A New Approach to the Differential Diagnosis of a Regular Tachycardia With a Wide QRS Complex

Pedro Brugada, MD; Josep Brugada, MD; Lluis Mont, MD; Joep Smeets, MD; and Erik W. Andries, MD

Background. In the differential diagnosis of a tachycardia with a wide QRS complex (≥0.12 second) diagnostic mistakes are frequent. Therefore, we investigated the reasons for failure of presently available criteria, and we identified new, simpler criteria and incorporated them in a stepwise approach that provides better sensitivity and specificity for making a correct diagnosis.

Methods and Results. A prospective analysis revealed that current criteria had a poor specificity for the differential diagnosis. The value of four new criteria incorporated in a stepwise approach was prospectively analyzed in a total of 554 tachycardias with a widened QRS complex (384 ventricular and 170 supraventricular). The sensitivity of the four consecutive steps was 0.987, and the specificity was 0.965.

Conclusions. Current criteria for the differential diagnosis between supraventricular tachycardia with aberrant conduction and ventricular tachycardia are frequently absent or suggest the wrong diagnosis. The absence of an RS complex in all precordial leads is easily recognizable and highly specific for the diagnosis of ventricular tachycardia. When an RS complex is present in one or more precordial leads, an RS interval of more than 100 msec is highly specific for ventricular tachycardia. This new stepwise approach may prevent diagnostic mistakes. (Circulation 1991;83:1649–1659)

The differential diagnosis of tachycardias on the 12-lead electrocardiogram is not merely an electrocardiographic exercise. When the QRS complex during tachycardia has a normal morphology, axis, and duration, the diagnosis of supraventricular tachycardia is easily made. Frequently, however, supraventricular tachycardias may have an aberrant intraventricular conduction and a wide (≥0.12 second) QRS complex. In this case, differentiating between supraventricular tachycardia with aberrant conduction (SVT) and ventricular tachycardia (VT) may become difficult.1

Even though several criteria have been proposed to help in the differential diagnosis,2–7 mistakes are nevertheless frequently made.8–10 Not infrequently, these mistakes have led to wrong therapeutic decisions with fatal or almost fatal outcomes. Although the reasons for wrong diagnoses are unclear, lack of knowledge of current criteria for the differential diagnosis does not seem to be one; rather, such mistakes seem to be the result of the way the criteria are applied or interpreted.8–10

The purpose of this study was twofold. On the one hand, we sought the reasons for failure of currently available criteria to provide a correct diagnosis by prospectively analyzing these criteria in a series of tachycardias with a wide QRS complex. On the other hand, we sought new and simpler criteria and incorporated them in a stepwise approach to make the differential diagnosis simpler, more decisive, and more accurate.

Methods

In the first part of the study, presently available criteria for differentiating between SVT with aberrant conduction and VT were prospectively analyzed in 236 tachycardias with a wide QRS complex. There were 172 VTs and 64 SVTs with aberrant conduction with electrophysiological proven mechanism. Complete 12-lead electrocardiograms were available for all patients who were not receiving antiarrhythmic
drugs. Electrocardiograms were analyzed at a paper speed of 25 mm/sec as usual in clinical practice.

Current criteria analyzed included 1) a left axis of the QRS complex in the frontal plane, which favors the diagnosis of VT, \(^4,5\) 2) the presence of atrioventricular dissociation, which favors the diagnosis of VT, \(^2-7\) 3) a QRS complex longer than 0.14 second, which favors the diagnosis of VT, \(^4,5\) and 4) morphology criteria favoring the diagnosis of VT when the QRS complex had a right \(^2-5,7\) or a left bundle branch block–like \(^8\) morphology.

