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Abnormal uterine bleeding in adolescence - three cases of heavy menstrual bleeding (HMB)

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Summary: Heavy menstrual bleeding (HMB) is profuse, acyclic bleeding from the genital tract, with or without clots, usually lasting more than 10 days. They are the most common cause of abnormal uterine bleeding in adolescence. The following are used in the treatment: iron preparations, antifibrinolytic drugs, NSAIDs, estrogen-progestagen therapy or progestagen therapy. In cases where the Hb concentration is <7-8 g/dl, red blood cells preparation should be transfused. In the article we present a description of three cases of patients with heavy menstrual bleeding (HMB) who were treated in the Pediatric Department of the Independent Public Provincial Specialist Hospital in Chełm.

Key words: heavy menstrual bleeding (HMB), bleeding disorders, adolescents, case reports, anemia, paediatrics, gynecology

Introduction:

Heavy menstrual bleeding (HMB) (lat. metrorrhagia iuvenile) is profuse, acyclic bleeding from the genital tract, with or without clots, often lasting more than 10 days, with blood loss usually exceeding 80 ml. They can lead to anemia of the patient and other systemic diseases do not influence their appearance. Bleeding episodes can occur in the first 5 years after the first menstruation [1].

Heavy menstrual bleeding (HMB) is the most common cause of abnormal uterine bleeding during adolescence. They are caused overwhelmingly by the lack of ovulation, resulting from the immaturity of the hypothalamic-pituitary-ovary system and the insufficiency of the corpus luteum and subsequent relative hyperestrogenism (progesterone deficiency due to anovulation). Additionally, there is a disturbance of local hemostasis in the endometrium caused by intensification of fibrinolysis and secondary inflammation [2-6]. Other rare causes of bleeding during adolescence include: pregnancy-related disorders (miscarriage, ectopic pregnancy, gestational

trophoblastic disease), coagulation disorders, endocrine disorders, sexually transmitted infections, organic lesions of the genital organs, genital tract injuries, systemic diseases, side effects of drugs [1,3,9].

The diagnosis of heavy menstrual bleeding is mainly based on a clinical history, physical examination, gynecological examination with radiological imaging of the reproductive organ and laboratory tests [5,7,8].

Due to the hemoglobin concentration in the blood sample, heavy menstrual bleeding is divided into mild (Hb> 12 g/dl), moderate (Hb - 10-12 g/dl) and severe (Hb <10g/ dl). Treatment depends on the severity of the bleeding [9-10]. In the case of mild heavy menstrual bleeding, the treatment includes iron preparations, antifibrinolytic drugs and NSAIDs [10]. However, in the case of moderate and severe heavy menstrual bleeding, estrogen-progestagenic or progestagenic therapy is additionally used. In cases where the Hb concentration is <7-8 g/dl, the red blood cell preparation should be transfused [10].

Below we present case reports of 3 adolescent patients hospitalized due to heavy menstrual bleeding in the Pediatric Department of the Independent Public Regional Specialist Hospital in Chełm.

Case 1

A 16-year-old female patient admitted to the Pediatric Department due to 14 days of active profuse vaginal bleeding and anemia found in outpatient blood counts (Hb - 6.9 g/dl with normal MCV). The interview revealed that the patient fainted twice on the day of admission. She never gave birth, never miscarried. Menarche in the age of 13. She was menstruating regularly in 30-day cycles with bleeding for about 6 days. No chronic diseases found.

On admission to the ward the patient's condition was assessed as average. She was conscious, circulatory and respiratory efficient, in logical contact. Skin and mucous membranes were pale, moderate signs of dehydration were visible, over the lung fields alveolar symmetrical normal sound, regular heart rate 120/min, RR 110/93mmHg, abdomen soft, painless, no pathological manifestations, peritoneal symptoms were negative, meningeal symptoms were negative too.

In the laboratory tests performed: Hb - 6.0 g/dl (norm: 10.8-13.3 g/dl), RBC - 2.08 million/uL (norm: 3.93-4.9 million/uL), HCT - 17.4%, (norm: 33.4-40.4%), MCV- 83.7 fl (norm 76.9-90.6fl), PLT - 295 thousand/uL (norm: 194-345 thousand/uL), Ret - 3.19% (norm: 0.9-1.49%), ferritin - 4.61 ng/ml (norm: 13-68 ng/ml) and UIBC - 22 µg/dl (norm: 135 -392 µg/dL). Vit. B12 and folic acid level were normal. Laboratory indicators of hepatic, renal and inflammatory conditions were normal. BetaHCG - 0.0 mIU/ml. PT - 12.1 s (norm: 10-14.1 s), INR - 1.1 (norm: 0.9-1.24), APTT - 23.6 s (norm: 26.1 - 47.4 s), fibrinogen - 193 mg/dl (norm: 168-529 mg / dl).

Blood group was determined twice. Cyclonamine and fluids were included by the intravenous route, added oral iron preparation. 2 units of a group-compatible red blood cell preparation were transfused without complications.

