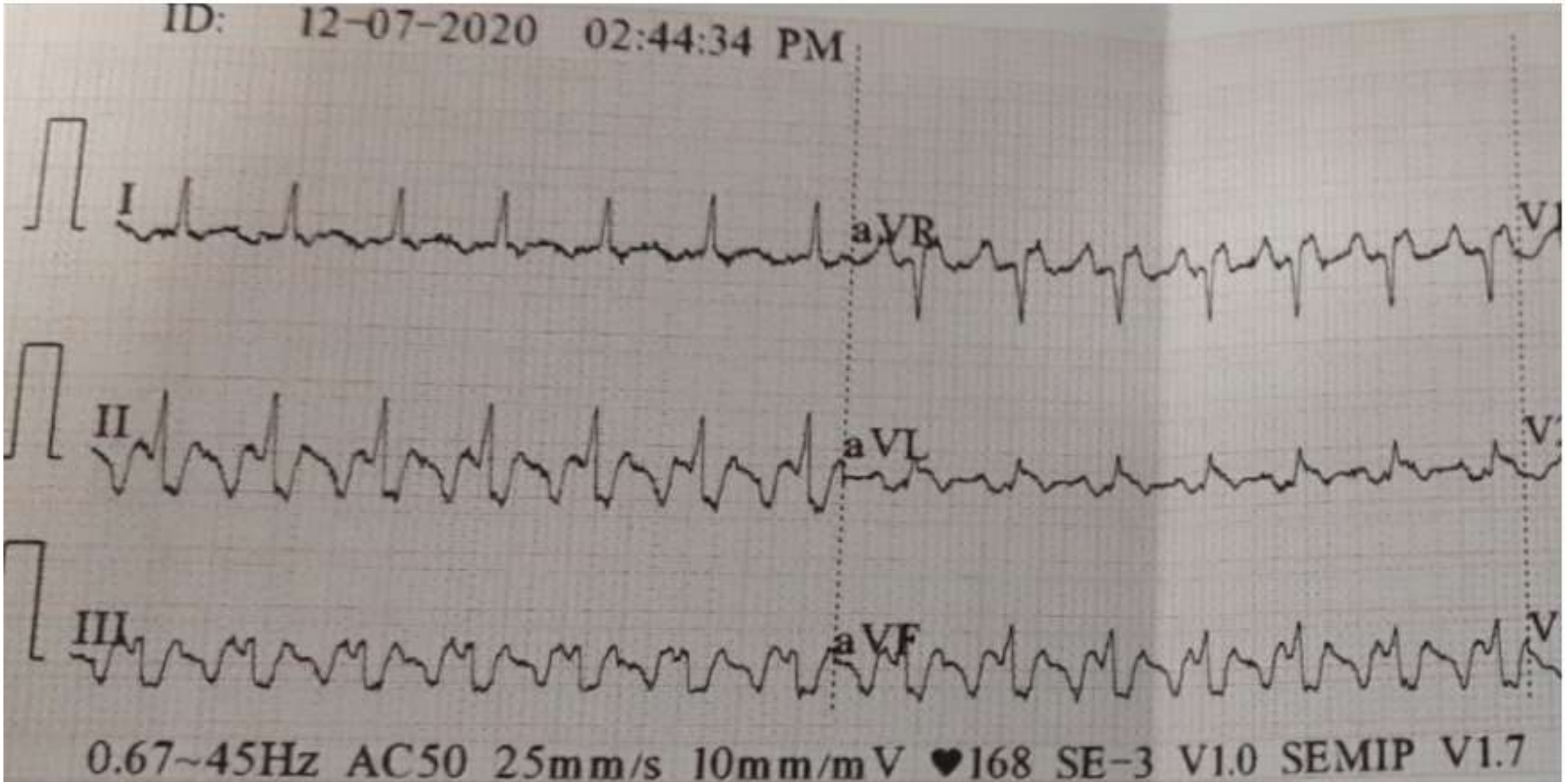
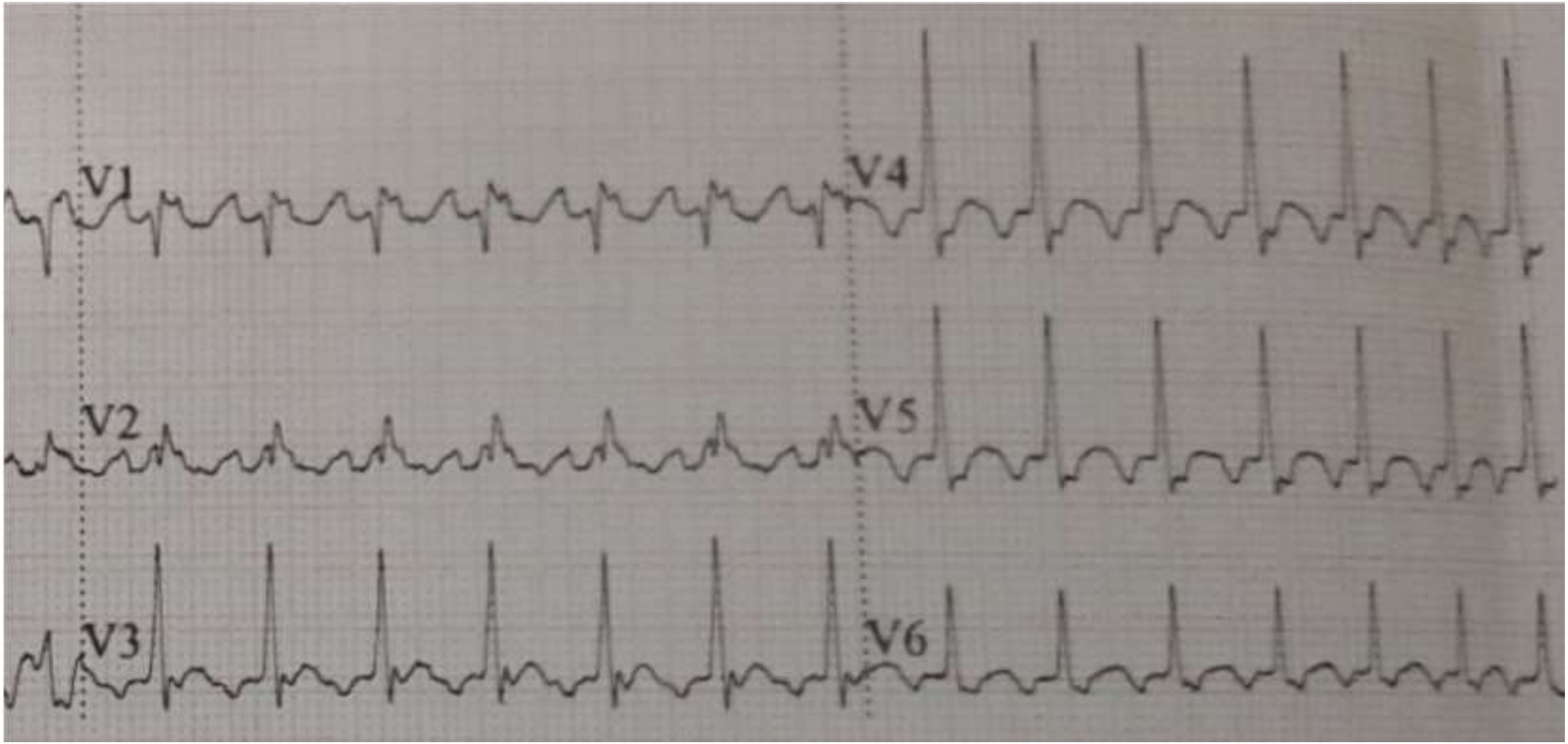
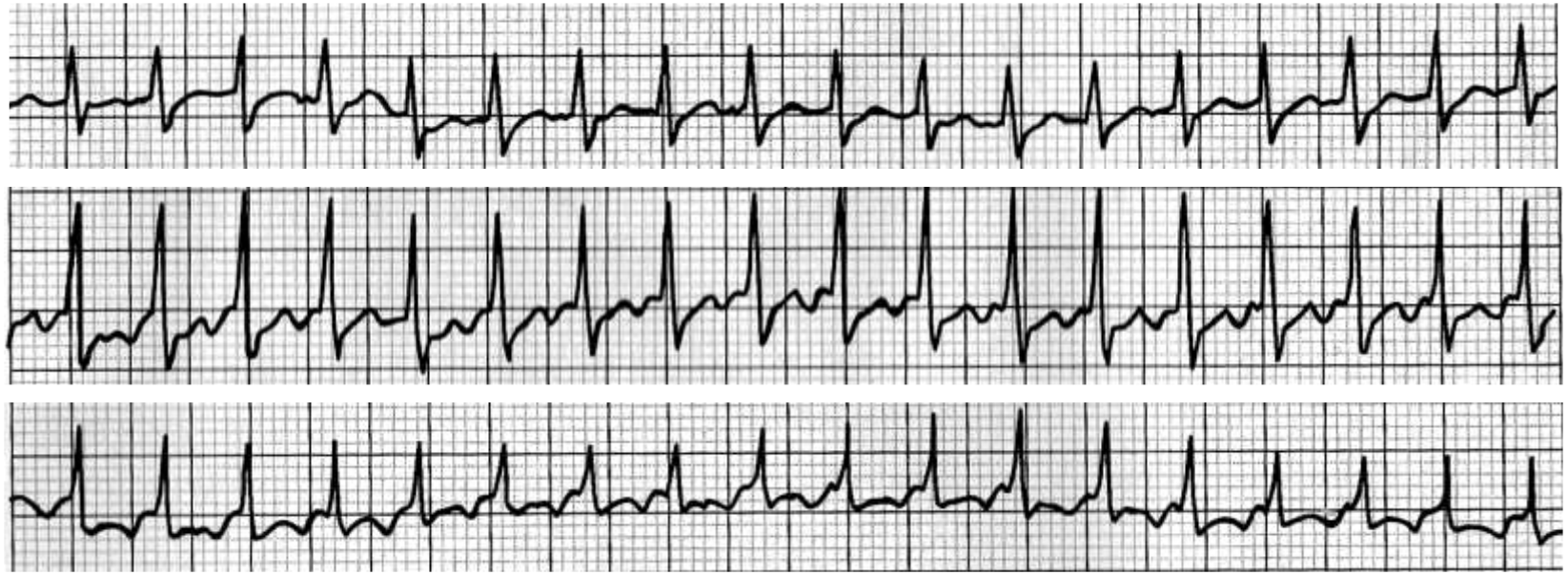
Dear Friends: Patient with COVID. He had a history of arrhythmia before getting COVID-19. What is your opinion about this ECG? Score: Andrés 1, Forum colleagues 5. I lost rout but I don't give up. The rationale is explained in the following 6 slides.