Particularly important during the first part of the study were the recent observations by Kindwall et al. \(^6\) These investigators reported that an interval between

**TABLE 2.** Presence of Atrioventricular Dissociation, Left Axis, and Duration of the QRS Complex in 236 Prospectively Analyzed Tachycardias With a Widened QRS Complex

<table>
<thead>
<tr>
<th>SVT-LB</th>
<th>VT-LB</th>
<th>VT-RB</th>
<th>All SVT</th>
<th>All VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>75</td>
<td>97</td>
<td>64</td>
<td>172</td>
</tr>
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<td>0</td>
<td>19</td>
<td>18</td>
<td>0</td>
<td>37</td>
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<td>0</td>
<td>25</td>
<td>19</td>
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<td>0</td>
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<td>57</td>
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<td>0</td>
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<td>70</td>
</tr>
<tr>
<td>0</td>
<td>63</td>
<td>57</td>
<td>0</td>
<td>136</td>
</tr>
<tr>
<td>0</td>
<td>76</td>
<td>65</td>
<td>0</td>
<td>79</td>
</tr>
</tbody>
</table>

**Diagnosis of VT**

<table>
<thead>
<tr>
<th>SN</th>
<th>SP</th>
<th>Predictive + value</th>
<th>Predictive – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.21</td>
<td>1.0</td>
<td>1.0</td>
<td>0.32</td>
</tr>
<tr>
<td>0.70</td>
<td>0.76</td>
<td>0.89</td>
<td>0.48</td>
</tr>
<tr>
<td>0.79</td>
<td>0.72</td>
<td>0.90</td>
<td>0.52</td>
</tr>
</tbody>
</table>

QRS complex ≥0.12 second.

AV, atrioventricular; SVT-RB, supraventricular tachycardia with right bundle branch block aberrant conduction; SVT-LB, supraventricular tachycardia with left bundle branch block aberrant conduction; VT-RB, ventricular tachycardia with a right bundle branch block–like QRS complex; VT-LB, ventricular tachycardia with a left bundle branch block–like QRS complex; + value, predictive positive value; – value, predictive negative value.
the onset of the R wave to the deepest part of the S wave in lead V1 or V2 of more than 60 msec in a left bundle branch block–like wide QRS complex tachycardia suggested the diagnosis of VT. We hypothesized that measurement of the intrinsic deflection in any unipolar precordial lead with a clear RS complex should be helpful in differentiating between VT and SVT with aberrant conduction irrespective of the morphology of the arrhythmia. Therefore, data were prospectively collected on two aspects of the arrhythmia during the first part of the study: 1) whether an RS complex was present in at least one precordial lead, and 2) the length of the longest interval in any precordial lead from the beginning of the R wave to the deepest part of the S wave when an RS complex was present in one or more precordial leads.

Based on the results of the first part of the study, the second part was undertaken prospectively. Two independent observers unaware of the diagnosis analyzed 554 wide QRS complex tachycardias. In all cases, the diagnosis of these tachycardias was proven electrophysiologically. The observers were given complete 12-lead electrocardiograms during tachycardia recorded at a paper speed of 25 mm/sec. No endocavitary or esophageal electrograms or other recordings, such as aortic pressure, were available to them. The two observers were not asked to give a diagnosis but were asked 1) to determine whether an RS complex was present in at least one precordial lead, 2) to measure the longest RS interval in any precordial lead with an RS complex, 3) to determine whether atrioventricular dissociation was present, and 4) to decide whether both leads V1 and V6 fulfilled classic criteria for ventricular tachycardia. The observers were not aware of the diagnosis, and the four steps were used in the following way: 1) If the RS complex was not present in at least one precordial lead, the diagnosis of VT was noted, and further analysis was stopped. 2) If an RS complex was present with an RS interval of more than 100 msec, the diagnosis of VT was noted, and analysis was stopped. 3) If atrioventricular dissociation was diagnosed, the diagnosis of VT was made, and analysis was stopped. 4) If the tachycardia fulfilled the morphology criteria for VT in leads V1 and V6, the diagnosis of VT was made. Table 1 summarizes the morphology criteria used. This analysis by the two observers was, therefore, a stepwise approach. When a positive diagnosis of VT was made at any step, the observer was asked to stop analysis. When all four steps had been undertaken and had been answered negatively, the diagnosis of VT with aberrant conduction was made by exclusion of VT.

