**The Main Administrative Directorate of the President of the Republic of Belarus, “The Republican Clinical Hospital”**

**Epicrisis №4462**

**Full name: Borovskaya Svetlana Anatoliyevna**

**Date of birth: 05.01.1959**

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The patient was placed on a treatment program and a clinical investigation in the cardiac unit/ cardiological department of The Main Administrative Directorate of the President of the Republic of Belarus, “The Republican Clinical Hospital” between 30.10.2019 until 21.11.2019.

**Clinical diagnosis**: Combined mitral disease of the aortic valve with the predominance of stenosis (S eff. otv. 0.8cm2, grad. 86/51 mm rt st). **Operation (11.11.19):** orthotics of the aortal valve (Edwards Perimount Magna Ease 23) in the conditions of IR.

CAD: Cardiosclerosis. Full block of the left bundle of atrioventricular bundle. Atherosclerosis of the aorta, coronal arteries. Mitral regurgitation, stages I-II. Tricuspid regurgitation, stages I-II.

Arterial hypertension, stage I, risk 4.

Chronic heart failure (CHF), functional class 2, stage A.

Obliterating atherosclerosis of the brachiocephalic artery with no haemodynamically important changes.

C-r of the n / ampullary section of the straight intestine cT3N1M0, clinical group 2.

Dysplastic nevus of the skin of the right thigh. Mediastinal lymphadenopathy.

Obesity stage 1 (according to the classification of the world health organisation). BMI-31.8 kg/m2.

Varicose vein disease of the lower extremities.

Cysts in the left kidney.

**An investigation was conducted:**

**30.10.2019:** Blood type 0 [1]. Rh factor**-** positive.

Alloimmune anti-erythrocyte antibodies- not detected.

**30.11.2019 markers for viral hepatitis**

Anti-HCV 0.032 (<0.9)

HBS AG 0.399 (<0.9)

**30.11.2019** General antibodies to T. pallidum 0.054 COI (<1)

**05.11.2019 blood test for HIV** №94427- Enzyme-linked immunosorbent assay HIV- negative

**General uranalysis** **05.11.2019:** The colour of the urine is lightly yellow, stramineous, yellow, transparent; pH 5.5 5-7. Fixed weight 1.011 1.01-1.025; Protein- negative; Glucose (urine)- negative; Ketones (KET)- not identified; Bilirubin (BIL)-not identified/negative; Leucocytes (LEU)- negative; Erythrocytes (ERY)- negative; Urobilinogen (UBG)-within the norm (up to 17 mcmol/L); Nitrites (NIT) -not identified; Ascorbic acid 0 0-0; Protein (PRO-Ur.) 0.04 g/L <=0.1. Flat epithelium 1-3 in f/v (0-5) in f/v; Leucocytes (LEU) 1-2 in f/v (0-5) in f/v.

**Rating system of hemostasis 09.11.2019:** Antitrombin III 119% 83-128;

**Biochemical blood analysis** **09.11.2019:** General bilirubin (T-BIL) 14.69 mcmol/L 5-21; Urea (UREA) 7.15 mcmol/L 2.8-7.2; Blood Creatine (CREA) 91.86 mcmol/L 49-90; Serum Potassium (ISE.K) 4.42 mcmol/L 3.5-5.1; Serum Sodium (ISE.Na) 144 mcmol/L 136-146; Chlorides (ISE.CI) 104.4 mcmol/L 101-109; Calcium (Ca) 2.48 mcmol/L 2.2-2.65; AST- 22.26 unit/L 0-35; ALT- 29.91 unit/ L 0-35; LDH- 156.07 unit/L 0-247; General protein (TPROT) 72.60 g/L 66-83; Albumines (ALB) 42.90 g/L 35-52; CRP 2.03 mG/L 0-5; Glucose (GLUC) 6.18 mcmol/L 3.89-6.1.

**Coagulogram 09.11.2019:** aPTT33.1 s 25.4-36.9; aPTT Ratio 1.05 Ratio; Fibrinogen (Clauss) 3.79 g/L 2-3.93; Prothrombin time 11.1 s 9.4- 12.5; Argon plasma coagulation 111%; International normalised ratio 0.97 INR 0.8-1.2; TT (Thrombin time) 14.9 s 10.3-16.6; TT Rario. 1.02 Ratio.

**Clinical blood analysis 09.11.2019:** Leucocytes (WBC) 5.1 10\*9/L 4-9; Erythrocytes (RBC) 4.32 10\*12/L 3.7-4.7; Haemoglobin (HGB) 130 g/L 120-150; Hematocrit (HCT) 37.1 % 33-46; Mean corpuscular volume (MCV) 85.9 fL 80-98; Mean cell haemoglobin (MCH) 30.1 pg 27-37; Mean corpuscular haemoglobin concentration (MCHC) 350 g/L 300-360; Platelet count (PLT) 257 10\*9/L 150-400; Red blood cell distribution width (RDW-CV) 12.4% 11.5-14.5; Mean platelet volume (MPV) 10.8 fL 6.5-11; Thrombocrits (PCT) 0.28% 0.17-0.35; Neutrophils, relative neutrophil count (NEUT%) 59.2% 46-76; Lymphocytes; relative lymphocyte count (LYMPH%) 31% 18-49; Erythrocyte sedimentation reaction (ESR) 18mm/ hour (2-15) mm/hour; \*Absolute neutrophil count (BAND) 4% (1-6)%; \*Neutrophils, segm. (NEU) 56% (45-70)%, \*Lymphocytes (LYM) 36% (18-40)%; \* Absolute monocyte count (MONO) 3% (2-9)%; \* Eosinophiles (EOS) 1% (1-5)%.

**Determining the concentration of the markers of inflammation 16.11.2019**: Presepsin (P-SEP) 388 pg/ mL <337; Procalcitonin (PCT) 0.055 ng/mL 0-0.5.

