

# Mycoplasma Pneumonia infection in a patient with a known case of congenital heart defects and asthma.

Fatemeh Hossein Ghazizadeh, Intern (I) Salma Tarek Mohamed Yehia, Intern. (I)  
T Dubai health Authority.

## BACKGROUND

**Congenital heart defects** affect the lung function prenatally and postnatally, making infants born with the condition more susceptible to pulmonary infections. The changes the surrounding vasculature and cardiac muscles face as a consequence of multiple structural defects may produce compression on the lung and airways.

Various defects (such as Ventricular septal defects and Patent Ductus arteriosus) cause an increased blood flow through the pulmonary vessels leading to pulmonary hypertension and pulmonary edema.

Patients with asthma, specifically those treated with inhaled fluticasone, are found to have an increased risk of hospitalization due to pneumonia compared to asthmatics not on fluticasone. (2)

## CASE DESCRIPTION

A 3 year old boy, a known case of multiple congenital heart defects (Atrial septal defect (ASD), Post Ligation Patent ductus arteriosus (PDA), and previous Ventricular Septal defect (VSD)) and asthma.

He was brought to the emergency department (ED) by his parents with high spiking fever of 40°C and cough accompanied by yellow sputum for 5 days. He had received a short 2 day course of Cefixime and an added 2 days of Erythromycin as he had not improved before presenting to the ED with his current complaints.

In addition he was also given Nebulized Ventolin for persistent coughing. He denied any other significant symptoms.

### Past medical and surgical history:

At 2 months of age he was diagnosed to have ASD, PDA and VSD. The PDA was ligated when he was 4 months old, the VSD spontaneously closed as confirmed by an echocardiography done in 2018. He currently still has an ASD, closure is pending until he is 6 years old. His cardiologist had put him on several medications for his conditions, such as Lasix (Furosemide), Captopril and Spirinolactone, which have been stopped in 2019.

He has been hospitalized multiple times due to respiratory issues such as various episodes of bronchiolitis, pneumonia and reactive airway disease.

Diagnosed with asthma 1 year ago and has been controlled and managed by Ventolin, and prophylactic Fluticasone and Montelukast.

## EXAMINATION

On examination at the time of this event, he was febrile (38.1°C) with tachycardia and tachypnea. He appeared well-developed, was active and in mild respiratory distress.

**Cardiopulmonary examination** revealed a systolic murmur heard maximally at the upper left sternal border along with fixed splitting of the 2nd heart sound, with wheezes heard all throughout the chest wall. The rest of the exam was insignificant.

## DIAGNOSTIC STUDIES

Laboratory findings revealed elevated inflammatory markers (**C-reactive protein and Procalcitonin**) as well as high levels of *Mycoplasma pneumoniae* IgM Levels.

### Imaging:

#### Chest X ray reported:

- Cardiomegaly associated with congestive changes. Blunting of the right cardio-phrenic angle.

#### Echocardiography:

- ASD was visible, at the size of 15mm
- Dilated right atrium and right ventricle.
- No pericardial effusion present.

## PATIENT PROGRESS

During his admission he was treated with IV fluids, IV Hydrocortisone, nebulizer as well as IV Augmentin (for 1 day)

After cultures and tests were positive for *Mycoplasma*, he was put on Azithromycin for 1 day. He progressed as expected with clinical and symptomatic improvement.

On discharge he was advised to comply with antibiotic treatment (Azithromycin) as well as continue with his own asthma medication. A 6 month follow up in paediatric cardiology was also requested.

## DISCUSSION

The important thing to note is that left to right shunted heart defects (Acyanotic shunts) have an increased risk of repeated chest infections.

*Mycoplasma pneumoniae* should be suspected in kids who attend schools and nurseries with more symptoms than signs.

## REFERENCES

- 1-Reynolds JH, McDonald G, Alton H, Gordon SB. Pneumonia in the immunocompetent patient. Br J Radiol. 2010 Dec;83(996):998-1009. doi: 10.1259/bjr/31200593. PMID: 21088086; PMCID: PMC3473604.
- 2- Ekblom, E., Quint, J., Schöler, L., Malinovsky, A., Franklin, K., Holm, M., Torén, K., Lindberg, E., Jarvis, D., & Janson, C. (2019, December 19). Asthma and treatment with inhaled corticosteroids: associations with hospitalisations with pneumonia. BMC Pulmonary Medicine. <https://bmcpulmed.biomedcentral.com/articles/10.1186/s12890-019-1025-1#citeas>
- 3- Percutaneous closure of a postoperative residual atrial septal defect. (2017, March 1). ScienceDirect. <https://www.sciencedirect.com/science/article/pii/S2405818117300016>

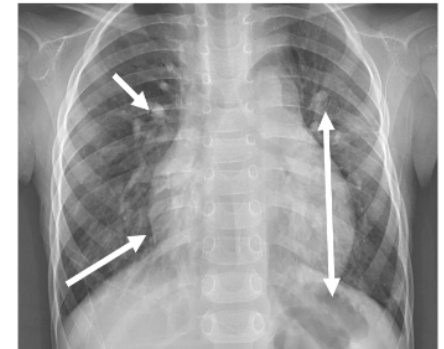


Figure 1: Chest X-ray of the 3 year old boy showing increased broncho-vascular markings (short arrow), blunting of right cardio-phrenic angle (long arrow) and apparent globular shaped heart and cardiomegaly (double ended arrow)

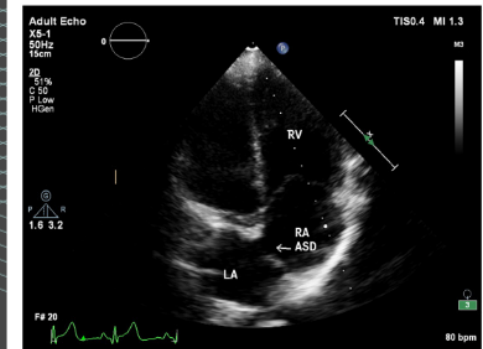


Figure 2: Trans-thoracic echocardiography showing a 14mm defect between the right and left atrium. Not of our current patient. Taken from reference (3)

