# P879

## 3D transoesophageal echocardiography to asses a case of a non-ebstein tricuspid valve congenital regurgitation

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**Introduction:** Due to the complexity of congenital heart disease and limitations of transthorathic echocardiogram (TTE), especially in adult patients, it is not unusual to need other image techniques to assess cardiac anatomy and function. The most common primary anomaly of tricuspid valve (TV) is Ebstein anomaly, but there are other much rarer primary anomalies of this valve consisting in prolapse, cord retraction.... without downward displacement of the leaflet, generally causing tricuspid regurgitation (TR) that can be severe and sometimes intervention is needed, preferably reparation. Due to anatomical issues, it is difficult to assess anatomy of TV in TTE, so sometimes 3D-TTE must be performed to clarify the mechanism and to measure orifice, but when transthoracic view is not enough, 3D transoesophageal echocardiogram (TOE) can be useful for this purpose.

**Case:** We report the case of a 15-year-old boy that was referred to our clinic because of shortness of breath and a systolic tricuspid murmur. TTE was performed and an image compatible with tricuspid valve prolapse with no apical displacement of any leaflets (Figure, A) causing severe TR (Figure, B) was noticed, as well as severely dilated right chambers, with good ejection fraction of both ventricles. It was not clear the mechanism so 2D TOE was done, showing a prolapse of a leaflet (Figure, C) causing severe TR (Figure, D). The mechanism was finally clarified by 3D TOE (figure E). This was a prolapse of lateral portion of posterior leaflet (asterisk) with restrictive movement of anterior (triangle) and septal (arrow) ones, causing a huge coaptation defect in systole leading to a very severe tricuspid insufficiency with signs of volume overload of right ventricle. There was no atrial septal defect and pulmonary drainage anomalies were ruled out by cardiac magnetic resonance. Patient was referred to surgery due to symptoms and great dilatation of right chambers.

Conclusión: Due to anatomical complexity and limitations of echography, cross and multimodality cardiac imaging is usually needed in assessing congenital heart disease. Apart from Ebstein anomaly, other congenital entities of tricuspid valve such as prolapse and/or retraction can lead to severe tricuspid regurgitation. Due to limitations of 2D TTE in assessing tricuspid valve anatomy, 3D TTE has to be performed, but if it is not enough, 3D TOE can be an option to evaluate mechanism and directly see the orifice of regurgitation in congenital disease of tricuspid valve.

Abstract P879 Figure