**Biochemical blood analysis** **16.11.2019:** Totalbilirubin (T-BIL) 11.4 umol/L 0-21; Direct Bilirubin (D-BIL) 4.1 umol/L 0.9-5.1; Urea (UREA) 6.8 mmol/L 2.76-8.07; Blood creatinine (CREA) 69 umol/L 45-84; Magnesium (Mg) 0.91 mmol/L 0.66-1.07; Serum iron (IRON) 7.43 umol/L 11.6-31.3; Ferritin (Ferritin) 336.4 ug/L 15-150; Transferrin 1.79 g/L 2-3.6; AST (AST) 72.2 U/L 0-32; ALT (ALT) 130.7 U/L 0-33; GGTP (GGT) 218 U/L 0-40; Alkaline phosphatase (ALP) 163 U/L 35-104; Alpha-amylase (a-amylase) 38 U/L 28-100; Creatine phosphokinase (CK) 53 U/L 26-192; Сreatine phosphokinase-MB (СK-MB) 13.1 U/L 0-25; Lactate Dehydrogenase (LDH) 300 U/L 135-214; TP (total protein) (TPROT) 65.7 g/L 66-87; Albumins (ALB) 40.4 g/L 39.7-49.4; C-reactive protein (CRP) 38.43 mg/L 0-5.

**Clinical blood analysis 16.11.2019:** Absolute WBC count (WBC) 7.68 10\*3/uL 4-9; Absolute erythrocyte count (RBC) 3.48 10\*6/uL 3.7-4.7; Haemoglobin (HGB) 103 g/dL 120-150; Hematocrit (HCT) 32.0% 33-46; Mean corpuscular volume (MCV) 92.0 fL 80-98; Mean corpuscular haemoglobin (MCH) 29.6 pg 27-37; Mean corpuscular haemoglobin concentration (MCHC) 322 g/dL 300-360; Platelet count (PLT) 194 10\*3/uL 150-400; Red blood cell distribution width (RDW-CV) 13.6% 11.5-14.5; Mean platelet volume (MPV) 11.1 fL 6.5-11; Thrombocrit (PCT) 0.22% 0.17-0.35; Neutrophils, segm. (NEU) 5.10 10\*3/uL 2.04-5.8; Lymphocytes (LYM) 1.69 10\*3/uL 1.2-3.5; Absolute monocyte count (MONO) 0.39 10\*3/uL 0.08-0.6; Eosinophiles (EOS) 0.42 10\*3/uL 0.04-0.35; Basophils (BASO) 0.05 10\*3/uL 0-0.09; Absolute immature granulocyte count (IG) 0.03 10\*3/uL 0-0.3; Neutrophils, relative neutrophil count (NEUT%) 66.3 % 46-76; Lymphocytes; relative lymphocyte count (LYMPH%) 22.0% 18-40; Relative monocyte count (MONO%) 5.1% 2-9; Eosinophiles, relative count (EO%) 5.5 % 1-5; Basophils, relative count (BASO%) 0.7% 0-1; Immature granulocytes, relative count (IG%) 0.4 % 0-0.9; Normoblasts (NRBC) 0.00 10\*3/uL 0-0; Erythrocyte sedimentation reaction (ESR) 38mm/hour; \*Formula\*; \* Neutrophil count (BAND) 2% (1-6)%; \* Neutrophils, segm. (NEU) 60% (45-70)%; \*Lymphocytes (LYM) 28% (18-40)%; \*Monocytes (MONO) 4% (2-9)%; \* Eosinophiles (EOS) 6% (1-5)%; \* Basophils (BASO) 0% (0-1)%; Leucocytes (WBC) 7.68 10\*3/uL 4-9; Erythrocytes (RBC) 3.48 10\*6/uL 3.7-4.7; Haemoglobin (HGB) 103 g/dL 120-150; Hematocrit (HCT) 32.0% 33-46; Mean corpuscular volume (MCV) 92.0 fL 80-98; Mean cell haemoglobin (MCH) 29.6 pg 27-37; Mean corpuscular haemoglobin concentration (MCHC) 322 g/dL 300-360; Thrombocrits (PCT) 194 10\*3/uL 150-400; Red blood cell distribution width (RDW-CV) 13.6% 11.5-14.5; Mean platelet volume (MPV) 11.1 fL 6.5-11; Thrombocrit (PCT) 0.22% 0.17-0.35; Neutrophils, segm. (NEU) 5.10 10\*3/uL 2.04-5.8; Lymphocytes (LYM) 1.69 10\*3/uL 1.2-3.5; Monocytes (MONO) 0.39 10\*3/uL 0.08-0.6; Eosinophiles (EOS) 0.42 10\*3/uL 0.04-0.35; Basophils (BASO) 0.05 10\*3/uL 0-0.09; Immature granulocytes (IG) 0.03 10\*3/uL 0-0.03; Neutrophils, relative neutrophil count (NEUT%) 66.3 % 46-76; Lymphocytes; relative lymphocyte count (LYMPH%) 22.0 % 18-40; Relative monocyte count (MONO%) 5.1% 2-9; Eosinophiles, relative count (EO%) 5.5 % 1-5; Basophils, relative count (BASO%) 0.7% 0-1; Immature granulocytes, relative count (IG%) 0.4 % 0-0.9; Normoblasts (NRBC) 0.00 10\*3/uL 0-0.

**General uranalysis** **16.11.2019:** The colour of the urine is lightly yellow, stramineous, yellow, transparent; pH 5.5 5-7. Fixed weight 1.008 1.01-1.025; Protein- negative; Glucose (urine)- negative; Ketones (KET)- not identified; Bilirubin (BIL)-not identified/negative; Leucocytes (LEU)- negative; Erythrocytes (ERY)- negative; Urobilinogen (UBG)-within the norm (up to 17 mcmol/L); Nitrites (NIT) -not identified; Ascorbic acid 0 0-0; Flat epithelium 1-2 in f/v (0-5) in f/v; Erythrocytes (ERY) 1-2 in f/v (0-2) in f/v; Leucocytes (LEU) 1-2-3 in f/v (0-5) in f/v (0-5) in f/v; Musuc+ no identified; Protein (PRO-Ur.) 0.05 g/L <=0.1. The colour of the urine is lightly yellow, stramineous, yellow, transparent; pH 5.5 5-7. Fixed weight 1.008 1.01-1.025; Protein- negative; Glucose (urine)- negative; Ketones (KET)- not identified; Bilirubin (BIL)-not identified/negative; Leucocytes (LEU)- negative; Erythrocytes (ERY)- negative; Urobilinogen (UBG)-within the norm (up to 17 mcmol/L); Nitrites (NIT) -not identified; Ascorbic acid 0 0-0; Protein (PRO-Ur.) 0.05 g/L <=0.1.

