



# The 4<sup>th</sup> International Congress on Cardiac Problems in Pregnancy (CPP2016)

## **RUPTURED SINUS OF VALSALVA (ROSV): A RARE CAUSE OF ACUTE HEART FAILURE IN PREGNANCY**

**Freire CMV MD**

Oliveira EC MD, Barbosa LFP MS, Katina T MD, Falchetto E MD, Villamarin Q MD.

# BACKGROUND



**Rare congenital cardiac defect – 0.1 – 3.5% - deficiency of muscular and elastic tissue in the aortic wall**



**More common: Asians; males (3-4:1)**



**Rupture is more common in 20-40y**



**Associated lesions: VSD, bicuspid aortic valve, aortic coarctation, infundibular pulmonary stenosis**



**High mortality if surgery is not performed**



**Few documented cases in pregnancy**

# CASE REPORT



lady sought emergency care during her **28<sup>th</sup> week of pregnancy** due to sudden shortness of breath and chest pain.



D dimer and venous ultrasound (US) for DVT with no significant alterations



normal left and right ventricular size and function, non stenotic non regurgitant bicuspid aortic valve and a turbulent flow with a not so well defined path that was taken for a small VSD



**She was sent home but returned a couple of days later with the same complaint. The same exams were repeated and again, no conclusion was drawn**

## **PAST MEDICAL HISTORY**

**one uneventful vaginal delivery 4 years ago.**

**regular exercises - 2-3 times a week**

**a heart murmur 3 years ago**

# CASE REPORT



**A loud continuous murmur, best auscultated over the lower left sternal border**



**BP 110/60mmHg and HR 92bpm**



**Normal breathing sounds**



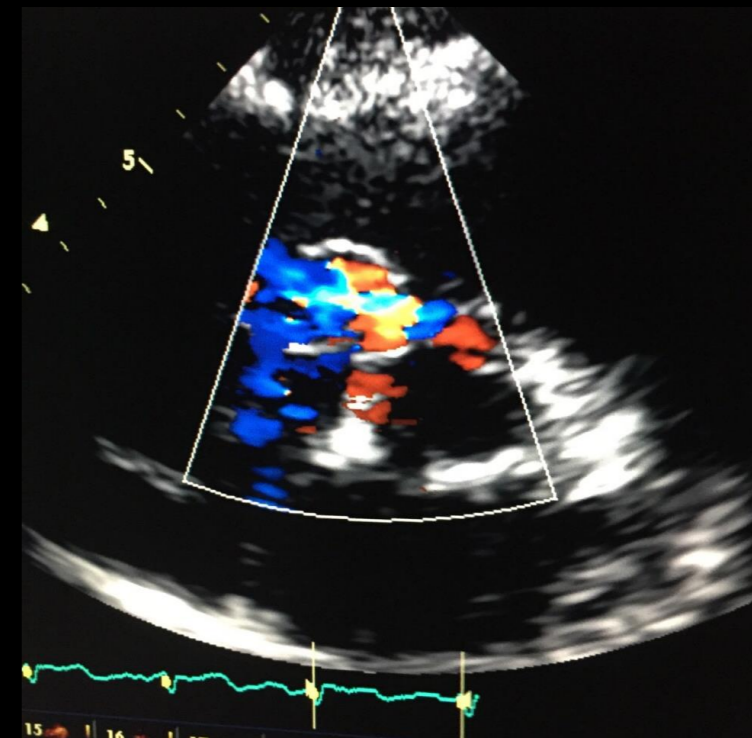
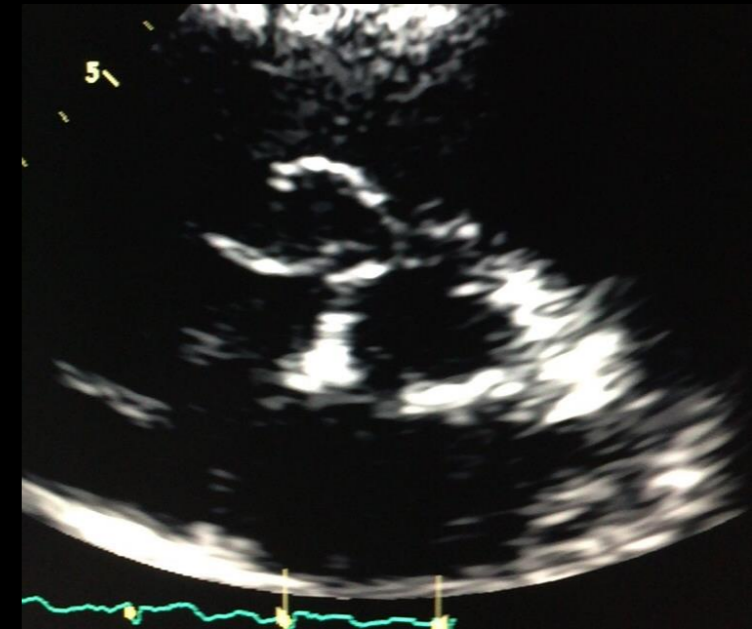
**ROSV was suspected**