The patient was consulted gynecologically. Per rectum examination: painless uterus, mobile, of normal size, unchanged bilateral appendages. In the transrectal ultrasound examination: 36/29mm uterus without changes, endometrium 11.3mm thick. Ovaries of normal size, no pathological changes. No fluid in Douglas' cavity. Dgn. Metrorrhagia juvenilis.

According to the recommendations of a specialist gynecologist-obstetrician, the patient was treated with estrogen-progestogen therapy (Microgynon 2x1 tablet p.o. for 21 days, 7 days break and 1x1 tablet p.o. for 21 days) and tranexamic acid was added (Exacyl i.v. 2x2amp.). Another 2 units of red blood cell preparation were transfused without complications.

On the fourth day of hospitalization, vaginal bleeding stopped. Red cell parameters improved (Hb - 9.6 g/dl). In good general condition the patient was discharged home with recommendations to continue treatment with estrogen-progestagen therapy and oral iron supplementation, an iron-rich diet and outpatient pediatric and gynecological control.

Case 2

A 14-year-old and 11-month-old patient was admitted to the Pediatric Department due to anemia found in outpatient tests (Hb - 6.1 g/dl) and vaginal bleeding lasting 24 days. In the history of the girl without diagnosed chronic diseases, menstruation from the age of 13, previous cycles of 23 days, bleeding usually up to 4 days, not very profuse. She did not have sex, she did not give birth, she did not miscarry.

On admission, she was in fairly good general condition, conscious, circulatory and respiratory efficient, in logical contact. Skin and mucous membranes were pale, alveolar respiratory sound normal, symmetrical above

the lung fields, regular heart rate 100/min, RR 135/75mmHg, abdomen soft, painless on palpation, no pathological resistance, negative peritoneal symptoms, negative meningeal symptoms.

The laboratory tests showed abnormal parameters of the red cell system: Hb - 5.5 g/dl (norm: 11.4-15.4 g/dl), RBC - 2.26 million/uL (norm: 3.8-5.2 million/uL), HCT - 17.7% (norm: 35-45%), MCV- 78.3 fl (norm: 78-98 fl). Ret- 1.72% (norm: 0.9-1.49%), ferritin - 2.33 ng/ml (norm: 13-68 ng/ml), Fe - 8 ug/dl (norm: 33-193 ug/dl). Laboratory indicators of hepatic and kidney function normal. CRP <0.5 mg/l. Additionally, no abnormalities were noticed in the coagulation system: PT - 11.8 s (norm: 10-14.1 s), INR- 1.1 (norm: 0.9-1.24), APTT- 26.8 s (norm: 26, 1-47.4s), fibrinogen - 210 mg/dl (norm: 168-529 mg/dl). BetaHCG - 0.0 mIU/ml. Blood group was marked twice.

Urgent ultrasound of the abdominal cavity describes the presence of an additional spleen of 9 mm in size, the presence of a 12x17 mm fluid space in the left ovary projection and several larger fluid spaces in the right ovary projection - the largest of 21x26 mm with thin septa. Besides, no pathology was found.

Due to the period of the pandemic and the temporary transformation of the Department of Gynecology and Pathology of Pregnancy into a ward for the treatment of patients with COVID-19, the gynecological consultation took place only by phone. The patient was transfused without complications with 2 units of the group compatible red blood cell preparation and 1 unit of fresh frozen plasma. Oral estrogen-progestagen therapy (2x1 tablets), tranexamic acid (Exacyl i.v.) and oral iron preparation (TardyferonFol 2x1 tablets) were included.

During the stay in the Pediatric Department the general condition was good and stable. On the 3rd day of hospitalization vaginal bleeding ceased. Improvement of blood counts in the red cell system was achieved (Hb - 9.4 g/dl). The patient was discharged with recommendations for further treatment with estrogen-progestagen therapy (1x1 tablet for 14 days, then a 7-day break and another 21 days 1x1 tablet) and oral iron supplementation, iron-rich diet and outpatient gynecological and pediatric control.

Case 3

A 16-year-old patient admitted to the Pediatric Department due to fainting. In the medical interview the patient stated, that she was in the process of menstruation, currently on the 7th day of bleeding. For the last 3 days the bleeding was profuse with clots. So far, she has not had intercourse, has not given birth or miscarried. Menarche: 12 years of age, cycles lasting about 28 days, bleeding usually up to 7 days.

On admission, the patient's condition was stable, she was conscious, circulatory and respiratory efficient, in logical contact. On physical examination, significant pallor of the skin, mucous membranes and conjunctiva, anisokoria, vision defect in the form of myopia (-1.0D, -2.75D), symmetrical normal alveolar sound over the lung fields, regular heart rate 120/min, current systolic murmur 2-3/6 on the Levine scale. The abdomen was soft, painless on palpation, without pathological features, negative peritoneal symptoms. Negative meningeal symptoms.

Due to the previously unknown anisokoria, an urgent CT of the head was performed without contrast, in which apart from the curvature of the nasal septum, no abnormalities were found.