**Biochemical blood analysis** **16.11.2019:** Urea (UREA) 8.09 mmol/L 2.8-7.27; Blood creatinine (CREA) 78.34 umol/L 49-90; Serum Potassium (ISE.K) 4.11 mcmol/L 3.5-5.1; Serum Sodium (ISE.Na) 146 mcmol/L 136-146; Chlorides (ISE.CI) 106.0 mcmol/L 101-109; AST- 74.84 unit/L 0-35; ALT- 165.56 unit/ L 0-35; GGTP (GGT) 236.96 U/L 0-38; LDH- 296.23 unit/L 0-247; General protein (TPROT) 62.90 g/L 66-83; Albumines (ALB) 37.84 g/L 35-52; C-reactive protein (CRP) 25.71 mG/L 0-5; Glucose (GLUC) 5.69 mcmol/L 3.89-6.1.

**Clinical blood analysis 20.11.2019:** Absolute WBC count (WBC) 6.59 10\*3/uL 4-9; Absolute erythrocyte count (RBC) 3.32 10\*6/uL 3.7-4.7; Haemoglobin (HGB) 97 g/dL 120-150; Hematocrit (HCT) 31.0% 33-46; Mean corpuscular volume (MCV) 93.4 fL 80-98; Mean corpuscular haemoglobin (MCH) 29.6 pg 27-37; Mean corpuscular haemoglobin concentration (MCHC) 322 g/dL 300-360; Platelet count (PLT) 252 10\*3/uL 150-400; Red blood cell distribution width (RDW-CV) 14.1% 11.5-14.5; Mean platelet volume (MPV) 10.6 fL 6.5-11; Thrombocrit (PCT) 0.27% 0.17-0.35; Neutrophils, segm. (NEU) 4.09 10\*3/uL 2.04-5.8; Lymphocytes (LYM) 1.64 10\*3/uL 1.2-3.5; Monocytes (MONO) 0.50 10\*3/uL 0.08-0.6; Eosinophiles (EOS) 0.29 10\*3/uL 0.04-0.35; Basophils (BASO) 0.05 10\*3/uL 0-0.09; Immature granulocytes (IG) 0.02 10\*3/uL 0-0.03; Neutrophils, relative neutrophil count (NEUT%) 62.0 % 46-76; Lymphocytes; relative lymphocyte count (LYMPH%) 24.9 % 18-40; Relative monocyte count (MONO%) 7.6% 2-9; Eosinophiles, relative count (EO%) 4.4 % 1-5; Basophils, relative count (BASO%) 0.8% 0-1; Immature granulocytes, relative count (IG%) 0.3 % 0-0.9; Normoblasts (NRBC) 0.00 10\*3/uL 0-0. Erythrocyte sedimentation reaction (ESR) 39mm/ hour (2-15) mm/hour; \*Neutrophil count (BAND) 5% (1-6) % ; \*Neutrophils, segm. (NEU) 62% (45-70) % ; \*Lymphocytes (LYM) 23% (18-40)%; \*Monocytes (MONO) 5% (2-9)%; \* Eosinophiles (EOS) 3% (1-5)%; \* Basophils (BASO) 0% (0-1)%; Anisocytosis +.

**General uranalysis** **20.11.2019:** The colour of the urine is lightly yellow, stramineous, yellow, transparent; pH 5.5 5-7. Fixed weight 1.012 1.01-1.025; Protein- negative; Glucose (urine)- negative; Ketones (KET)- not identified; Bilirubin (BIL)-not identified/negative; Leucocytes (LEU)- negative; Erythrocytes (ERY)- negative; Urobilinogen (UBG)-within the norm (up to 17 mcmol/L); Nitrites (NIT) -not identified; Ascorbic acid 0 0-0; Protein (PRO-Ur.) 0.08 g/L <=0.1; Flat epithelium 3-4 in f/v (0-5) in f/v; Transitional epithelium 1-2 in f/v (0-0) in f/v; Erythrocytes (ERY) 1-2 in f/v (0-2) in f/v; Leucocytes (LEU) 16-20 in f/v (0-5) in f/v.

**Ultrasound investigation**:

**Echocardiography 01.11.2019: Apparatus:** Vivid E95

Sinus rhythm, heart rate 65bpm, body surface area (BSA) 1.95 m2

Optimal quality of visualisation

**Aortic valve:**

Condition of the cusps: fibrosis calcinosis stage 3

Diameter of the ring 24mm

Max. rate (systole) 4.6 m/s

Max. gradient (systole) 86 mmHg

Mean gradient (systole) 51 mmHg

Area of the valve 0.8 (index 0.4) cm2

Regurgitation stage 0-1

VC\_\_mm PHT\_\_ms

PISA: R\_\_cm, ERO\_\_ cm2

Vol AR\_\_ml

Characteristics:

**Valve of pulmonary artery**:

Diameter of truncus arteriosus 27mm, branches 14/15mm

Max. rate (systole) 0.8 m/s

Max. gradient (systole) 2.8 mmHg

Regurgitation stage 1

AT 0.12 sec, average DLA 25 mmHg

Characteristics:

IVC inhale/exhale 7/19mm

DLA systole 31 mmHg

Characteristics:

**Bicuspid Valve:**

Condition of the cusps: fibrosis

Diameter of the ring 37mm

E 0.8 m/s, A 0.6 m/s, E/A 1.2

DT 216 ms, E/E’ average \_\_

Max./mean gradient (diastole) 2.2/0.8 mmHg

Area of the valve 4.5 cm2

Depth of coaptation\_\_mm

Coaptation of the cusps or leaflets \_\_mm

Regurgitation stage 1-2

VC 5mm

PISA: R 0.4 cm, ERO 0.1 cm2, Vol MR 11 ml

Characteristics: MAPSE 11mm

**Tricuspid valve**:

Condition of the cusps: unchanged

Diameter of the ring 33mm

E 0.4 m/s, A 0.3 m/s, E/A 1.4\_

Max./mean gradient (diastole) \_\_/\_\_mmHg

Regurgitation stage 1-2

Speed of regurgitation 2.7 m/s

Gradient of regurgitation 28 mmHg

VC \_\_mm

PISA: R 0.4 cm, ERO 0.1 cm2, Vol TR 11 ml

Characteristics: narrow flow

**Aorta**: diameter is on the level of sinus aortae 37mm (norm: 38mm), in a sinotubular junction 32mm, in ascending aorta 41 (index 21) mm, aortic arch \_\_mm.

**Left atrium**: A-P diameter 40mm, 4-chamber 43/50, volume 74ml, volume left atrium/ surface area 38ml/ m2

**Left ventricle**: cardiodiastolic dimension 52mm, cardiosystolic dimension 29mm.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Volumes of left ventricle** | **Cardiodiastolic volume, ml** | **Cardiosystolic volume, ml** | **Stroke output, ml** | **EF %** |
| M-mode | 128 | 33 | 95 | 74 |
| B-mode (Simpson biplane) | 133 | 43 | 90 | 68 |

Cardiodiastolic volume/ SA 68 ml/ m2, Cardiosystolic volume/ SA 22 ml/ m2, Cardiac index (Stroke Output\* Cardiac Rate/ SA) 3.9 L/min/m2

Width of myocardium: interventricular septum 11-12 mm, left ventricular posterior wall 10mm, Relative width=(2\* left ventricular posterior wall width/ cardiodiastolic dimension)= 0.38

Mass of the myocardium (left ventricle) (B-mode) 167g, mass index 86 g/m2

Out-gate (left ventricle): diameter 23mm, linear velocity of blood flow (systole) 1.0 m/sec, systole gradient 3.7 mmHg, VTI\_\_cm

**Contractility of the myocardium of the left ventricle**:

1. Normokinesis
2. Hypokinesis
3. Akinesis
4. Diskinesis
5. Aneurysmal protrusion

A picture containing wall, indoor, clock

Description automatically generated

|  |  |  |  |
| --- | --- | --- | --- |
| **Tissue velocity imaging** | **S’** | **E’** | **A’** |
| Mitral ring, lateral speed | 6 | 7 | 6 |
| Mitral ring, septal speed | 6 | 6 | 8 |
| Tricuspid ring, lateral speed | 12 | 10 | 13 |

**Right atrium**: 4-chamber 39/50 mm, volume 58ml, volume right atrium/ surface area 30 ml/ m2

**Right ventricle**: basal diameter 40 mm, median diameter 24 mm, out-gate tract 29mm, longitudinal size 67mm, TAPSE= 22mm

**Interatrial** **septum**: no defects, localisation

**Interventricular septum**: no defects, localisation

**Pericard**: no distinct features

**CONCLUSION**: The aorta is thickened, widened in the ascending region up to 41 mm (index 21). Aortic valve: fibrosis, calcinosis stage 3 of the cusps and the ring, stenosis of the aortic valve to a greater degree, average gradient 54 mmHg, rate 4.6 m/s, area 0.8cm2 index 0.4, regurgitation stage 0-1 (light). The left atrium is slightly extended. Bicuspid valve: fibrosis of the cusps, regurgitation stage 1-2 (light). The left ventricle is slightly extended. Slight eccentric hypertrophy of the myocardium (left ventricle). The contractile force of the myocardium (left ventricle) remains at EF 68%. The right sections are not extended. Tricuspid valve:…

**Echocardiography 16.11.2019: Apparatus:** Phillips IE-33

**Ultrasound investigation of the heart with color flow mapping (CFM)**

Rhythm, heart rate 79bpm, body surface area (BSA) 1.94 m2

Optimal quality of visualisation.

**Aortic valve (prosthesis):**

Condition of the cusps: prosthesis

Diameter of the ring 23mm

Max. rate (systole) 2.5 m/s

Max. gradient (systole) 25 mmHg

Mean gradient (systole) 15 mmHg

Area of the valve 2.13 cm2

Regurgitation stage 0-1, V\_\_ m/s, PG\_\_mmHg

VC\_\_mm, PHT\_\_ms

PISA: R\_\_cm, ERO\_\_ cm2 , Vol AR\_\_ml

Characteristics:

**Valve of pulmonary artery**:

Diameter of truncus arteriosus 25mm, branches 15/14mm

Max. rate (systole) 0.9 m/s

Max. gradient (systole) 3.0 mmHg

Regurgitation stage 1

AT 0.11 sec, average DLA 26 mmHg

Characteristics:

IVC inhale/exhale 5/18mm

DLA systole 22 mmHg

Characteristics:

**Bicuspid Valve (prosthesis):**

Condition of the cusps: fibrosis

Diameter of the ring 36 mm

E 0.9 m/s, A 0.7 m/s, E/A 1.3

DT\_\_ms, E/E’ average \_\_

Max./mean gradient (diastole) 3.0/\_\_ mmHg

Area of the valve 4.40 cm2

Depth of coaptation\_\_mm

Coaptation of the cusps or leaflets \_\_mm

Regurgitation stage 1-2, V 3.5 m/s, PG 50 mmHg

VC \_\_mm

PISA: R 0.4 cm, ERO 0.09 cm2, Vol MR 9 ml

Characteristics: two-stream mitral regurgitation

**Tricuspid valve**:

Condition of the cusps: unchanged

Diameter of the ring 31 mm

E 0.6 m/s, A 0.4 m/s, E/A 1.4

Max./mean gradient (diastole) 1.0/\_\_mmHg

Regurgitation stage 2

Speed of regurgitation 2.4 m/s

Gradient of regurgitation 23 mmHg

VC 3 mm

PISA: R 0.4 cm, ERO 0.13 cm2, Vol TR 9 ml

Characteristics:

**Aorta**: diameter is on the level of sinus aortae \_\_mm (norm: 38mm), in a sinotubular junction \_\_mm, in ascending aorta 41mm (index 21 mm/ m2), aortic arch 30 mm.

