Supplementary material

Grzyb A, Koleśnik A, Bokiniec R, Szymkiewicz-Dangel J. Tetralogy of Fallot in the fetus — from diagnosis to delivery. 18-year experience of a tertiary Fetal Cardiology Center. Kardiol Pol. 2022.

Table S1. Data on prenatal diagnosis and reasons for referral to the echocardiographic examination.

	All (n = 326)	**TOF-PS (n = 237)**	**TOF-PA (n = 72)**	**TOF-APV (n = 17)**
Maternal age, years	31 (16–47)	31 (20–47)	31 (16–42)	31 (21–40)
Fetal age at diagnosis, weeks	23 (12–39)	23 (14–38)	22 (12–39)	24 (14–37)
Diagnosis before 23rd week	153 (47%)	109 (46%)	37 (51%)	7 (41%)
Reason for referral				
Suspicion of TOF	83 (25%)	59 (25%)	21 (29%)	3 (18%)
Abnormal four-chamber view	83 (25%)	54 (23%)	21 (29%)	8 (47%)
Abnormal three-vessel view	79 (24%)	58 (24%)	20 (28%)	1 (6%)
Abnormal heart view — not specified	42 (13%)	32 (14%)	8 (11%)	2 (12%)
Extracardiac defect	69 (21%)	54 (23%)	13 (18%)	2 (12%)
Fetal arrhythmia	2 (1%)	2 (1%)		
Difficulty to assess the heart	6 (2%)	5 (2%)		1 (6%)
Abnormal genetic testing	17 (5%)	14 (6%)	1 (1%)	2 (12%)
Multiple pregnancy	11 (3%)	8 (3%)	3 (4%)	
Maternal age >35 years	91 (28%)	62 (26%)	23 (32%)	6 (35%)
Family history of CHD	17 (5%)	11 (5%)	5 (7%)	1 (6%)
In vitro fertilization	12 (4%)	10 (4%)	2 (3%)	

Other	14 (4%)	11 (5%)	3 (4%)	

Data expressed as median (range) or n (%). No significant differences between subgroups regarding diagnostic data were observed

Abbreviations: TOF, tetralogy of Fallot; PS, pulmonary stenosis; PA, pulmonary atresia; APV, absent pulmonary valve; CHD, congenital heart defect

Table S2. Associated cardiovascular malformations in fetuses with TOF

	All fetuses	**TOF-PS**	**TOF-PA**	**TOF-APV**	***P*-value**
All	159 (48.8%)	107 (45.1%)	41 (56.9%)	11 (64.7%)	
RAA	80 (24.5%)	49 (20.7%)	23 (31.9%)	8 (47.1%)[a]	0.03
LSVC	35 (10.7%)	26 (11.0%)	8 (11.1%)	1 (5.9%)	
AVSD	26 (8.0%)	25 (10.5%)	1 (1.4%)		0.01
ALSA	20 (6.1%)	15 (6.3%)	4 (5.6%)	1 (5.9%)	
ARSA	10 (3.1%)	7 (3.0%)	2 (2.8%)	1 (5.9%)	
HCM or NCM	11 (3.4%)	7 (3.0%)	3 (4.2%)	1 (5.9%)	
DV agenesis	13 (4.0%)	10 (4.2%)	3 (4.2%)		
Other	14 (4.3%)	6 (2.5%)	8 (11.1%)		
Arrhythmia	13 (4.0%)	11 (4.6%)	2 (2.8%)		

Abbreviations: RAA, right aortic arch; ARSA/ALSA, aberrant right/left subclavian artery; AVSD, atrioventricular septal defect; LSVC, left superior vena cava; HCM/NCM, hypertrophic/non-compacted myocardium; DV, ductus venosus; other — see *Table S1*