Figure 1 summarizes the steps in the diagnosis. Observer 1 analyzed 329 tachycardias with a wide QRS complex (232 VTs and 97 SVTs with aberrant conduction). Observer 2 analyzed 225 tachycardias with a wide QRS complex (152 VTs and 73 SVTs with aberrant conduction). Because the tachycardias analyzed were not the same, no consideration was made of possible interobserver variability in the diagnosis. As will be described, 11 of 554 tachycardias (2%) were misclassified. Further analysis of these 11 tachycardias was undertaken later to assess reasons and possible corrections of misdiagnosis.

**Table 1.** Classic Morphology Criteria in 236 Prospectively Analyzed Tachycardias With a Widened QRS Complex

<table>
<thead>
<tr>
<th>Criterion</th>
<th>V1</th>
<th>V6</th>
<th>V1 and V6</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>n%</td>
<td>n%</td>
<td>n%</td>
<td>n%</td>
</tr>
<tr>
<td>SVT-RB</td>
<td>43</td>
<td>35</td>
<td>35</td>
<td>81</td>
</tr>
<tr>
<td>SVT-LB</td>
<td>21</td>
<td>18</td>
<td>13</td>
<td>62</td>
</tr>
<tr>
<td>All SVT</td>
<td>64</td>
<td>53</td>
<td>48</td>
<td>75</td>
</tr>
<tr>
<td>VT-RB</td>
<td>97</td>
<td>81</td>
<td>83</td>
<td>75</td>
</tr>
<tr>
<td>VT-LB</td>
<td>75</td>
<td>63</td>
<td>84</td>
<td>47</td>
</tr>
<tr>
<td>All VT</td>
<td>172</td>
<td>144</td>
<td>84</td>
<td>122</td>
</tr>
</tbody>
</table>
FIGURE 2. Panel A: Twelve-lead electrocardiograms demonstrating supraventricular tachycardia (SVT) with a right bundle branch block morphology not fulfilling the morphology criteria for SVT. Note left axis deviation of the QRS complex in the frontal plane, a QRS duration of at least 140 msec in lead V₁ with a triphasic complex in this lead, but an R to S wave ratio of less than 1 in lead V₅. Atrioventricular dissociation is absent. Axis, morphology criteria in lead V₆, and duration of the QRS complex suggest the wrong diagnosis of ventricular tachycardia (VT). Panel B: Tracings demonstrating slow atrial tachycardia conducted 1 to 1 to the ventricles with left bundle branch block aberrant conduction. There is a left axis of the QRS complex in the frontal plane (suggesting VT), no atrioventricular dissociation (not favoring any diagnosis), and a duration of the QRS complex far greater than 140 msec (suggesting VT). Also, lead V₁ shows a broad initial R wave and an interval from the beginning of the R wave to the S wave of more than 60 msec, suggesting slow VT. Paper speed was 25 mm/sec.
with right bundle branch block aberrant conduction. Similar findings were also reported by Kindwall et al6 in tachycardias with a left bundle branch blocklike QRS complex. When the complete 12-lead electrocardiogram was analyzed, a duration of the QRS complex of more than 0.14 second was far from a rarity in SVTs with aberrant conduction. Similar observations were previously reported by Akhtar et al7 These two criteria would have favored the diagnosis of VT. Atrioventricular dissociation was not present in any SVT, however; although 100% specific for the diagnosis of VT, it was seen in only 21% of the VTs. This incidence of atrioventricular dissociation is similar to the incidence reported in other studies.4,5,7 The morphology criteria for the corresponding tachycardia (SVT or VT) were frequently present in lead V1 or V6. However, 4% of the SVTs and 6% of the VTs did not fulfill the criteria for their diagnosis in any lead (Figures 2 and 3). More important, more than one third of the SVTs and VTs did not fulfill the morphology criteria in lead V1 and lead V6. That is, although one lead suggested the diagnosis of VT, the other lead suggested the diagnosis of SVT, or vice versa (Figure 4). Akhtar et al7 also previously discussed these points. Thus, discordance in morphology criteria occurred frequently, and criteria suggesting VT, such as a left axis of the QRS complex in the frontal plane or a duration of the QRS complex of 0.14 second or more, were frequently present in SVT with aberrant conduction.