Characteristics: thickened, dilatation of the ascending aorta

**Left atrium**: A-P diameter 40mm, 4-chamber 42/51, volume 73ml, volume left atrium/ surface area 38ml/ m2

**Left ventricle**: cardiodiastolic dimension 51mm, cardiosystolic dimension 31mm.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Volumes of left ventricle** | **Cardiodiastolic volume, ml** | **Cardiosystolic volume, ml** | **Stroke output, ml** | **EF %** |
| M-mode | 124 | 38 | 86 | 69 |
| B-mode (Simpson biplane) | 128 | 42 | 86 | 67 |

Cardiodiastolic volume/ SA 66 ml/ m2, Cardiosystolic volume/ SA 22 ml/ m2, Cardiac index (Stroke Output\* Cardiac Rate/ SA) 3.50 L/min/m2

Width of myocardium: interventricular septum 11 mm, left ventricular posterior wall 10mm, Relative width=(2\* left ventricular posterior wall width/ cardiodiastolic dimension)= 0.39

Mass of the myocardium (left ventricle) (B-mode) 201g, mass index 104 g/m2

Out-gate (left ventricle): diameter 22mm, linear velocity of blood flow (systole) 1.3 m/sec, systole gradient 7.0 mmHg, VT 26cm

Characteristics: dilated, hypertrophy of the myocardium (left ventricle and ventricular septum).

**Contractility of the myocardium of the left ventricle:**

Index of the local contractility of myocardium 1

**Right atrium**: 4-chamber 36/49 mm, volume 60ml, volume right atrium/ surface area 31 ml/ m2

**Right ventricle**: basal diameter 39 mm, median diameter 33 mm, out-gate tract 23 mm, longitudinal size 72 mm, TAPSE= 19 mm

**Interatrial** **septum**: no defects, localisation

**Interventricular septum**: no defects, localisation

**Pericard**: separation of the pericardial layers behind the right atrium 3mm, behind the lower wall of the left ventricle 3mm, behind the lower back wall of the right ventricle 3mm, behind the front wall of the right ventricle 2-3mm.

**Pleural cavities**: on the right- 300ml, on the left- 380ml of extra fluid

**CONCLUSION**: The condition after orthotics of the aortic valve (Edwardz 23) in the conditions of IR 11.11.2019, the aorta is thickened, dilated in the ascending region up to 41mm. The aortic valve: biological prosthesis, mean/ max. pressure gradients 15/25 mmHg, area of the effective aortic foramen 2.13 cm2, minimal regurgitation. The left atrium is slightly extended. The bicuspid valve: fibrosis of the cusps, slight regurgitation stage 1-2. The left ventricle is slightly extended. Moderate eccentric hypertrophy of the myocardium (left ventricle). Global and localised contractile force of the myocardium (left ventricle) remains at 67% EF. The right regions are not extended. Tricuspid valve: the cusps are unchanged; slight regurgitation up to stage 2 (PISA: R 0.4 cm, ERO 0.13 cm2, Vol TR 9 ml). Systolic DLA 22 mmHg. Bilateral hydrothorax.

**Lymphatic system 31.10.2019: Apparatus:** Logiq E9\_B304

Inguinal lymp nodes on the right and on the left up to 12-15mm; unchanged structure.

**Brachiocephalic artery 04.11.2019: Apparatus:** Vivid E95

**Cephalic and internal carotid arteries**

**Intima-media complex**:

**Right** thickness kilohm 1.1 mm- diffuse thickening; differentiation of the layers is disrupted

**Left** thickness kilohm 1.1 mm- diffuse thickening; differentiation of the layers is disrupted

**Intraluminal formations**: detected

**On the right**: in the area of carotid bifurcation, an atheromatous plaque is present with a junction to stenosis of the internal carotid artery up to 40% due to a hypoechoic local homogenous atheromatous plaque, with a flat surface at the front wall. A calcined atheroma was identified on the bottom wall.

**On the left**: in the lumen of carotid bifurcation, 30% stenosis due to a heterogeneous atheromatous plaque, which is mainly hyperechoic.

**Vascular geometry**

**Right**: no distinct characteristics **Left**: no distinct characteristics

**Vertebral artery**

**Right**: passage in the segment V1 with no distinct characteristics, passage in the segment V2- unevenness of the passage

**Left**: passage in the segment V1 with no distinct characteristics, passage in the segment V2- unevenness of the passage

**Clavicular artery**

**Right**: a thickness (kilohm 1.3 mm) in the clavicular artery orifice. Main triphase bloodflow.

**Left**: Main triphase bloodflow.

**Speed and spectral characteristics of bloodflow**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **D, mm** | **Vps, cm/sec** | **Vpd, cm/sec** | **RI** |
| **OCA** | | | | |
| Right | 5.0 | 96 | 37 | 0.61 |
| Left | 5.9 | 90 | 27 | 0.70 |
| **BCA** | | | | |
| Right | 5.6 | 70 | 28 | 0.60 |
| Left | 6.7 | 77 | 28 | 0.63 |
| **HCA** | | | | |
| Right | 4.2 | 102 | 27 | 0.73 |
| Left | 4.0 | 88 | 19 | 0.78 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Diameter** | **Vps, cm/sec** | **Vpd, cm/sec** | **RI** | **Direction of flow** |
| Vertebral artery (right) | 3.2 | 44 | 18 | 0.60 | antegrade |
| Vertebral artery (left) | 3.5 | 47 | 16 | 0.65 | antegrade |

**SUMMARY**: Constrictive atherosclerosis of brachiocephalic arteries without haemodynamically important changes. The unevenness of the passage of the vertebral arteries between spines of vertebrae is possibly caused by osteochondrosis of the cervical spine.

