

## A case report on Teratology of fallot

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### Abstract

**Background:** Tetralogy of Fallot is usually diagnosed while the baby is a child or soon after. Occasionally, depending on the inflexibility of the symptoms, tetralogy of fallot isn't detected until adulthood. All infants who have tetralogy of fallot need repair or surgery. Infants with tetralogy of fallot need regular doctor's checks for the remaining life and may have some restrictions.

**Methods:** We present a case 14 year old female patient name XXX was admitted to the cardiology ward, with the chief complaints of palpitation, shortness of breath, intermittent chest discomfort, unable to sleep on the left side, unable to move during sleep, dyspnea on exertion for 5 days. She was not on any past medication but she had been using OTC medications from childhood whenever she feels pain and it will be reduced by taking rest for 10-20 mins, the patient was alright now she can do all her activities without other's support, but unable to move during sleep and unable to sleep on the left side from past 5 days.

**Results:** Her lab investigations were echo cardiogram report showed right ventricular hypertrophy, over-riding of the aorta, pulmonary stenosis, bidirectional shunt, and ventricular shunt, and she was diagnosed as teratology of fallot.

**Conclusion:** Tetralogy of fallot is a condition that is primarily present in infants it should be carefully observed and diagnosed at earlier ages.

**Keywords:** Teratology of Fallot; Valves; Dyspnea; Shunt

### 1. Introduction

Tetralogy of Fallot (TOF) is purely an abnormal situation due to a mixture of 4 coronary heart defects at birth (congenital) <sup>(1)</sup>. TOF is a cardiac contortion that consists of an interventricular communication (a cleavage occurs between the ventricular septum), also known as a ventricular septal disfigurement, inhibition of the right ventricular exodus tract, override of the aortic root, and right ventricular enlargement <sup>(2)</sup>. Defects, which affect the shape of the heart, lead to oxygen-negative blood going with the drift out of the heart and to the remaining body. Infants and youngsters with TOF generally have blue-tinged pores and skin due to the fact their blood doesn't bring sufficient oxygen <sup>(2)</sup>. TOF is frequently recognized at the time new-born or quickly after Sometimes, confiding at the severity of the defects and signs and symptoms TOF isn't detected till adulthood, in this case, the patient needs surgical correction. People with TOF want frequent doctor's check-ups for relaxation in their existence and can have an activity done regularly. Sometimes, toddlers who've TOF will abruptly increase deep blue pores and skin, nails, and lips after crying or feeding, or at the same time agitated. These episodes are known as tet spells and are due to a fast drop in the quantity of oxygen inside the blood test spells are maximum in younger infants, around 2 to four months old. Toddlers or older youngsters would possibly instinctively squat whilst they are quick of breath. Squatting will increase blood go with the drift to the lungs <sup>(3)</sup>. The signs and symptoms vary, relying on the quantity of obstruction of blood go with the drift out

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of the proper ventricle and into the lungs. Signs and symptoms like bluish coloration of the skin caused by low blood oxygen levels (cyanosis), Shortness of breath and rapid breathing, especially during feeding or exercise, Irritability, Prolonged crying, Heart murmur, Fainting (loss of consciousness)<sup>(4)</sup>, An abnormal, rounded shape of the nail bed in the fingers and toes (clubbing).

TOF represents roughly 7- 10% of natural heart conditions (CHD), and it's the most common cyanotic CHD, with 0.23-0.63 cases per 1,000 births. This complaint accounts for one-third of all CHD in cases younger than 15 years; in grown-ups, tetralogy of Fallot has an estimated frequency of 1 in 3,500 to 1 in 4,300 people. In utmost cases, tetralogy of Fallot is sporadic and familial. The prevalence in siblings of affected parents is 1- 5%, and it occurs further generally in males than in females<sup>(5,6)</sup>.

### 1.1. Causes

The exact cause of TOF isn't known. Still, some studies suggest that the complaint may be due to the commerce of several inheritable and/or environmental factors (multifactorial). Thus, experimenters suspect that commodity may affect the genes in the developing fetus, causing this birth disfigurement, but the exact nature of this detector isn't known. some conditions that may increase the threat of having a child with tetralogy of fallot are A viral illness during gestation, similar to rubella (German measles), Consuming alcohol during gestation, and poor nutrition during gestation/, If the mother with TOF the child is having 25% chances to get TOF<sup>(7)</sup>.

## 2. Case report

A 14 year old female patient name XXX was admitted the cardiology ward, with the chief complaints of palpitation, shortness of breath, intermittent chest discomfort, unable to sleep on their left side, unable to move during sleep, she was experiencing dizziness while walking, unable to carry weights for longer distance, dyspnea on exertion since 5 days, reduced physical activity, decreased appetite, interest in her studies was reduced. She was not on any past medication but she had been using OTC medications from childhood whenever she feels pain and it will be reduced by taking rest for 10-20 mins, the patient was alright now she can do all her activities without other's support, but unable to move during sleep and unable to sleep on the left side. Systemic examination: Pulse rate 120 b/min, Blood pressure 190/80 mm of Hg, Respiratory system dyspnea on exertion, cardiovascular system: sinus tachycardia. Her lab investigations were echo cardiogram report showed right ventricular hypertrophy, over-riding of the aorta, pulmonary stenosis, Bidirectional shunt, and Ventricular shunt, and she was diagnosed as teratology of fallot.