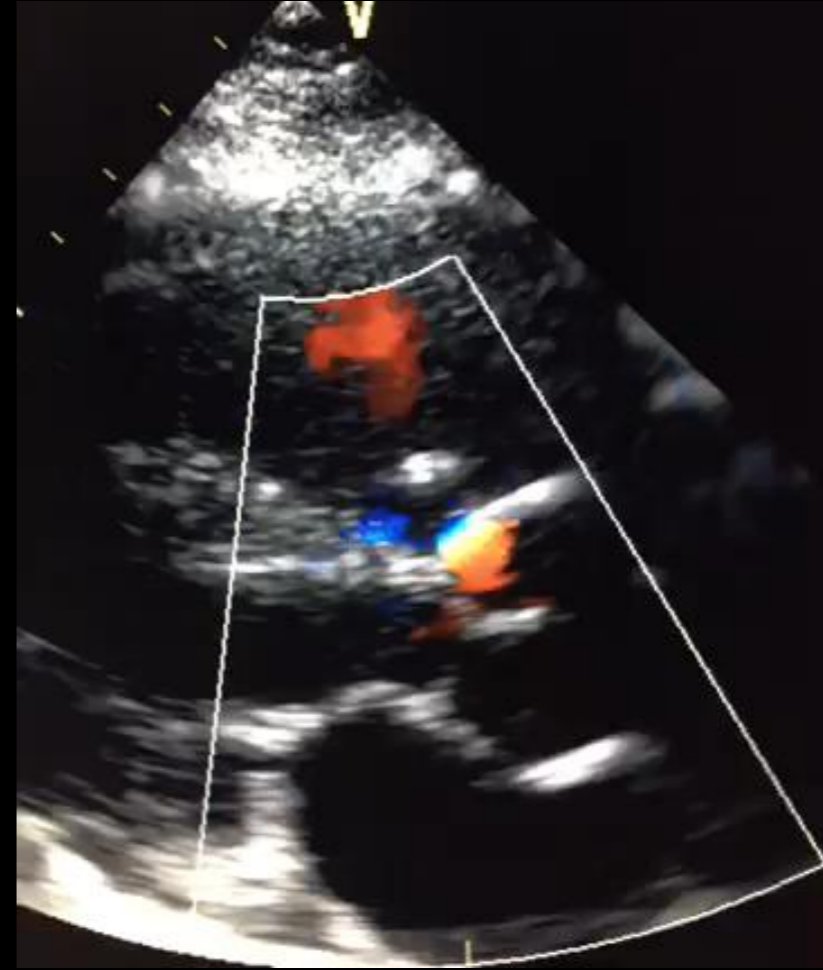
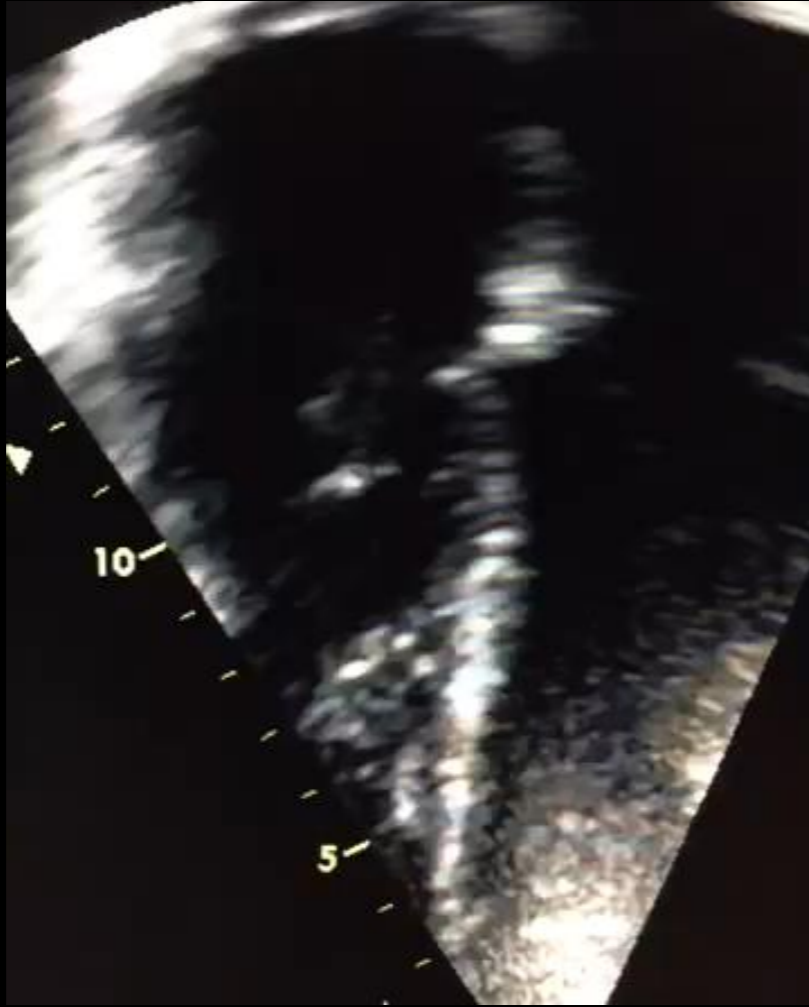
**Lab: abnormal NT-proBNP**



