnancy "has not exceeded twenty-four weeks and that the continuance of the pregnancy would involve risk, greater than if the pregnancy were terminated" [20, p. 3]. This ethical burden is increasing in the digital age, given the general emotional fatigue from the daily flows of diverse information.

CONCLUSION

Medical advances in the digital age have both positive and negative effects on sensitive issues, including the issue of abortion. Society's expectations regarding the preservation of life are also increasing, which affects the perception of the right to life, increasing the number of attempts to extend it to unborn children. At the same time, the level of condemnation of abortion remains rather high. Especially in conservative and religious societies, which probably explains the negative psychological consequences for women who terminate a pregnancy.

The issue of balancing human rights is becoming even more acute, given the need to assess the conflict of the right to life and the right to privacy, human dignity and autonomy, which leads to attempts to limit women's rights to protect the rights of third parties. In addition, the problem of the relationship between private life and public interests, including the protection of health, remains unresolved. All this becomes more complicated for emotionally sensitive situations. At the same time, the emotional and ethical burden on medical workers involved in deciding on abortion remains serious in all jurisdictions. In the digital age, this is aggravated by endless information flows and corresponding fatigue.

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