**Small pelvis** **31.10.2019: Apparatus:** Voluson E10

**Ultrasound investigation of the organs of the small pelvis** (with application of main technological methods: **C PW PD** )

Transabdominal scanning

Transvaginal ultrasonography

Postmenopause

**Uterus**: location- anteriad;

Shape: regular, even contour

Size and parameters: linear/ lateral- 43mm, anteroposterior- 27mm, width- 45mm

**Myometrium**- inhomogeneous; calcification (diameter- 4mm) was identified at the back wall; a subserosal node (with a wide base of 10mm in diameter) was identified along the front wall. Color flow mapping (CFM): perinodular type of bloodflow, weak IR\_0.72\_Vs\_12.81 cm/sec, Vd\_3.63\_cm/sec

A vascular image was unchanged

**M-echo**: 4.0 mm

**Differentiation with myometrium**: clear

Characteristics: homogeneous

**Uterine cavity**: extended with fluid content up to 1.5mm

**Uterine cervix**: cervical canal is clamped; the passage contains small, retentional cysts (max. diameter up to 4mm)

**Left ovary**: larger in size than the age norm, capacity- 3.8 cm3

Size/ paramaters: linear/lateral- 27mm, anteroposterior- 15mm, width: 19mm

Structure: the follicular apparatus is absent; instead, its space is taken up by smooth-bore fluidal inclusion (diameter: 6mm), during CFM: the bloodflow is not registered.

**Right ovary**: larger in size than the age norm, capacity- 3.4 cm3

Size/ paramaters: linear/lateral- 27mm, anteroposterior- 14mm, width: 17 mm

Structure: the follicular apparatus is absent;

Voluminous formations- undetected

**Free-flowing fluid in the small pelvis**: undetected

**Summary**: Hysteromyoma, moderately sized. Enlarged ovaries.

Cystically changed left ovary. Intrauterine fluid collection.

**Recommended**: Consultation with a gynaecologist.

**Iliofemoral segment 04.11.2019: Apparatus** Vivid E95

**COLOUR DUPLEX SCANNING OF ARTERIES OF THE ILIOFEMORAL SEGMENT**

**Intima-media complex**: thickness kilohm 1.1/1.1 mm (both right and left)- diffuse thickening; differentiation of the layers is disrupted

**Intraluminal formations**: not detected

**Speed and spectral charalcteristics of bloodflow**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Vps, cm/sec | Type of bloodflow | Atheromatous plaque, % of stricture formation |
| **Common iliac artery** | | | |
| Right | 100 | Trunk |  |
| Left | 100 | Trunk |  |
| **External iliac artery** | | | |
| Right | 150 | Trunk |  |
| Left | 130 | Trunk |  |
| **Common femoral artery** | | | |
| Right | 120 | Trunk |  |
| Left | 100 | Trunk |  |
| **Femoral artery (prox./dist.)** | | | |
| Right | 100/60 | Trunk |  |
| Left | 95/85 | Trunk |  |
| **Deep femoral vein** | | | |
| Right | 80 | Trunk |  |
| Left | 80 | Trunk |  |

|  |  |  |
| --- | --- | --- |
|  | Right | Left |
|  | When sitting/ When lying down, mm | When sitting/ When lying down, mm |
| **Common femoral artery** | 7.9/8.0 | 8.3/8.6 |
| **Common femoral vein** | 12.0/14.0 | 10.0/13.0 |
| **Femoral artery** | 5.8/6.0 | 5.6/6.5 |
| **Femoral vein** | 6.3/7.5 | 7.0/ 9.0 |

Summary: Arteries of the iliofemoral segment with no haemodynamically important changes.

**Pleura+ Pericardium 14.11.2019: Apparatus:** Vivid-iq\_B307

**Pericardium:** separation of the pericardial layers behind the front wall of the right ventricle 2-3mm, behind the inferolateral wall of the right ventricle 2-3mm, behind the right atrium 3-4mm, behind the lower wall of the left ventricle up to 4mm, behind the basal segments of the side wall of the left ventricle 2-3mm

**Pleural cavities**

**Right:** 300ml of extra fluid

**Left:** 290mlof extra fluid

**Pleura+ Pericardium 15.11.2019: Apparatus:** Vivid E9

**Pericardium:** separation of the pericardial layers behind the front wall of the right ventricle 3mm, behind the lower wall of the left ventricle 3- 4mm, behind the lower side wall of the right ventricle 3mm, behind the right atrium 4mm

**Pleural cavities**

**Right:** 300ml of extra fluid

**Left:** 350-390mlof extra fluid

**Pleura+ Pericardium 16.11.2019: Apparatus:** Phillips IE-33

**Pleural cavities**

**Right:** 300ml of extra fluid

**Left:** 380ml of extra fluid

**Pleura+ Pericardium 19.11.2019: Apparatus:** Phillips IE-33

**Pericardium:** separation of the pericardial layers behind the lower wall of the left ventricle 3mm, behind the front wall of the right ventricle 2-3mm, behind the right atrium 3mm

**Pleural cavities**

**Right:** 300ml of extra fluid

**Left:** 410mlof extra fluid

**Pleura+ Pericardium 21.11.2019: Apparatus:** Vivid E9

**Pericardium:** separation of the pericardial layers behind the front wall of the right ventricle 2-3mm, behind the right atrium 3mm

**Pleural cavities**

**Right:** 160ml of extra fluid

**Left:** 300-380mlof extra fluid

**Functional diagnostics**:

**ECG 30.10.2019**- Sinus rhythm. Normal electrical axis of heart. Dysfunction of intraventricular conduction.

**ECG 13.11.2019**-Moderate sinus tachycardiawith heartbeat of 90 bpm. Abnormal electrical axis of heart to the left. Full blockage of the left bundle branch block.

**ECG 14.11.2019-** Sinus rhythm. Abnormal electrical axis of heart to the left. Full blockage of the left bundle branch block.

**ECG 16.11.2019-** Sinus rhythm. Abnormal electrical axis of heart to the left. Full blockage of the left bundle branch block.

**ECG 21.11.2019-** Sinus rhythm. Abnormal electrical axis of heart to the left. Full blockage of the left bundle branch block.

