

Mujer de 42 años con palpitaciones, primero ocasionales y ahora continuas – 2021

Dra. Marita Jiménez

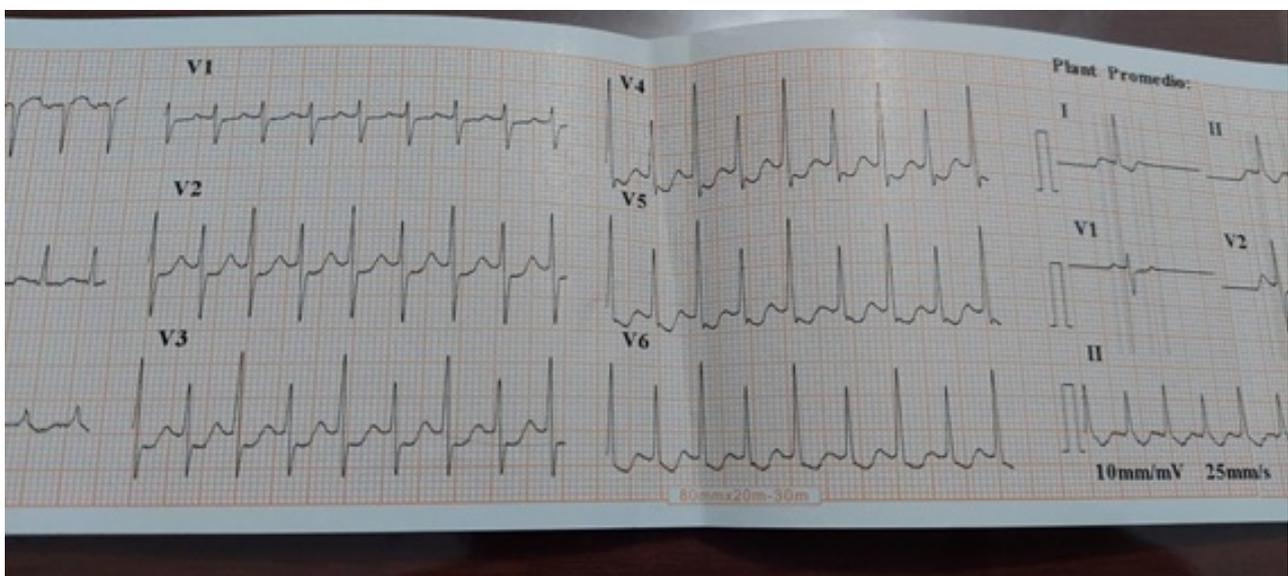
Saludos desde Trujillo Perú.