RS Complex and Interval in the Precordial Leads

During this first part of the study, an RS complex was present in at least one precordial lead in all SVTs with aberrant conduction. However, 45 of 172 (26%) VTs did not have an RS complex in any precordial lead (Figure 5).

The interval from the onset of the R wave to the deepest part of the S wave was measured, irrespective of the morphology of the tachycardia, in all tachycardias showing an RS complex in at least one precordial lead. When an RS complex was present in more than one precordial lead, the longest RS interval in any precordial lead was measured. Figure 6 illustrates the measurement of this interval, and Table 4 lists the distribution of this interval in the different tachycardias. As shown, an RS interval longer than 100 msec was not observed in any SVT with aberrant conduction. About half of the VTs having an RS complex in at least one precordial lead had an RS interval of 100 msec or less (61 of 127, 48%), and the other half (52%) of the VTs had an RS interval of more than 100 msec. From these observations, we concluded that the absence of an RS complex in all precordial leads or an RS interval of more than 100 msec in any precordial lead when an RS complex was present were each 100% specific for the diagnosis of VT. From the first part of the study, we also concluded that atrioventricular dissociation was 100% specific for the diagnosis of VT.
FIGURE 4. Twelve-lead electrocardiograms showing discordance in morphology criteria in leads V1 and V6. Panel A: Ventricular tachycardia (VT) with a triphasic complex in lead V1, that suggests supraventricular tachycardia (SVT) and an R to S ratio of less than 1 in lead V6 that suggests VT. Panel B: SVT with a triphasic complex in lead V1, that suggests SVT but an R to S wave ratio of less than 1 in lead V6 that suggests VT. Paper speed was 25 mm/sec.
**Figure 5.** Twelve-lead electrocardiograms showing ventricular tachycardias without RS complexes in any precordial lead. This finding is 100% specific for the diagnosis of ventricular tachycardia. Only QS, QR, or monophasic R complexes are observed.

**Table 4.** Distribution and Means for RS Intervals in the Precordial Lead With the Longest RS Interval, Longest Duration of the QRS Complex in That Lead, and Longest Duration of the QRS Complex in Any Lead in 236 Tachycardias With a Widened QRS Complex

<table>
<thead>
<tr>
<th>RS interval (msec)</th>
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<th>&lt;40</th>
<th>&lt;60</th>
<th>&lt;80</th>
<th>&lt;100</th>
<th>&lt;120</th>
<th>&lt;140</th>
<th>&lt;160</th>
<th>&lt;180</th>
<th>&lt;200</th>
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</thead>
<tbody>
<tr>
<td>SVT-RB</td>
<td>43</td>
<td>7</td>
<td>14</td>
<td>14</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SVT-LB</td>
<td>21</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>All VT</td>
<td>64</td>
<td>9</td>
<td>23</td>
<td>22</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VT-RB</td>
<td>66</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>13</td>
<td>23</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>VT-LB</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>21</td>
<td>14</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>All VT</td>
<td>127*</td>
<td>2</td>
<td>2</td>
<td>23</td>
<td>34</td>
<td>37</td>
<td>15</td>
<td>11</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RS interval (msec)</th>
<th>≤100 msec</th>
<th>&gt;100 msec</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>All VT</td>
<td>64/64</td>
<td>100</td>
</tr>
<tr>
<td>All VT</td>
<td>61/127</td>
<td>52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean RS</th>
<th>Mean QRS</th>
<th>Mean L QRS (msec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>126</td>
<td>136</td>
</tr>
<tr>
<td>65</td>
<td>132</td>
<td>143</td>
</tr>
<tr>
<td>110</td>
<td>165</td>
<td>170</td>
</tr>
<tr>
<td>111</td>
<td>168</td>
<td>180</td>
</tr>
</tbody>
</table>

QRS complex ≥0.12 second.