**EGC 05.11.2019- Apparatus**: Pentax EG27-i10

The apparatus was inserted into the oesophagus. The oesophagus can be passed freely, becomes filled with air. Its mucoid is pale-pink. The cardia does not interlock fully. The stomach has a regular shape. The inside of the lumen and the walls contain a moderate amount of saliva with mucus. The folds are linear/ lateral, twisted, can get evened out/ flattened with airflow. The mucoid is moderately hydropic, focally reddened, with areas of atrophy and hyperplasia. **Biopsy from the mucoid is of approximately a third of the body of the stomach on the high and low curvature in areas of atrophy and hyperplasia**. The peristalsis was tracked in all sections. The pylorus has a circular shape, can be passed freely. The bulb of the duodenum has a regular shape. Its mucoid is moderately hydropic and reddened. The postbulbar section of the duodenum can be passed freely. Its mucoid is hydropic; the lumen contains bile.

CONCLUSION: Incompetence of cardia. Atrophically- hyperplastic gastropathy. Erythematic duodenopathy.

**№ of the histopathological investigation** 49781-49786/19

**Macroscopic description**:

Small grey ferments 3g

**Conclusion**

**K29.3 (Chronic superficial gastritis): localisation: antral; the marker of inflammation: intense; activity: moderately active; Helicobacter contamination:0.**

**Colonoscopy 31.10.2019- Apparatus:** Olympus CF-HQ190L

The apparatus was transferred until the dome of the blind intestine and introduced into the terminal section of the ileum. The walls of the terminal section of the ileum are elastic with the pink mucoid, no twists.

The lumen of the large intestine contains rinse water in a small amount with organic food remains (BBPS-6 scores)- aspiration of the fluid content was conducted.

The large intestine is being well-filled with air along the whole surface; its wall are elastic; gaustation remains; the tone of the intestine is within the norm. Peristalsis is being tracked. Ileocecal valve has a lip-form shape, is elastic and motile. The mucoid of the large intestine is smooth along its full length, pale- pink; regular vascular pattern.

At 5cm from the anus a saucer-shaped tumour 12mm\*15mm with a loose surfacr (JNET-2b/JNET-3)- a **biopsy** was performed.

The tone of the external sphincter remained the same.

SUMMARY: **A saucer-shaped tumour of the straight intestine**.

**№ of the histopathological investigation** 48882-48884/19

**Macroscopic description**:

Small grey ferments 3k

**Conclusion**

**C20 (A malignant tumour of the straight intestine): 8140/3 Adenocarcenoma; Moderately differentiated**

**Roentgeno-graphy of the organs of the thorax № 12.11.2019 Effective Equivalent Dos (EED) 0.18 mSv**- Reanimation. In the sitting position. The lung fields- no apparent new infiltrated and focal lung lesions.

The roots are extended. The lesion of the SNS is enlarged. A light amount of fluid in the plural cavities. The contours of the diaphragm are even. Cor- extended arch of the left ventricle. Thickened aorta. The CVC lesion in WPW. Metallic lesions of the sternal stitches.

**MRI Lower small pelvis (female) 30.10.2019**- The MRI investigation of the organs of the small pelvis detected… located on the right side and front walls of the lower lumbar cord of the rectum; semi-circular homogeneous formation (thickness: up to 12 mm) along the stretch of up 3cm within the intestinal wall.

The rate of diffusion in the tumour tissue is limited (ADC (apparent diffusion coefficient)- 0.79 x 10-3 mm2/ sec).

The lower pole of the tumour is located approximately 2cm away from the anorectal angle. The distance from the visible edge of the tumour up to the mesorectal fascia is no more than 6mm (visually intact). Two enlarged pararectal lymph nodes were detected: in the ventral area of the mesorectal fatty tissue, cranially from the location of the tumour- up to 12 x 19 mm and to the right on the level of its upper pole- up to 11 x 14 mm. A few of the smaller pararectal lymph nodes near the tumour and the singular internal iliac lymph node to the right are not enlarged (up to 4 mm), but demonstrate a bright signal on the diffusion sequences.

The uterus is in the anteversion position, with a small (up to 11 mm) subserous myoma in the front wall of its body.

The sizes of the uterus are within the age norm. The thickness of the endometrium does not exceed 2 mm. The ovaries are not enlarged; a small cyst up to 6mm in diameter was visualised in the left ovary.   
The bladder is adequately filled; regular thickness of the walls; no visually evident structural changes detected. The perivesical fatty tissue is not infiltrated.

The vessels of the small pelvis have a regular lumen and of a normal calibre. No manifestations of lymphadenopathy detected.

SUMMARY: C-R OF THE LOWER-AMPULLARY AREA OF THE RECTUM T2, N1, Mx.

**X-ray computer tomography, Thorax 06.11.2019**- Postprocessing: MPR, MIP, Average

A written consent form for the X-Ray investigation was received from the patient.

During the X-ray computer tomography investigation of organs of the thorax, an unsharp and unpronounced fibrous heaviness in the basal regions (S9 and S10) of the right lung was detected. No intrapulmonary nodes, formations and zones of infiltration of the lung parenchyma were detected.

The trachea and the bronchi up to the 3rd order can be freely passed, are of a normal calibre, undeformed.

The mediastinum is located centrally, is of a normal width. No voluminous formations in all of its sections were detected. Mediastinal (bifurcational, para-aortic and paratracheal) lymph nodes are enlarged up to 8mm in diameter.

The pleura is not enlarged; no accumulation of fluids in the pleural sinuses.

The heart is enlarged. Calcinosis in the aortic arch.

The thorax of the spine shows manifestations of spondylosis. No destructive changes of visualized sections of the skeleton.

SUMMARY: MEDIASTINAL LYMPHADENOPATHY. ENLARGEMENT OF THE HEART. ATHEROSCLEROSIS OF. THE AORTIC ARCH. SPONDYLOSIS OF THE THORAX OF THE SPINE.