Only significant *P*-values were given

Table S3. Associated extracardiac malformations (ExCM) in fetuses with TOF

	All fetuses	**TOF-PS**	**TOF-PA**	**TOF-APV**
All associated ExCM	172 (52.8%)	118 (49.8%)	41 (56.9%)	13 (76.5%)
Critical ExCM	58 (17.8%)	41 (17.3%)	14 (19.4%)	3 (17.6%)
Genitourinary system	48 (14.7%)	36 (15.2%)	8 (11.1%)	4 (23.5%)
Pyelectasiae	21	15	2	4
Multicystic kidney	9 [3a]	6 [3a]	3	
Kidney agenesis	6 [1a]	5	1 [1a]	
Hydronephrosis	6	5	1	
Hypospadias	3	2	1	
Kidney ectopy	2	2		
Other	4	4		
Skeletal system	34 (10.4%)	26 (11.0%)	7 (9.7%)	1 (5.9%)
Shortened femur / humerus	14	9	5	
Clubbing foot	9	7	1	1
Polydactyly	6	5	1	
Overlapping fingers	4	3		1
Vertebral anomalies	4	2	2	
Facial region	32 (9.8%)	26 (11.0%)	4 (5.6%)	2 (11.8%)
Hypoplastic nasal bone	12	9	1	2
Micrognathia	8	5	2	1
Cleft lip and/or palate	7	7		
Ear anomalies	6	4	1	1
Ocular anomalies	5	4	1	
Gastrointestinal system	30 (9.2%)	24 (10.1%)	6 (8.3%)	
Omphalocele	11	8	3	
Duodenal atresia	5	4	1	
Hyperechoic/dilated intestines	5	4	1	
Esophageal atresia	4	3	1	
Anal atresia	2	2		
Other	3	3		
Central nervous system	25 (7.7%)	17 (7.2%)	7 (9.7%)	1 (5.9%)
Ventriculomegaly	10	7	3	

Cerebellar vermis hypoplasia	9	7	2	
Myelomeningocele	3	1	1	1
Holoprosencephaly	2	1	1	
Other	4	2	2	
Chest	11 (3.4%)	8 (3.4%)	2 (2.8%)	1 (5.9%)
Congenital diaphragmatic hernia	6	5	1	
Decreased chest circumference	4	3	1	
Hyperechoic lungs	1			1
Other				
Hydrops	5 (1.5%)	3 (1.3%)	1 (1.4%)	1 (5.9%)
Pericardial effusion	8 (2.5%)	7 (3.0%)		1 (5.9%)
Hypoplastic thymus	59 (18.1%)	31 (13.1%)	18 (25.0%)	10 (58.8%)
Single umbilical artery	37 (11.3%)	27 (11.4%)	9 (12.5%)	1 (5.9%)

[a]Defect occurring bilaterally and number of cases. Abbreviations: see *Table S1*

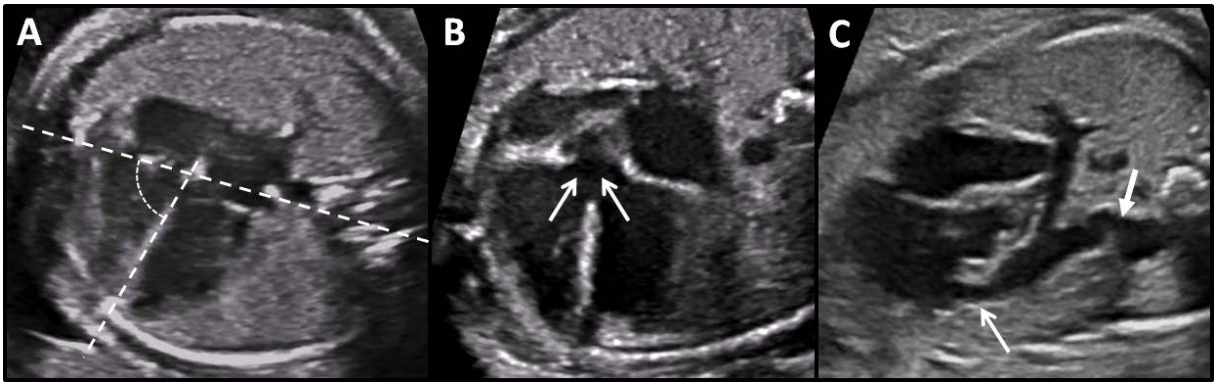

Figure S1. Typical sonographic features of fetal tetralogy of Fallot (TOF). **A.** Four-chamber view, increased cardiac angle. **B.** Aorta overriding the ventricular septal defect (arrows). **C.** Subvalvar right ventricular outflow tract obstruction (thin arrow), well developed pulmonary arteries and tortuous ductus arteriosus (thick arrow) in a fetus with TOF-pulmonary stenosis