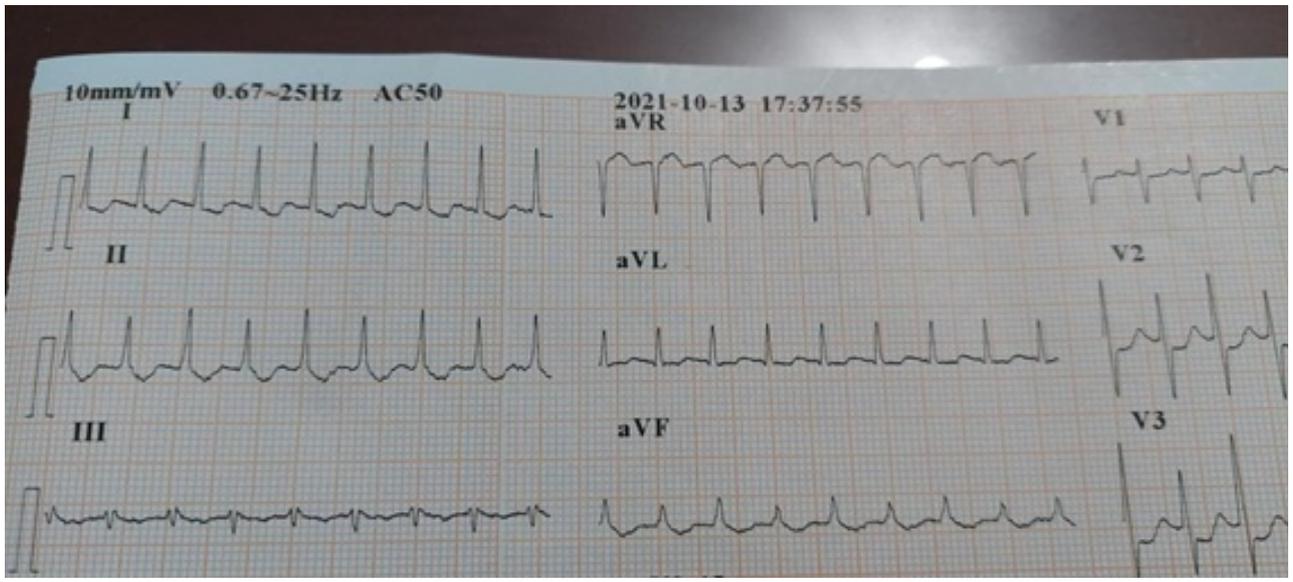
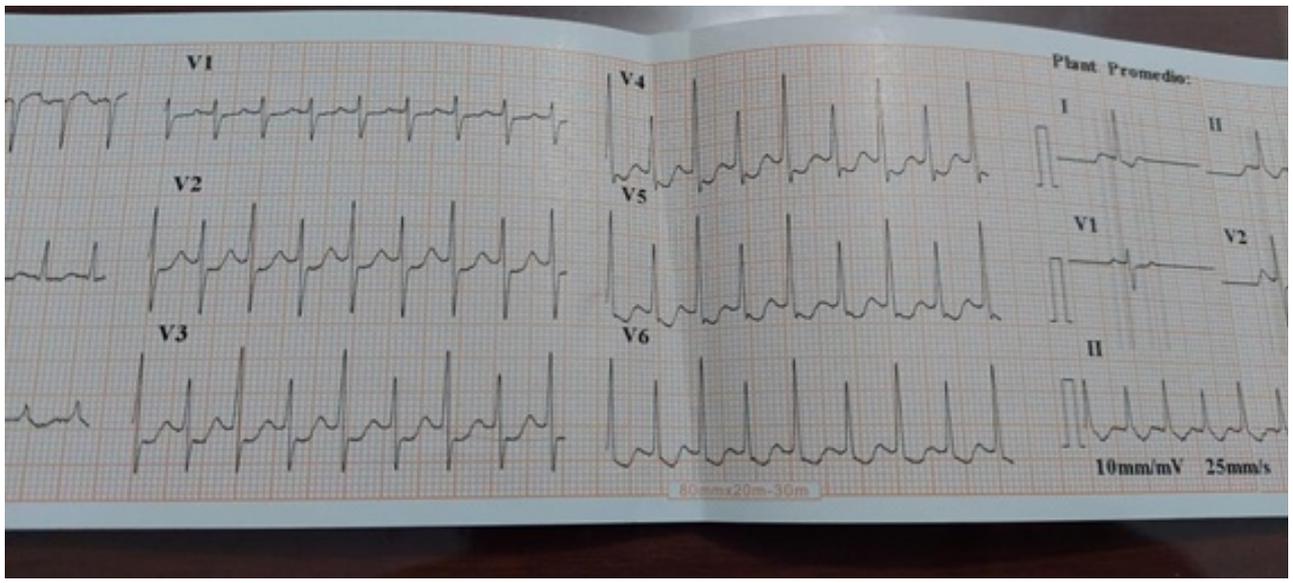
Paciente de 42 años, refiere antecedente de trastorno de ansiedad, desde hace un mes cursa con episodio de palpitaciones ocasionales, y hace 3 días presenta palpitaciones rápidas asociada a sensación de mareo. Acude por consulta externa.

Funciones vitales PA 90/60 Fcia 200

Se refiere a la guardia de emergencia. ¿Qué les impresiona?

Marita Jiménez





OPINIONES DE COLEGAS

Supraventricular tachycardia. El diagnóstico es o AV node reentry tachycardia o atrioventricular reentry tachycardia.

Tiene QRS alternans muy bello que se ve particularmente claro en V3 y tiene ST-depression que probablemente se debe a P-waves retrógradas en el ST-segment. Por eso es que creo que atrioventricular reentry (accessory pathway) es el diagnóstico más probable y por eso hay que comparar el QRS durante tachycardia y durante ritmo sinusal para estar seguros que no tiene WPW

Sami Viskin

Dear friends and colleagues, I am sending my opinion about the case report of Dra Marita Jimenez from Trujillo Peru.

