CASE REPORT

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Pregnancy and Delivery in a Patient After Tetralogy of Fallot Surgery Being Undergone

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ABSTRACT

Aim: The aim of the paper is to present the risk of pregnancy for mother and her child in a young patient who had a surgery to repair Tetralogy of Fallot (ToF), who gave a birth to her firstborn by having a cesarean section. **Case report:** 23 years old patient, in 28 weeks of pregnancy was admitted to the clinic due to her medical record. She did not have any subjective complaints. She had two surgeries to repair ToF. After the surgery, she had residual ventricular septal defect (VSD). She had her first surgery 20 years ago (she was 3 years old), and second 7 years ago (she was 16). She had regular check-ups since, and her heart condition was unchanged. Due to her heart surgeries and VSD, a cardiologist indicates that she should deliver by having a c-section when she is 36 weeks pregnant. The patient's heart condition was stabilized and the patient was sent home. She was recommended to have her cardiologist check up on her as she leaves the hospital and to have a gynecological examination in 6 weeks. **Conclusion:** It can be concluded that team work and prenatal care, in most cases, lead to delivery without complication, both for mother and fetus.

Keywords: congenital heart defect, Tetralogy of Fallot, pregnancy.

1. INTRODUCTION

Tetralogy of Fallot (ToF) is one of the most common right to left shunt congenital heart defect with a rate of 5 to 8 percent over total number of congenital heart disorders (1, 2). Applications of new surgical techniques lead to improvement in treating ToF in early childhood. Quality of patients' life is also improved as well as survival rate and complication appear 20 years after a surgery some of which are cardiac insufficiency, pulmonary regurgitation and supraventricular arrhythmia (3). An increase in congenital heart disorders is noticed in infants born by mothers with ToF (4).

2. AIM

The aim of the paper is to present the risk of pregnancy for mother and her child in a young patient who had a surgery to repair ToF, who gave a birth to her firstborn by having a c-section.

3. CASE REPORT

23 years old patient was admitted to University clinical centre Tuzla, Department for Pathology of Pregnancy, Clinic for Gynecology and Obstetrics. She was 28 weeks pregnant. She was admitted to the clinic

due to her medical record. She did not had any subjective complaints. She had two surgeries to repair ToF. After the surgery, she had residual ventricular septal defect. She had her first surgery 20 years ago (she was 3 years old), and second 7 years ago (she was 16). She had regular check-ups since, and her heart condition was unchanged. When admitted to hospital patient's health was normal, her skin was a bit pale. There was a scar on her chest left after sternotomy. Blood pressure was 120/80, pulls 95/min and systolic murmur. Specific findings: cervix 1.5cm long, closed with head first, uterus was not toned, there were no contractions. Cardiology treatment includes beta blockers, and diuretics as needed. While in hospital, the patient was observed clinically, using an echosonogram and laboratory. The laboratory analysis were as follows: white blood cells 13.66, red blood cells 3.44, hemoglobin 103, hematocrit 0.339, platelets 155, total protein 51g/l, albumin 29 g/l, acid-base balance is normal, some bacteria in urine, in coagulation status: hyperfibrinogenemia and the rest of the data was normal. Ultra sound colour Doppler indicates that baby was in a head first position, BPD 84mm (29+4), AC 250mm (29+1),

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Femur 52mm, fetal heart tones were normal, enough amniotic fluid, placenta was positioned on the front wall, RI umbilicalis: 0.70 (normal flow). Dexamethasone prophylaxis of respiratory distress syndrome of the newborn was included. On the day of her release from the hospital, the patient was stabilized. The patient was given a therapy consisted of Cephalexin caps 500mg 4 times a day, ten days in a row and urological tea. Second hospitalization was when the patient was 32/33 weeks pregnant. She complains had fatigue has difficulties moving, had to lay in bed more often, developed nail cyanosis and increased heart rate. Due to the symptoms, she had a cardiologist check-up. Gynecological findings were normal. During the hospitalization, her vital parameters were normal. She checked her health by doing laboratory examination as well as clinical and cardiographically and using an echosonogram. Her lab results show that the patient had a urinal infection. She was given a therapy that includes low molecular heparins 20 international units subcutaneous, amoxicillin/clavulonic acid 625mg 3 times a day for seven days, some iron and prenatal vitamins. Third hospitalization was arranged for patient's 33/34 week of pregnancy. The patient was constantly monitored by a team and an anesthesiologist and a cardiologist were often consulted. On the 26th day of the patient's hospitalization, a medical consulting team that included a gynecologists, cardiologist and anesthesiologist met because a cardiotocogram showed some contractions, uterus was toned, and cervix was one finger dilated, fetal heart tone was normal, amniotic fluid was clear, there was a trace of vernix. The patient had a heart surgery to repair ToF and VSD therefore a cardiologist suggested delivering, in a 36 week of pregnancy, a baby by c-section using the Misgav Ladach and Joel-Cohen method. It was a successful surgery.

The newborn was a preterm male, born after a prolonged extraction, had asphyxia neonatum, pale, asphyxiated, cyanotic, had regular heart rate, his reflexes were weakened. Baby was hypotonic and weights 2890 grams, length 55cm, head circumference 33 cm. Apgar score 5/7. Baby was aspired and received oxygen he started breathing, skin colour was pink, weak cry. Breaths normally, 40 respiration per minute, regular heart rate, heart sounds were clear. On the sternum left side systole sound was heard II/6. A cardiologist examined the patient. Echocardiogram indicated that the patient had situs solitus. Vein atrium connection was normal. Myocardium tonus was normal. Atrium and ventricles of the heart were normal size. Interatrial septum: there was a small defect in the middle with a small left to right shunt opening of foramen ovale. Interventricular septum was intact. Morphology and movement of AV valves was normal. Above tricuspid valve there was a mild regurgitation. Pulmonary artery was normally positioned and had a regular width. Aortic root had a normal morphology. Aortic bow was visible. Pericardium was normal. The flow in other valves was normal. Diagnosis: premature baby, 35 weeks of pregnancy, asphyxia neonatum, c-section, intracranial hemorrhage grade 2, persistent foramen ovale, bilateral pyelectasis.