**06.11.2019: Register №** 459-7727

Investigation: Cardiac catheterisation and catherisation of the macrovessels (1); Coronarography (1); Pharmaco-coronarography (1);

**Results of the investigation for the protocol № 459-7727 (06.11.2019)**

**Access**: right LA. Catheters: JLF5F; TRAP4 5F. 2.5mg of verapamil intra-arterially, 4000 units of heparin intravenously.

**Results of the investigation**:

Calcinosis in the projection of the aortic valve.

**LCA**: Trunk- bifurcation, no distinct features. Anterior interventricular branch, DV1, DV2- moderately developed, no significant stricture formation.

**RCA**: - Normal development, no significant stricture formation.

**Type of CA**: -Balanced

**Summary**: No data for significant lesions of CA was detected.

**Recommended**: A consultation with a cardiac surgeon due to an aortic valve disease.

**Complications: none noted.**

**A contrast medium Omnipack was injected (350 mg/ml)- 100ml**

X-ray time 00:06:08

Total 1923.5 mGym2

**Gynaecologist 31.10.2019 Diagnosis: D25 Uterine leiomyoma (main)/ N83 Noninflammatory syndromes of the ovary, the Fallopian tube and the mesodesma/ (main)/**

**Clinical diagnosis: A small metrofibroma. Enlarged ovaries (according to the ultrasound investigation of pelvic organs),**

**Cystically changed left ovary.**

**Collection of smears for fluid cytology.**

**RECOMMENDED:**

-Blood test on CA-125, HE-4, ROMA index

-Mammography once every 2 years

-In case of normal results for oncomarkers- control ultrasound in 6 months

**Results of the pathological investigation** **№** 11793- 11794/ 19

**Cytologic conclusion**

Quality**:** adequate; cells of the prismatic/ metaplastic epithelium are present.

Cells of the lower layers of the flat and prismatic epithelium (leukocytes, no flora).

Conclusion: NILM/ Norm (moderate atrophy).

**Oncologist 20.11.2019**

Complaints: during the current examination, the patient presented none.

Objective inspection:

Satisfactory condition: skin integuments- normal colouring

On the skin of the front surface of the right thigh in the upper third- formation, 5-6mm, black brown colour with clear even contours, which marginally protrudes above the skin level (from the patient’s account- it has been present unchanged for many years).

Lymph nodes- not enlarged. Breathing in the lungs: normally vesicular.

Stomach: soft, analgic

Kidneys and bladder- not palpating

Stool- within the norm

Urination- undisrupted

**Diagnosis: C20 Malignant neoplasm of the rectum/ (main)/ /C-r of the lower-ampullary area of the rectum cT3N1M0, Clinical group: 2**

**Dysplastic nevus of the skin on the right thigh. Mediastinal lymphadenopathy.**

The physical examination of the patient was completed.

The question about surgical treatment will be resolved after the consultation of the radiologist and the chemotherapist in the oncologic dispensary in the home area (according to the recommendation of the Rnpts Omr Im. N.n. Aleksandrova). Re-inspection of CT (chest organs) in oncologic dispensary.

**Surgeon 20.11.2019**

**C-r of the n / ampullary section of the straight intestine cT3N1M0**

Recommended: operative therapy. Hospitalisation in the surgery department 16.12.2019.

Consultation with an oncologist.

**Rehabilitation specialist** **19.11.2019**

PR as part of the early postoperative period was terminated with improvement.

Completed: Therapeutic exercise, inhalation therapy with physical solution, attenuated back massage, massage of the distal aspects of extremities, psychological counseling.

Stage of activity of the IIIb. The complex of therapeutic exercises №2 was taught to the patient; going up the stairs to floor 1.

Test for 6-min ambulation/ walking upon submission- was not run; after discharge from the hospital- 340m.

Before discharge from the hospital, movement- functional class 3, self-service- functional class 3, physical aptitude- functional class 4.

It is recommended to continue the mobile rehabilitation:

-walking up to 500-700m at a rate of 70-80 steps/min.

-therapeutic exercise (matching the IIIb-Iva stages of activity with progressive extension of the movement regime, therapeutic gymnastics, complex №3);

-physiotherapy following the guidance

-bandage of the thorax up to 3 months

**The treatment provided**: Pantoprazole, Aspicard, Concor, Bravadil (prescribed to lower the heartbeat, taking into account the hypotension during the process of stepping up the dose of Concor), Furosemide (occasionally), Auditor. therapeutic exercise, physiotherapy.

**Operation (11.11.19)** The aortic valve: biological prosthesis (Edwards Perimount Magna Ease 23) in the conditions of IR. Albumin was using during the operation- no reactions and complications as a result.

**RECOMMENDED**:

* To continue the rehabilitation in the rehabilitation department of the city clinical hospital 4 (the transfer was accredited for 21.11.2019)
* Acetylsalicylic acid (Cardiomagnyl, Aspicard) 75mg after lunch on a daily basis
* Bisoprolol (Concor, Coronal, Bicard) 5mg in the morning, daily, controlling the heart rate
* Torasemide (Diuver, Auditor, Britomar) 5mg in the morning before breakfast, daily
* Ivabradine (Coraxan, Bravadine) 5mg twice a day, controlling theheart rate
* Pantoprazole 20mg before bed
* Remove the stitches after 12-14 days
* Hospitalisation in the surgical department “Republican Clinico-Medical Hospital” (Zhdanovichiskiy s/s, 81/5 Minskiy district, 223028, Belarus) for operative therapy 16.12.2019…. (with?) the results after the consultation with the radiologist+ chemotherapeutist of the oncologic dispensary in the home area (according to the recommendation of the Rnpts Omr Im. N.n. Aleksandrova).

The patient was discharged with the satisfactory condition of health. The results of ECG were handed over to the patient. The patient was bandaged.

Attending doctor- Dobrosoltseva Natalya Alexandrovna

Chief of the department- Gubar’ Elena Nikolaevna

Chief of the clinical surgical department, Candidate of Medical Sciences- Shket Alexander Pavlovich

Deputy chief doctor, Candidate of Medical Sciences- Slobodin Yury Valerievich

21.11.2019, 07:56