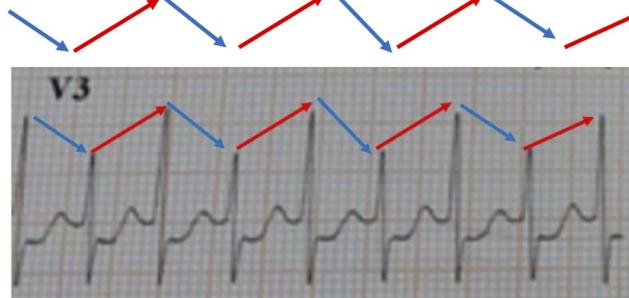
Trujillo is a coastal city located on the shores of the Pacific Ocean. This fantastic city is 500 kilometers north of Lima. It possesses a mixture of ancient, colonial architecture, and a welcoming population.

I agree with the opinion of this fantastic "brain" Dr Sami Viskin from Israel.

My diagnosis (Andrés Pérez-Riera): AVRT with Orthodromic Circus Movement Tachycardia (CMT)

Why?

- Heart rate between 200 to 300 bpm
- P waves may be buried in QRS complex or retrograde. Initial P'R normal. AV conduction always 1:1
- QRS Complex usually <120 ms unless pre-existing bundle branch block, or rate-related aberrant conduction
- QRS Alternans – is common. Phasic variation in QRS amplitude associated with AVNRT and AVRT, distinguished from electrical alternans



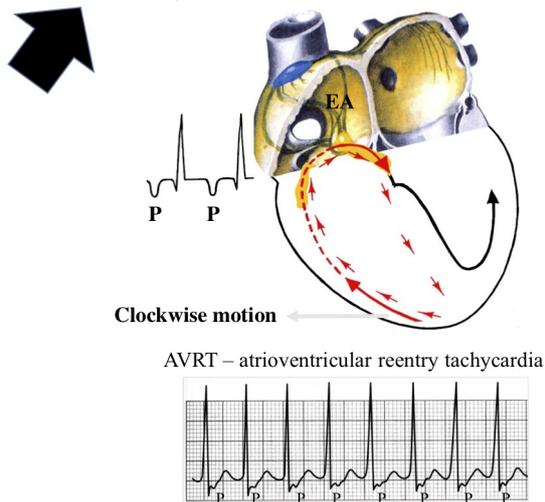
- Aberrancy is common
- ST segment depression and T inversion are common.

Treatment of AVRT is based on the presence of haemodynamic instability e.g. hypotension, altered mental state, or pulmonary oedema.

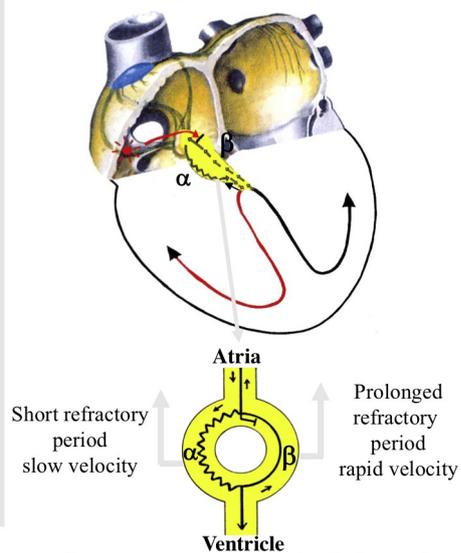
In patients who are haemodynamically stable vagal manoeuvres may be successful, followed by adenosine or calcium-channel blockers, and DC cardioversion may be considered if non-responsive to medical therapy.

In a haemodynamically unstable patient urgent synchronised DC cardioversion is required.

AVRT with Orthodromic Conduction, with narrow QRS or Orthodromic Circus Movement Tachycardia (CMT)