In post surgery treatment the patient developed anemia so the patient was given one doses of red cells transfusion. Aside from prescribed antibiotic treatment, the patient was given constant care, and a cardiologist examined the patient. The laboratory analysis after the surgery were as follows: white blood cells 6,45, red blood cells 3,17, hemoglobin 97, hematocrit 0.296, platelets 129, PTC: 0.01, acid-base status: pH: 7.47, pCO₂: 4.09 Po₂: 10.30. HCO₃: 22.2, tCO₂: 23.20, sO₂: 97,9.

Urine was blurred, ketones positive, RBC positive, proteins positive, urine sediments positive: WBC 15-20, RBC a lot, epithelium 6-10. Granulated cylindrical cells 2-4, some bacteria. Some mucus.

Cardiologist examination leads to diagnosis: Status post surgical condition, ToF, residual VSD, right bundle branch block, ventricular extrasystolic arrhythmia.

Heart ultrasound: mildly speeded up flow above aorta and pulmonary trunk 2,5 m/s, minor AR, beam speed of tricuspid regurgitation is 3.1m/s and beam speed on VSD IS 1.8 m/s. There is an increase in PAPS for 50mmHg. Right atrium is mildly enlarged but still smaller that in was. A cardiologist's findings were similar to the last findings with a slightly enlarged right atrium.

The patient is released for home treatment of a stable general, local and cardiological status with recommendations to go to control for cardiologist for 2 weeks, control of gynecological is for 6 weeks.

4. DISCUSSION

There was a significant increase in number of miscarriages and cardiovascular complications during pregnancy in patients with repaired ToF. It can be said that expectant mothers with repaired ToF endure pregnancy rather well and there can be some complications such as lung regurgitation and symptomatic heart failure (3). In the above mentioned case, the patient did not had any cardiological complications. The labor was finished with c-section because it leads to minor increase in minute volume (30%) as opposed to natural birth (50%), even though c-section had a lot of possible complications too. High percentage of c-section represents precaution of obstetricians and cardiologists. Such a high risk pregnancy involves team work of cardiologist, an internist and echocardiograph, gynecologist, obstetrician, anesthesiologist (4). It was noticed that the expectant mothers endured pregnancy well as long as they planned it according to their cardiological status and were under a team of cardiologists and perinatologists. There were no recorded cases of heart defects in newborns (5, 6). In the international multi-centric, retrospective studies it was observed that expectant mothers with repaired ToF develop supraventricular and ventricular arrhythmia. There was an increase of dilatation of right atrium after an accouchement. The most common obstetrical complications was a miscarriage due to premature amniotic membrane rupture and postpartum hemorrhage. Some neonatological outcomes were high mortality percentage, partially due to prematurely born babies. It was also notices that newborns were born with low body weight for their age which was closely related to frequen-

cy of negative cardiovascular outcome during pregnancy which can lead to hemodynamic changes and placenta insufficiency as a result (7). Residual heart defect in combination with changes in cardiovascular system during pregnancy can affect the outcome of the pregnancy and lead to symptomatic heart failure and arrhythmia. Special attention should be paid to possible development and deterioration of pulmonary regurgitation (8).

5. CONCLUSION

According to the described case it can be concluded that team work and carefully observed pregnancy, in most cases, is without complications both for a mother and a child.

- Conflict of interest: none declared.
- Authors Contribution: All authors participated in each step of case report and gave final approval for publishing.

REFERENCE

1. Pedersen LM, Pedersen TA, Herskind AM. Multiple pregnancies in women with corrected tetralogy of Fallot. *Ugeskr Laeger*. 2008 Oct 20; 170(43): 34-6.
2. Begic Z, Dinarevic SM, Pesto S. et al. Evaluation of Diagnostic Methods in the Differentiation of Heart Murmurs in Children. *Acta Inform Med*. 2016; 24(2): 94-8. doi:10.5455/aim.2016.24.94-98.
3. Al-Aqeedi RF, Alnabti A, Al-Ani F. et al. Successful Delivery by a Cesarean Section in a Parturient with Severe Dilated Cardiomyopathy, an Implantable Cardioverter Defibrillator, and a Repaired Tetralogy of Fallot. *Heart Views*. 2011 Jan-Mar; 12(1): 26-31.
4. Pitkin RM, Perloff KJ, Koos JB. et al. Pregnancy and Congenital Heart Disease. *Ann Intern Med*. 1990; 112 (6): 445-54.
5. Filcheva M, Garnizov T, Filchev S. The course of pregnancy and delivery in patients with surgically corrected tetralogy of Fallot. *Akush Ginekol (Sofia)*. 2004; 43(6): 3-9.
6. Agarwal N, Gupta M, Singh N. et al. Successful Management of Pregnancy in Uncorrected Tetralogy of Fallot with Pulmonary Atresia. *Journal of Obstetrics and Gynaecology of India*. 2015; 65(6): 417-9.
7. Balci A, Drenthen W, Mulder BJ. et al. Pregnancy in women with corrected tetralogy of Fallot: occurrence and predictors of adverse events. *Am Heart J*. 2011 Feb; 161(2): 307-13.
8. Meijer JM, Pieper PG, Drenthen W. et al. Pregnancy, fertility, and recurrence risk in corrected tetralogy of Fallot. *Heart*. 2005 Jun; 91(6): 801-5.

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