**ECHO: repeated in a reference center and confirmed the rupture of the sinus of Valsalva to the right atrium with a large left to right shunt**



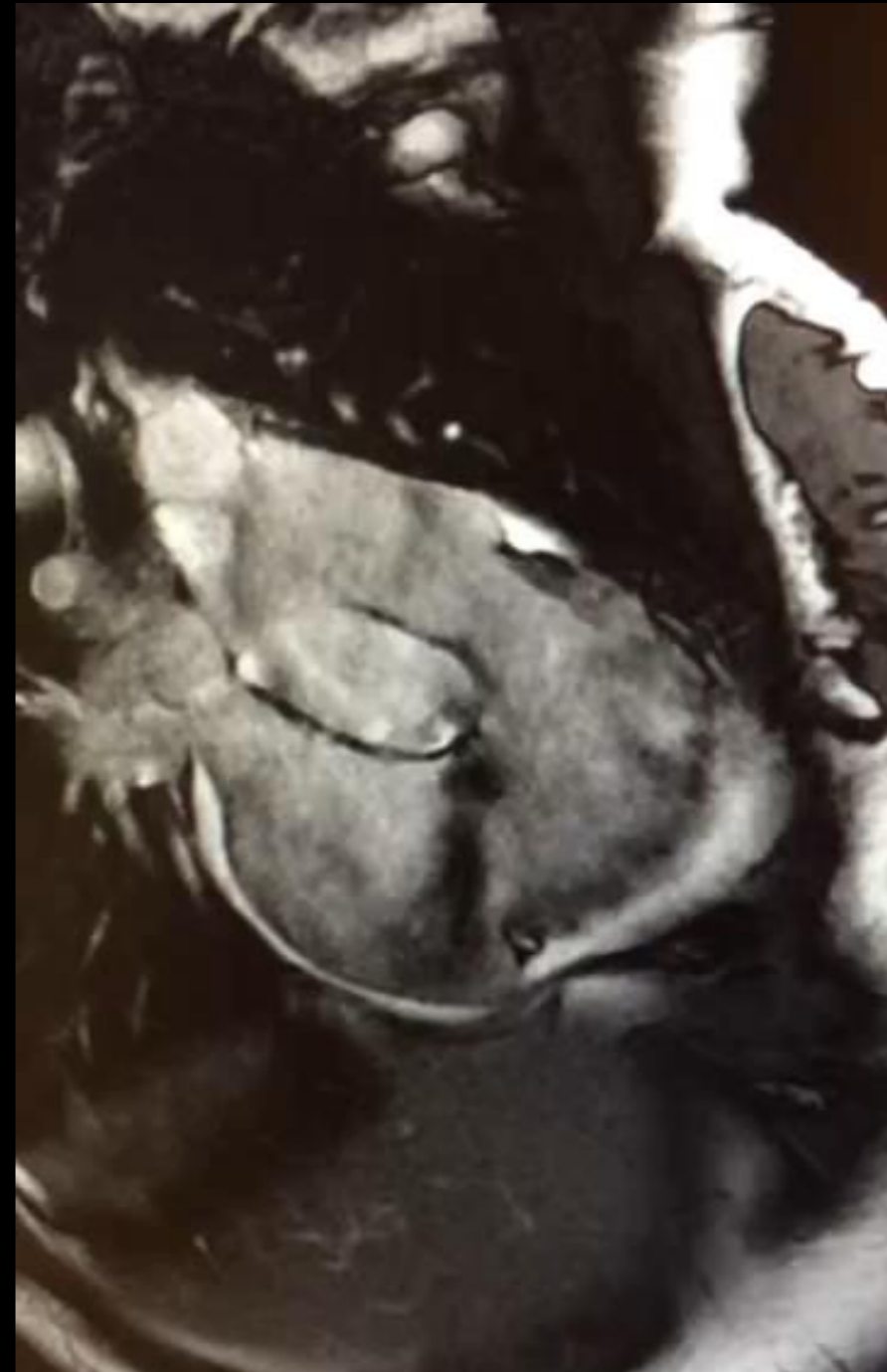
# ECHO



# CASE REPORT - FOLLOW UP

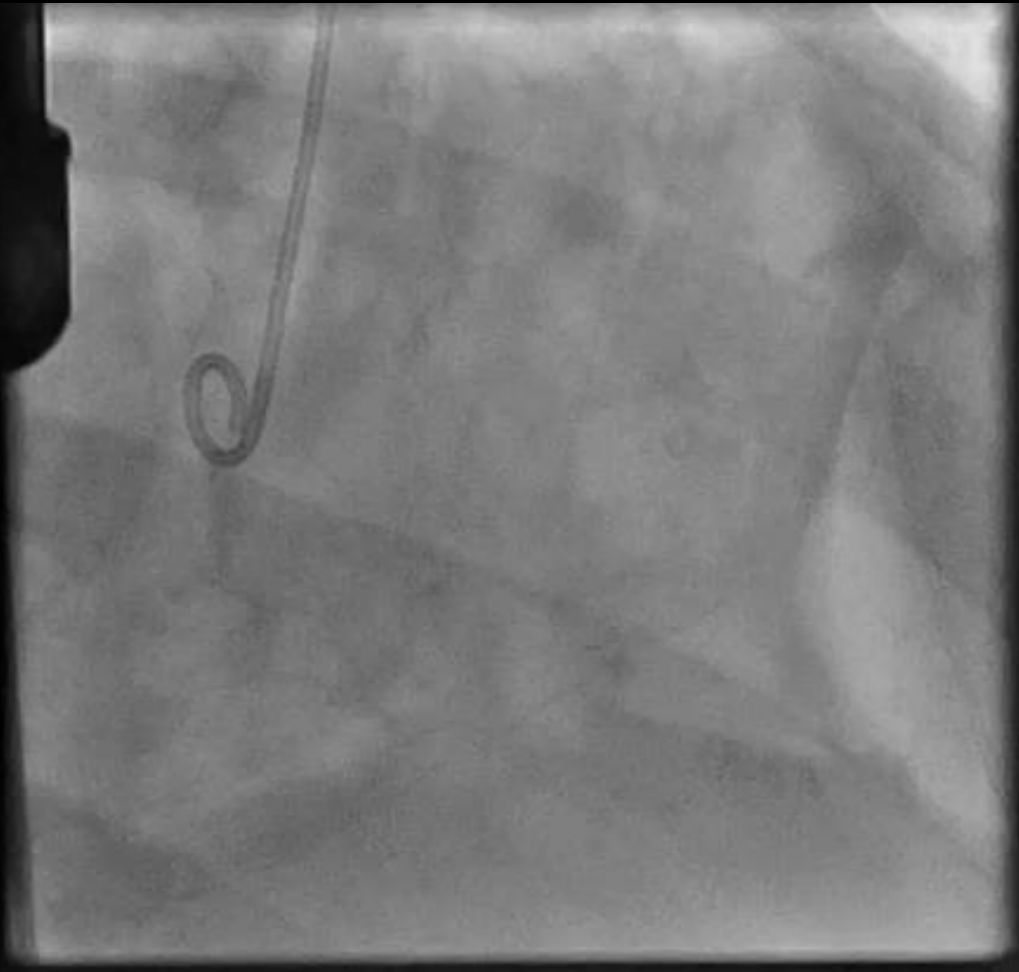


- **Mild to moderate symptoms of heart failure persisted in spite of medical treatment (furosemide)**
- **C-section: on 37<sup>th</sup> week of pregnancy under combined spinal and epidural anesthesia**
- **Delivery: no complications**
- **Postpartum: Heart failure symptoms got worse**
- **CMR: confirmed the bicuspid aortic valve and “windsock” RSOV in the RA**
- **Percutaneous treatment 20 days postpartum**
- **Two month follow up: patient was asymptomatic with no medications or residual shunt by ECHO.**