Thanks

Andres,




V1
V4
V2
V5
V3
V6



AV nodal reentrant tachycardia (AVNRT) – The retrograde P-wave may come just before, during, or after the QRS, depending on the relative speed of conduction back into the atria and forward into the ventricles. The rate will be fast, in the range of 150-250. Because nodal rhythm, anything that depresses AV nodal conduction will turn off the reentry circuit and stop the tachycardia. Vagal stimulation, adenosine, digitalis, calcium blockers, beta blockers, and quinidine are all effective. It is logical to try vagal stimulation first by carotid sinus massage, the diving reflex, or Valsalva maneuver. Adenosine is the next step between the vagal stimulation and adenosine, you can terminate more than 90% of these tachycardias. Remember these interventions stop the arrhythmia abruptly and completely. If the rate slows and then speeds again you are not dealing with AVNRT.

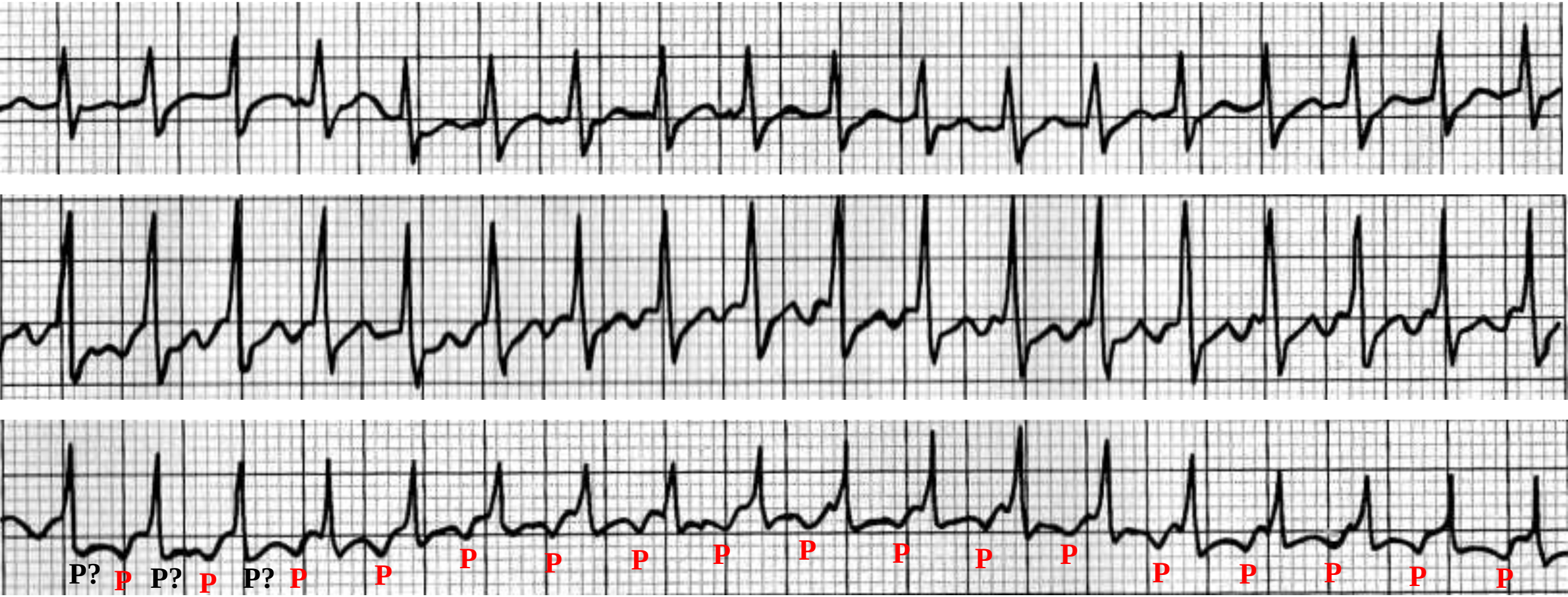
Taquicardia reentrante nodal AV (AVNRT): la onda P retrógrada puede aparecer justo antes, durante o después del QRS, dependiendo de la velocidad relativa de conducción hacia las aurículas y hacia los ventrículos. La tasa será rápida, en el rango de 150-250. Debido al ritmo nodal, cualquier cosa que deprima la conducción del nodo AV apagará el circuito de reentrada y detendrá la taquicardia. La estimulación vagal, adenosina, digital, bloqueadores de calcio, betabloqueantes y quinidina son todos efectivos. Es lógico probar primero la estimulación vagal mediante el masaje del seno carotídeo, el reflejo de buceo o la maniobra de Valsalva. La adenosina es el siguiente paso entre la estimulación vagal y la adenosina, puede terminar más del 90% de estas taquicardias. Recuerde que estas intervenciones detienen la arritmia abruptamente y por completo. Si la velocidad disminuye y luego se acelera nuevamente, no está tratando con AVNRT.

Differential diagnosis of AVNRT (number 6)

In the absence of aberrant ventricular conduction or a preexisting intraventricular conduction defect, the AVNRT is diagnosed by excluding the following types of supraventricular narrow QRS tachycardias with regular rhythm (or near regular):

1. Sinus tachycardia and SA nodal reentry tachycardia.
2. Ectopic atrial tachycardia