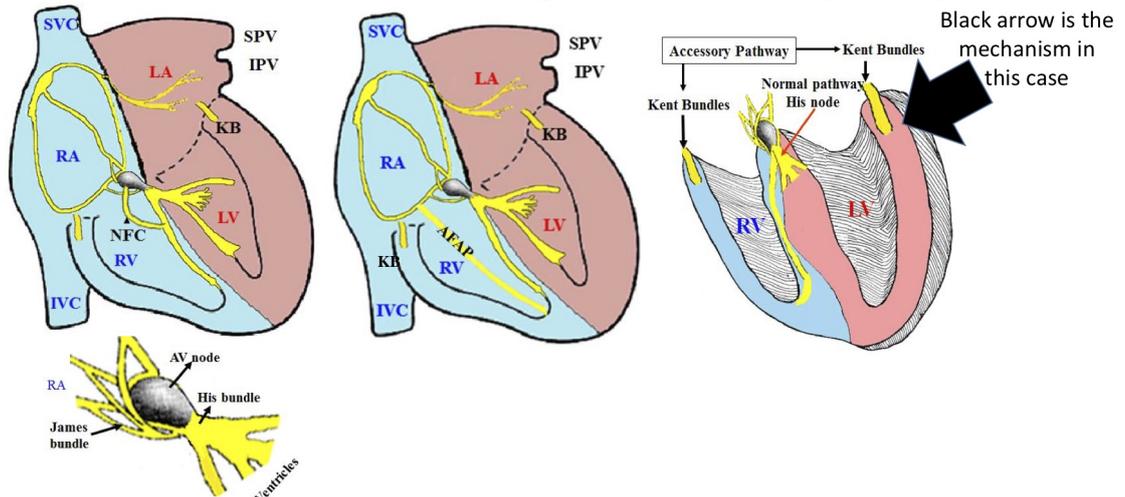


AtrioVentricular Nodal Reentry Tachycardia (AVNRT)



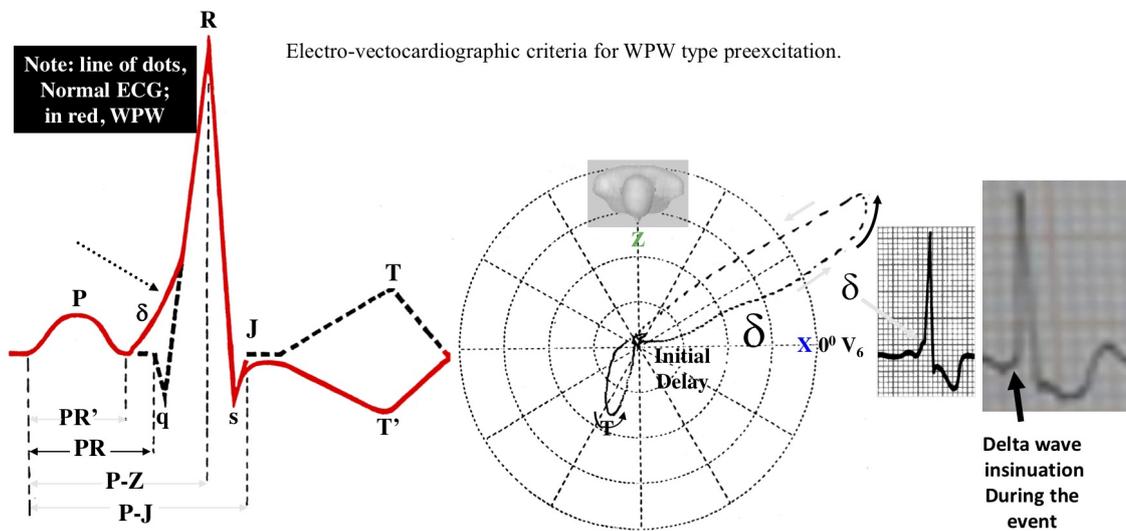
In the left side of the figure, the AVNRT is shown, characterized by retrograde P wave, very close to the QRS complex, which may originate pseudo S wave in inferior leads and pseudo r' in V1. AV conduction is generally 1:1. On the contrary, in AVRT or orthodromic CMT, the retrograde P' wave is far from QRS, causing at times ST, segment depression ≥ 2 mm. AV conduction is always 1:1.

Outline of anatomical substrate of ventricular pre-excitation : Accessory Pathway



SVC – Superior Vena Cava; **IVC** – Inferior Vena Cava; **RA** – Right Atrium; **LA** – Left Atrium; **RV**- Right Ventricle. **LV**- Left Ventricle. **SPV** – Superior Pulmonary Vein; **IPV** – Inferior Pulmonary Vein; **KB** – Kent Bundle.-**AFAP**– Atrio Fascicular Accessory Pathway (**AFAP**); Its proximal insertion is located on tricuspid annulus and its distal insertion in the RV apex Purkinje network. These fibers have decremental conduction properties but lesser than the AV node one.- **NFC** – Nodofascicular Connections They are bundles that connect any AV nodal area (usually N region) with Right Bundle Branch(**RBB**).