SVT-RB, supraventricular tachycardia with right bundle branch block aberrant conduction; SVT-LB, supraventricular tachycardia with left bundle branch block aberrant conduction; VT-RB, ventricular tachycardia with a right bundle branch block-like QRS complex. VT-LB, ventricular tachycardia with a left bundle branch block-like QRS complex; mean QRS, mean duration of the QRS complex measured at any lead. mean L QRS, mean duration of the longest QRS complex in the lead in which the RS interval was measured; mean L QRS, mean duration of the longest QRS complex measured at any lead.

*Forty-five VT did not have an RS complex in any precordial lead.
The duration of the RS interval was not dependent on the duration of the QRS complex in the same lead and was independent of the morphology of the tachycardia. The correlation coefficient between duration of the RS interval and duration of the QRS complex in the lead where the QRS complex was measured was 0.0764 for SVT and 0.52 for VT (p = NS).

Prospective Analysis of the New Criteria

Figure 7 illustrates how the diagnosis of the tachycardias (of which the observers were unaware) was made using the four new criteria. Of the 384 VTs, 379 (98.7%) were correctly classified. Of the 170 SVTs with aberrant conduction, 164 (96.5%) were correctly classified. Therefore, the sensitivity of the four step-wise criteria for the diagnosis of VT was 0.987, and the specificity was 0.965.

Together, the two observers misclassified 11 tachycardias: five VTs and six SVTs with aberrant conduc-

![Figure 6](http://circ.ahajournals.org/)

**Figure 6.** Tracings from the 12-lead electrocardiogram illustrating the measurement of the RS interval. A ventricular tachycardia with a right bundle branch blocklike QRS complex is shown. An RS complex is observed in the precordial leads V3 to V6. S wave is, however, not sharp enough in lead V5 to measure confidently an RS interval. RS interval (enlarged in the right panel) measures 160 msec in lead V4 and 70 msec in lead V6. Thus, the longest RS interval is more than 100 msec and diagnostic of ventricular tachycardia. Paper speed was 25 mm/sec.

![Figure 7](http://circ.ahajournals.org/)

**Figure 7.** Algorithm of the diagnosis made by two observers in 554 tachycardias with a widened QRS complex. Number of tachycardias classified at each step is given. Sensitivities (SN) and specificities (SP) for the diagnosis of ventricular tachycardia (VT) are also shown at each step and also for the diagnosis of supraventricular tachycardia (SVT) with aberrant conduction at the last step. Note that the four consecutive criteria reached a sensitivity of 0.987 and a specificity of 0.965 for the diagnosis of VT and of 0.965 and 0.987 for the diagnosis of SVT with aberrant conduction.

The duration of the RS interval was not dependent on the duration of the QRS complex in the same lead and was independent of the morphology of the tachycardia. The correlation coefficient between duration of the RS interval and duration of the QRS complex in the lead where the QRS complex was measured was 0.0764 for SVT and 0.52 for VT (p = NS).

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criteria and of the new criteria. Each observer was asked to reconsider the diagnosis on the basis of both
criteria. No tachycardia could be classified correctly.
An example is shown in Figure 8.

Discussion

Several investigators previously discussed the
limitations of currently available criteria in the
differential diagnosis of a tachycardia with a wid-
ened QRS complex.\textsuperscript{6–10} To the experienced ryth-
mologist, the diagnosis may seem obvious even
when criteria show discordance or suggest different
diagnoses. However, mistakes in the diagnosis are
made frequently, and therapeutic decisions based
on a wrong diagnosis may have fatal or almost fatal
consequences.\textsuperscript{8–10}

This study shows that currently used criteria
favoring the diagnosis of VT are frequently found in
SVTs with aberrant conduction when a complete
12-lead electrocardiogram is analyzed. The sensi-
tivity and specificity of the old criteria are not
optimal. The major problem seems, however, that
leads $V_1$ and $V_6$ frequently show discordant mor-
phology patterns that suggest a different diagnosis.
It is understandable that morphology discordance
may confuse the physician confronted with a tachy-
cardia having wide QRS complex and may lead to
an incorrect diagnosis.

