WILEY LETTER TO THE EDITOR

Differentiation of wide QRS tachycardia: Garbage in, garbage out

Dear Editor.

We have read with interest the paper by Reddy et al. (2017) concerning Marriott's sign entitled "The exception to Marriot's (sic) sign" in the last issue of ANE. We believe that two aspects of this ECG case report deserve comment.

The authors argue and conclude that the presented wide QRS complex tachycardia (WCT) could be misdiagnosed as ventricular tachycardia (VT) due to the presence of the Marriott's sign in lead V₂. We believe that this conclusion follows the classic cybernetic law "garbage in, garbage out" i.e., the quality of output is determined by the quality of the input. Marriott's sign should be assessed in lead V₁ only, not in lead V₂. Neither Marriott, nor subsequent electrocardiographers that assessed or discussed/reviewed this sign ever mentioned application of the "taller left rabbit's ear" criterion to lead V2. We are not aware of any study that would provide specificity and/or sensitivity for such QRS pattern in lead V2. QRS complex in lead V1 in the presented case is a rsR' complex-typical for supraventricular tachycardia with aberrancy, and such initial diagnosis in the current case should be made. We believe that the Marriott's sign criterion is not applicable to lead V2 because QRS in lead V2 not infrequently display such pattern during supraventricular tachycardia with abberrant conduction. Without much searching we have found several similar examples in our WCT database (Figure 1). The authors could also see a few ECGs with identical V₂ pattern during SVT in the Marriott's book that they cite (pages: 114, 116, 136) (Marriott, 2002).

Even if in the current case a bona fide Marriott's sing was present, i.e., a R or qR complex in lead V1 that displays a double-peaked R with the amplitude of left peak higher than the right peak, the statements like " ...illustrates an important exception to Marriot's sign..." or "...making Marriott's sign obsolete..." would be hard to accept. Marriott's sign is not 100% specific. Henry Marriott itself considered it only 90% specific -in his "Workshop in Electrocardiography" he provides a "reasonable approximation" that the "left rabbit ear taller than the right" sign favors VT vs SVT at 10:1 (Marriott, 1972). Perhaps that was a too modest approximation, as later studies showed higher specificity (albeit on small cohorts, for example there were only four cases with the Marriott's sing in the study by Wellens et al. and 14 cases in the study by Drew and Scheinman) (Drew & Scheinman, 1995; Wellens, Bar, & Lie, 1978). Occasional exceptions to the Marriott's sign should not be surprising and certainly do not make it "obsolete" as likely none of the ECG criteria is 100% specific for the diagnosis of VT; at least, after analyzing 786 WCT cases we have found none (Jastrzebski et al., 2016). The only way to achieve or approach 100% specificity in VT diagnosis and to avoid misdiagnoses fueled by exceptions to single criteria is to look for the simultaneous presence of several VT specific features (an approach utilized in our "VT score" method where the Marriott's sing was incorporated into the "dominant R in V₁ criterion") (Jastrzebski et al., 2016). In the case presented by Reddy et al. not even one VT specific feature can be identified (VT score of 0) indicating a nondiagnostic ECG albeit with the odds of SVT: VT of approximately 5:1.

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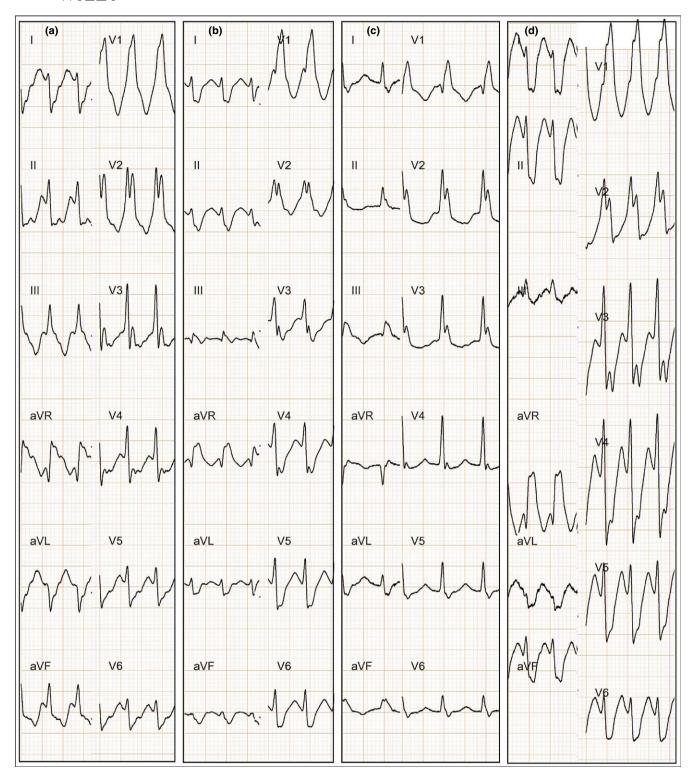


FIGURE 1 Pseudo Marriott's sing in lead V_2 during supraventricular tachycardias with aberrant conduction. (a and c) atrioventricular nodal reentrant tachycardia, (b and d) atrial flutter