**Diagnosis:** Teratology of fallot

**Table 1** Treatment plan for the patient

| S. No | Brand Name           | Generic drug  | Dose  | Frequency | Number of Days |
|-------|----------------------|---------------|-------|-----------|----------------|
| 1)    | Tab.Inderal          | Propanolol    | 20mg  | Bd        | 10days         |
| 2)    | Syp.Iron+ Folic Acid | Iron Syp      | 5 Ml  | Bd        | 10days         |
| 3)    | Tab.Bct              | Bromocriptine | 1 Tab | Bd        | 10days         |

### 2.1. Plan

Surgical correction is necessary and Patient has many complications and she was discharged without surgery.

### 2.2. Diagnosis

Generally, tetralogy of Fallot is diagnosed soon after delivery baby's skin may appear blue. The physician might hear an abnormal whooshing sound (heart murmur) while hearing the baby's heart with a stethoscope.

Tests to diagnose tetralogy of Fallot include Oxygen position dimension (pulse oximetry). Periodic measures of systemic blood oxygen saturation and hemoglobin are also suggestible. Babies with TOF fairly loud murmur than normal babies.

Tetralogy of Fallot is increasingly recognized during routine fetal obstetric scanning, ultrasound is a very suitable diagnosing agent for detecting TOF<sup>(8)</sup>.

Echocardiogram/Electrocardiogram (ECG or EKG): X-ray can show the structure of the heart and lungs. A common sign of tetralogy of Fallot on X-ray will show the proper shape of the heart i.e (shoe-shaped heart/, because the right ventricle is enlarged <sup>(8)</sup>.

### 3. Discussion

In this period, the opinion of TOF is generally achieved during childhood. When compared to 50 years ago, a review of TOF cases demonstrated that 17.6% of the studied population was further than 25 years old at the time of opinion <sup>(10)</sup>. Despite the individual tools advancement and a better understanding of the condition compared with former centuries, there are still some delayed donations being reported. Factors that lead to TOF delayed donations or judgments can be attributed to mild symptoms and lack of health care system availability. Though uncorrected TOF survival is uncommon, it has been reported that around 10 of affected persons can survive to majority, and only 5 reach 40 years of age<sup>(11,12)</sup>. Also, analogous to the different degrees of presenting symptoms due to anatomical variants, unrepaired TOF might be diagnosed late as survivors could have favorable anatomy- physiology that generally permits better pulmonary inflow, in discrepancy to those who presented before in their life<sup>(13)</sup>. Mechanisms that explain life in cases who remained undiagnosed and survived to their majority may be attributed to having a small pulmonary roadway and slow development of sub pulmonary inhibition, left ventricular hypertrophy, and extra cardiac shunting or systemic to pulmonary shunt <sup>(14,15)</sup>. In our case, the reason for delayed donation isn't fully clear, but it may be attributed to decelerate development of pulmonary stenosis. Cardiac catheterization plays a pivotal part in the operation of TOF in grown-ups, not to characterize the pulmonary highways anatomically alone, but also to define unexpected anomalies similar as aortopulmonary collateral highways which are set up in 15% of TOF cases <sup>(16)</sup>. The performance of restorative procedural to analogous abnormalities aids in simplifying surgical operation. Delayed opinion latterly affects the timing of the intervention. Generally, cases witnessing TOF form are anticipated to have excellent results <sup>(17)</sup>. Nevertheless, TOF form during majority carries an advanced threat of developing arrhythmias, heart failure, and unforeseen cardiac arrest <sup>(18)</sup>. The advanced mortality in grown-ups than the paediatric group is caused by prolonged cardiac dysfunction and pulmonary roadway poor development, performing in long- standing cyanosis affecting the quality of life <sup>(19,20)</sup>. The physical health status isn't the only one affected by the delayed intervention. Grown-ups with TOF who passed a form procedure tend to have significantly poor internal health<sup>(20)</sup>. The cerebral effect interferes with diurnal life conditioning, but it also majorly influences the treatment plan. The burden also extent to negatively affects cases professional career and family members <sup>(21)</sup>

### 4. Conclusion

Tetralogy of fallot is a condition that is primarily present in infants it should be carefully observed and diagnosed at earlier ages <sup>(8,9)</sup>. All infants who are presented with the signs such as cyanosis, clubbing, genetic anomalies, and significant family histories should be screened for TOF and necessary surgical correction should be done as early as possible<sup>(2,17,18)</sup>.

### Compliance with ethical standards

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#### *Disclosure of conflict of interest*

Nil, there is no conflict of interest.

#### *Statement of ethical approval*

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

#### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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