# Transcatheter closure of rupture of sinus valsava aneurisms with Amplatzer Occluder



# Discussion - ROSV

**Congenital**

**Inherited  
connective tissue  
abnormality  
(Marfan, Ehlers-  
Danlos)**

**Trauma /  
iatrogenic**

**Bacterial  
endocarditis**

**Infections:  
syphilis,  
tuberculosis**

# DIAGNOSIS

## SYMPTOMS / SIGNS

*Asymptomatic till rupture*

*Acute heart failure (40%)*

- **Dyspnea**
- **Chest pain**
- **Palpitations**
- **Fatigability**
- **Death**

**Loud continuous heart murmur /thrill**

**Aortic regurgitation**

**Heart block**

## ECHOCARDIOGRAM

- **90% accuracy**
- **QP/QS 2.3 (1.2-4.3)**
- **Main error:  
identification of  
drainage chamber**

# DISCUSSION: PREGNANCY



**Hormone induced changes in aortic wall**



**Hemodynamic burden during pregnancy**



**Impact of Labor:**

**extra load could enlarge the**

**tear and the shunt**



**Type and time of delivery:**

**balance between mother and fetus**

*Brit.med.j., 1968, 1, 683-684*

*Latzman J et al Tex Heart Inst J 2006;33:66-9*

*Vikram T et al The Journal of Obstetrics and Gynecology of India. 2012; 62(S1):S4–S5*

*Cripps T et al. Br Heart J 1987;57:490-1*

# TREATMENT

PROGNOSIS IS POOR IF NOT CORRECTED

## SURGERY

- Asymptomatic unruptured
- Progressive enlargement
- Symptomatic

## PERCUTANEOUS

- Less invasive
- Effective in more than 90% of cases
- Contraindicated: moderate to severe AR; other cardiac diseases with indication to open heart surgery

# CONCLUSION

**This case illustrates the value of clinical signs that allow proper diagnosis and management of rare diseases that could threaten mothers' lives during pregnancy or postpartum.**