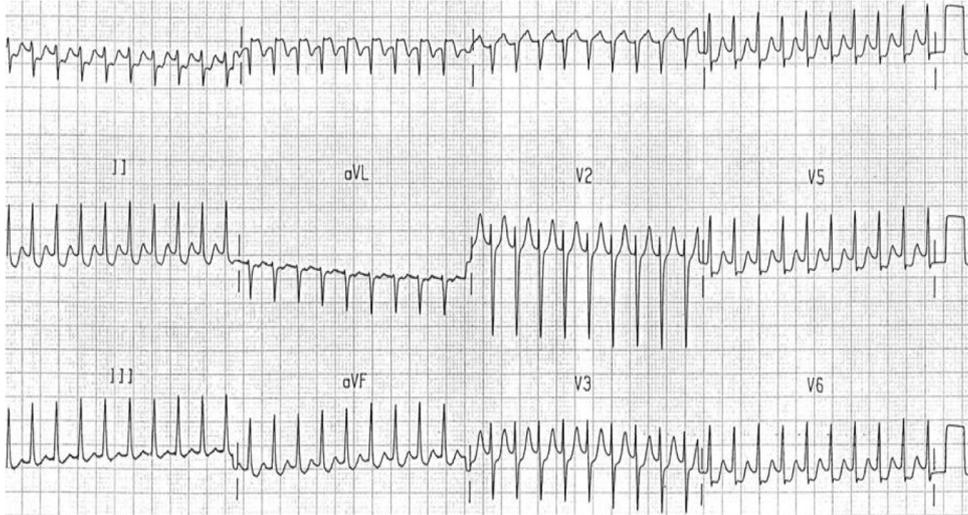
WPW ECG/VCG correlation



- **PRi or PQ:** since the onset of P up to the onset of QRS. It represents the time the stimulus takes to go from the SA node until reaching the ventricles: 120 ms to 200 ms.
- **PZ:** distance between P wave onset until R apex: 150 to 230 ms.
- **PJ:** distance between P wave onset until j point: 180 to 260 ms.

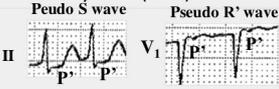
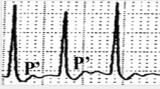
- Initial delay of QRS loop: delta wave.
- T-loop opposite to QRS loop

AVRT with Orthodromic Conduction or Circus Movement Tachycardia (CMT)



Regular, narrow complex tachycardia (The QRS complexes are narrow because impulses are being transmitted in an orthodromic direction (A → V) via the AV node: Orthodromic Circus Movement Tachycardia (CMT), heart rate 225 bpm, The retrograde P' wave no discernible is far from QRS, causing ST, segment depression ≥ 2 mm. AV conduction is always 1:1. This rhythm has differential diagnosis with AV-nodal re-entrant tachycardia (AVNRT). See next slide

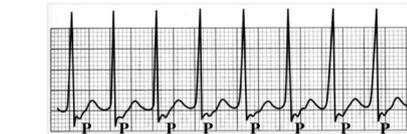
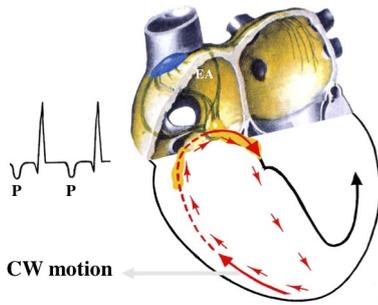
Differential diagnosis between paroxysmal supraventricular tachycardias

ECG features	AtrioVentricular Nodal Reentry Tachycardia (AVNRT)	AVRT with Orthodromic Conduction or Circus Movement Tachycardia (CMT)
QRS alternans	Rare	Common
Initial P'R	Prolonged	Normal
Location of P'	Within QRS (60%). After QRS Very near (36%).	After QRS. Very far.
Retrograde P'	Very close to the QRS complex, which may originate pseudo S wave in inferior leads and pseudo r' in V1. 	 
Polarity of P'	Negative in inferior leads.	Varies with AP location. If negative in I: left side AP
Aberrance	Rare	Common
Heart rate during aberrance and compared with absence of aberrance.	No changes	It may be slower, with aberrance.
AV conduction	Usually 1:1	Always 1:1

AP, Accessory Pathway; AV, atrioventricular, BBB, HR, heart rate.