3. Intraatrial reentry tachycardia with 2:1 conduction: this is the predominant hypothesis. This very regular atrial tachycardia (~200 bpm) with 2:1 AV conduction looks like a slow atrial flutter because of it's frontal plane axis is approximately -90 degrees and the morphology of the flutter waves in the inferior leads (counterclockwise rotation) and in V1. The slow flutter rate may be related to underlying heart disease (e.g., large right atria) or complications of his systemic disease (e.g., Covid-19).
4. AV reentry atypical tachycardia with fast-slow conduction: my opinion. It is impossible a certain diagnosis without electrophysiological study. See next slide.
5. Automatic junctional tachycardia.
6. Permanent form of junctional reciprocating tachycardia.

AV reentry atypical tachycardia with fast-slow conduction – continuous V3 lead



The Juan's case

1. Atypical atrioventricular nodal reentrant tachycardia (AVNRT) may display patterns that do not necessarily correspond to the conventional fast–slow or slow–slow paradigms.
2. The term ‘fast–slow AVNRT’ is ambiguous and probably should be abandoned in favour of the term ‘atypical AVNRT’ for all subtypes.
3. Atypical AVNRT of the fast–slow type and typical AVNRT do not appear to utilize the same pathway for fast conduction.
4. Atypical AVNRT may involve the left and right inferior nodal extensions, regardless of the atrial-His/His-atrial relationship.
5. In an uncommon variant of AVNRT (uncommon AVNRT), the anterograde limb is the fast pathway and the retrograde limb the slow pathway; resulting in a long RP’ interval.
6. Tachycardia may be initiated by a premature ventricular complex.
7. The ECG pattern is indistinguishable from that of AVNRT, utilizing slowly conducting accessory pathway in the retrograde direction because of this similarity, the existence of a slow intranodal retrograde pathway was questioned in the earlier literature, but it was shown that tissues distal to the His bundle did not participate in the reentrant circuit in patients with such tachycardias implying that the reentry indeed occurred in the AV node. This type of tachycardia has been ablated selectively common and uncommon variants can coexist in the same patient. Some patients have three or more pathways and both AV nodal pathways forming a reentrant circuit may be “slow, given rise to slow-slow type of AVNRT”.