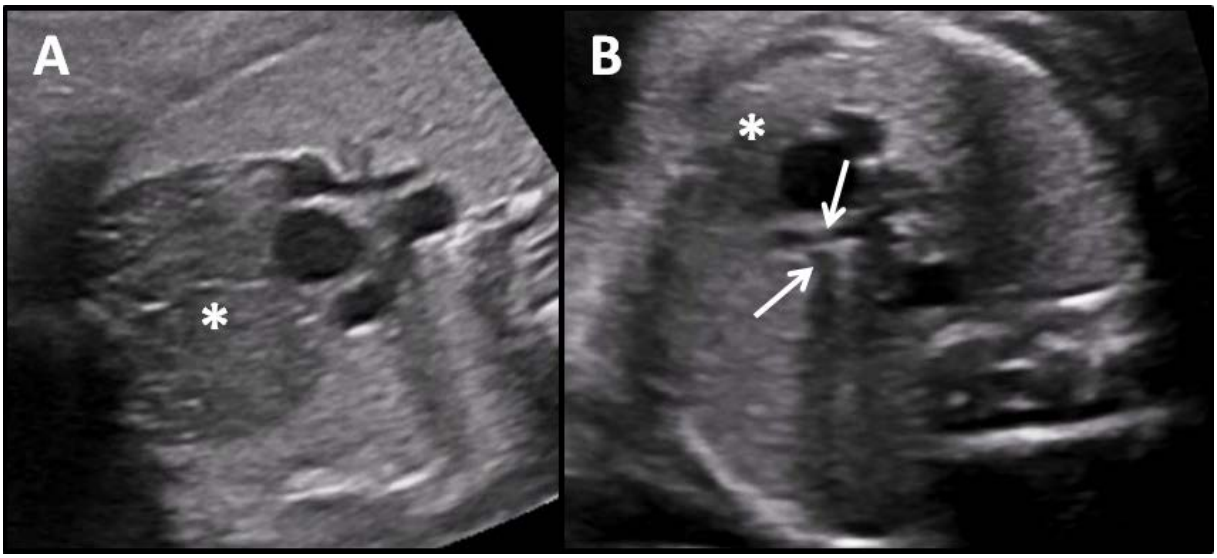

Figure S2. Thymus assessment in fetuses with tetralogy of Fallot (TOF). **A.** Normal-sized thymus in a fetus with normal karyotype. **B.** Hypoplastic thymus (asterisk) and severely hypoplastic confluent pulmonary arteries (arrows) in a fetus with TOF, pulmonary atresia, aorto-pulmonary collaterals and microdeletion 22q11

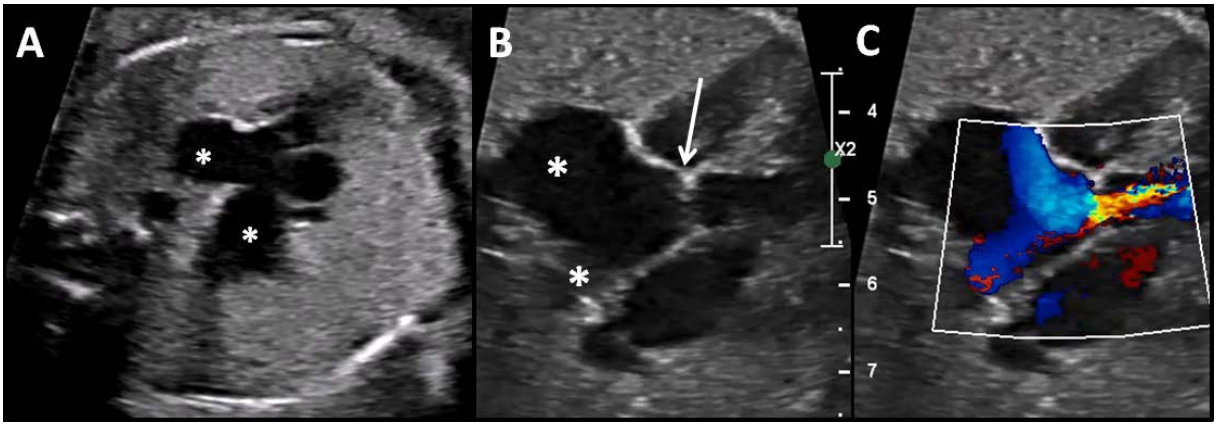

Figure S3. Dysplastic, regurgitant pulmonary valve (arrow) and dilated pulmonary arteries (asterisks) in a fetus with tetralogy of Fallot and absent pulmonary valve at 25 weeks (panel **A**) and 38 weeks of pregnancy (panels **B** and **C**)