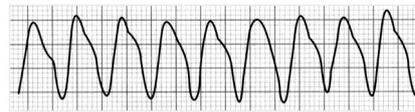
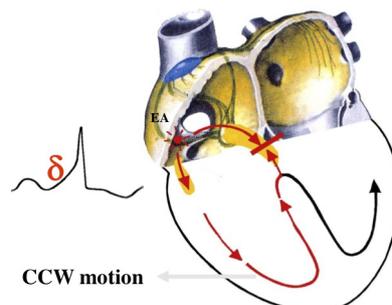
AVRT or CMT with Orthodromic Conduction versus AVRT with Antidromic Conduction

Orthodromic CMT or with narrow QRS: 90%



Narrow QRS
Clockwise macro-reentry motion. It uses a normal pathway in anterograde fashion and/or anomalous *Accessory pathway* in retrograde fashion.

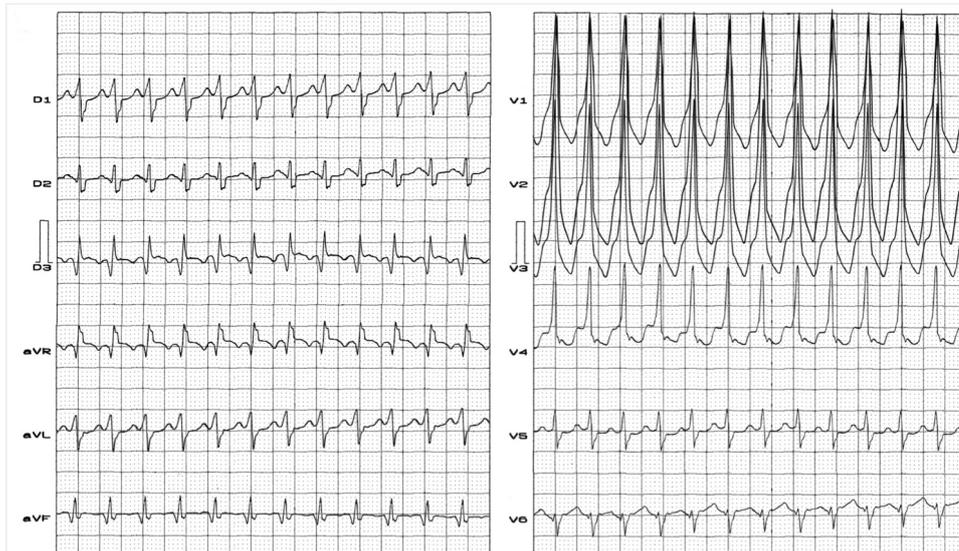
Antidromic CMT or with wide QRS: 10%



Wide QRS
Counterclockwise macro-reentry motion. It uses a normal pathway in retrograde fashion and/or anomalous *accessory pathway* in anterograde fashion.

Outline of the two modalities of macro-reentry in ventricular pre-excitation.

Example of AVRT with Antidromic Conduction



ECG diagnosis: AVRT with Antidromic Conduction QRS complexes completely pre-excited in a patient with left lateral accessory pathway. Wide QRS complexes due to abnormal ventricular depolarisation via accessory pathway. HR: 185 bpm. The stimulus decreases in anterograde fashion by the accessory pathway and it returns to the atrium by the normal pathway (wide QRS complex).

Hola amigos

1. coincido totalmente con el Dr Sami.

Ante una taquicardia como la que se presenta y una ALTERNANCIA DEL QRS 1/1, evoca una Taquicardia por reentrada por via accesoria. Típico de ellas.

2.ahora, desearía saber su opinión acerca del mecanismo de dicha alternancia.

¿Es un trastorno de conducción 1/1?

¿Mecánico?

Gracias

Saludos cordiales

Juan José Sirena

Con respecto al caso de Dra Marita Jimenez es evidente de A-V junctional reentry tachycardia, pero llama la atención de ST deprimido en casi todas las derivaciones con la onda T positiva. Este fenómeno indica presión diastólica final en el ventrículo izquierdo . ¿Y esto porqué?

Porque la taquicardia duró mucho tiempo, por lo menos 3 días . Esto se sabe por experimento en perros. Dejando varios días en marcapaso en la aurícula derecha a una velocidad de 240 lpm, la presión diastólica aumenta significamente hasta desarrollar insuficiencia cardíaca Y esto se debe al acortamiento de la diástole

Un fraternal abrazo

Samuel Sclarovsky