In performed laboratory tests there were observed reduced parameters of the red cell system: Hb - 5.5 g/dl (norm: 10.8-13.3 g/dl), RBC- 2.34 million/uL (norm: 3.93- 4.9 million/uL)), HCT - 17.2% (norm: 33.4-40.4%), MCV - 73.5 fl (norm: 76.9-90.6 fl), ferritin - 9.71 ng/ml (norm: 13-68 ng/ml). Additionally, APTT - 24.9 s (norm: 26.1-47.4 s), PT - 14.1 s (norm: 10-14.1 s), INR - 1.3 (norm: 0.9-1,24), fibrinogen - 149 mg/dl (norm: 168-529 mg/dl). Inflammatory, hepatic and renal indicators within the laboratory norm. Beta-HCG level - 0.0 mIU/ml. Blood group was determined twice.

The patient was consulted gynecologically. Per rectum examination revealed: painless uterus, mobile, of normal size, and unreadable appendages on both sides. In the transrectal ultrasound examination: two horns uterus with a partial septum 53/22.7 mm in size, endometrium 4-5.6 mm in thickness. Right ovary 31x21mm with a follicle 25x25mm, left ovary 37x18mm unchanged. No fluid in Douglas' cavity. Dgn. Metrorrhagia iuvenilis. Uterus bicornis.

The patient was treated with estrogen-progestogen therapy (Microgynon p.o. on the first day 1x2 tabl, next 2x1 tabl for 21 days, 7 days break and then 1x1 tabl for the next 21 days), tranexamic acid (Exacyl i.v. 2x2amp.), etamsylate (Cyclonamine i.v.), preparation oral iron (Hemofer p.o.). A total of 4 units of red blood cells were transfused without complications in a group-compatible manner.

Due to the first diagnosed anisokoria, the patient was also consulted neurologically - the neurologist did not find any disturbing symptoms through a neurological examination, he recommended an elective MRI of the head.

On the 5th day of hospitalization vaginal bleeding stopped. The control blood count showed an increase in red cell markers (Hb - 9.2 g/dl). In good general condition the patient was discharged home with recommendations to continue treatment with estrogen-progestagen therapy, oral iron supplementation, iron-rich diet, and outpatient gynecological and pediatric control.

Discussion:

Heavy menstrual bleeding (metrorrhagia iuvenilis) is a disease on the border of pediatrics and gynecology. In the Polish health care system, there are no Gynecological Departments dedicated to patients until the age of 18 and only some Gynecology and Obstetrics Clinics provide health services to minors [11]. Therefore, the availability of specialist gynecological treatment for adolescents is limited. Moreover, in Polish law there are no separate provisions on gynecological examination of underage patients, therefore gynecologists use the general rules of examining a minor contained in the Act of December 5, 1996 on the profession of doctor and dentist [12]. Additional support is provided by the Recommendations of the Polish Society of Gynecologists and Obstetricians in the field of gynecological examination and treatment of minors as well as procedures in the event of suspected sexual abuse of adolescents [13].

In a life-threatening condition, which may be haevy menstrual bleeding with high blood loss, patients most often go to the nearest general pediatric wards. For this reason, it is important for pediatricians and those who specialize in this field to broaden their knowledge of abnormal uterus bleeding during adolescence. Unfortunately, regional pediatric departments do not have full possibilities of laboratory diagnostics and even not in all cases it is possible to consult a gynecologist. This is why patients after stabilizing their general condition, are referred for further treatment and extension of diagnostics on an outpatient basis. It is important to conduct an in-depth diagnosis, as the available literature proves that approximately 20% of patients with abnormal uterus bleeding are diagnosed with coagulation disorders at a later stage [14-17].

All of the above patients required only conservative treatment. Neither of them needed an urgent transfer to the surgical ward. All patients presented in life-threatening condition with severe juvenile bleeding (Hb <10 mg/dl) and required urgent blood type determination and administration of blood products.

In all the above cases the reason for the patients' admission to the Pediatric Department was not prolonged uterus bleeding, but fainting and abnormalities found in laboratory tests (especially severe anemia). Only careful interviewing gave information about the cause of the life-threatening condition and allowed for a quick response and implementation of appropriate treatment. This proves that young people are still not aware of health problems. The research conducted so far proves that patients are reluctant to report health problems to their legal guardians and that they are delayed by healthcare providers [18-20].

Conclusions:

In the practice of a doctor dealing with patients in developmental age, it is important to know the most common causes of abnormal uterus bleeding in adolescents. Gathering a thorough interview is often the key to success. We must remember that teenagers are reluctant to admit their health problems, so we should always be vigilant and manage the conversation properly. The general condition of the patient does not always correlate with the confirmed hemoglobin level, especially in patients chronically adapted to anemia (e.g. with iron deficiency). It is also necessary to educate patients in this area, which may prevent too late reporting to medical facilities for help. This would prevent life-threatening conditions from occurring.

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