Another major limitation of the currently used
criteria is that they do not include a stepwise,
decision tree-like approach. When all criteria are
not in agreement with a diagnosis, the physician
does not have any further steps to help in decision
making. An algorithm with simple criteria, with
steps that render clear decisions, and with known
sensitivity and specificity for each step seems highly
desirable.

The new criteria we developed were based on
these concepts and on the observations made by
Kindwall et al\textsuperscript{6} in tachycardias with a left bundle
branch block-like QRS complex. We hypothesized
that the intrinsic deflection, measured from the onset
of the R wave to the deepest part of the S wave,
should be longer in VT than in SVT in any unipolar
precordial lead having an RS morphology, irrespec-
tive of the morphology of the tachycardia (right or

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure8}
\caption{Twelve-lead electrocardiograms showing one of the 11 tachycardias with a widened QRS complex misclassified using classic and new criteria. This is a ventricular tachycardia with a left bundle branch block-like QRS complex in which axis, duration of the QRS complex, and morphology criteria all suggest the wrong diagnosis of supraventricular tachycardia with left bundle branch aberrant conduction. New criteria also incorrectly classified this ventricular tachycardia. After reconsideration, the observers discussed whether lead $V_3$ showed an RS complex. If lead $V_3$ was considered to have a QS complex, the correct diagnosis of ventricular tachycardia had been made in the first step using the new criteria. Note that lead $V_4$ shows an RSR complex, not an RS complex. Because the observers could not agree whether lead $V_3$ had a QS or RS complex, limitations of old and new criteria were accepted in this case. Paper speed was 25 mm/sec.}
\end{figure}
left bundle branch block–like QRS complex). As shown in part one of this study and also in the independent analysis by two observers, this hypothesis resulted in accurate diagnoses. During the first part of this study, we also observed that when a tachycardia with a wide QRS complex does not have an RS complex in at least one precordial lead the diagnosis of VT can immediately be made with 100% specificity. These two criteria, combined with the criterion of atrioventricular dissociation (also highly specific for VT) and with the morphology criteria for VT in both leads V₁ and V₆, had a high sensitivity and specificity for differentiating between VT and SVT with aberrant conduction.

The advantages of this stepwise approach to diagnosis (Figure 1 and Figure 7) are that it is structured and positively directed to the diagnosis of the type of arrhythmia. That is, if RS complex is not present in any precordial lead, the diagnosis of VT is made, and further analysis is stopped. If an RS complex is present, the longest RS interval in the precordial leads is measured. If the RS interval is longer than 100 msec, the diagnosis of VT is made, and the remaining two steps are ignored. When the RS interval is 100 msec or less, the third step must be considered, that is, whether atrioventricular dissociation is present. When present, the diagnosis of VT is made. When absent, the morphology criteria are analyzed in leads V₁ and V₆. If both leads have a morphology compatible with the diagnosis of VT, the diagnosis of VT is made. Otherwise, the diagnosis of

**Figure 9.** Twelve-lead electrocardiograms illustrating the value of the new criteria compared with old criteria in differential diagnosis. Panel A: ventricular tachycardia (VT) in a patient with surgically corrected tetralogy of Fallot. RS complex occurs in leads V₂ to V₆. RS interval is clearly longer than 100 msec and is diagnostic for VT. Panel B: Supraventricular tachycardia (SVT) with right bundle branch block aberrant conduction from the same patient. QRS complex is longer than 200 msec. Atrioventricular dissociation is not visible, and axis of the QRS complex in the frontal plane is of no help in the differential diagnosis. QRS complex is triphasic in lead V₁, but the R to S wave ratio is less than 1 in lead V₆. Thus, old criteria favor the diagnosis of VT in this case. With the new criteria, the correct diagnosis of SVT with right bundle branch block aberrant conduction was made as follows. 1) Absence of an RS complex in precordial leads: An RS complex is in lead V₆. 2) RS interval greater than 100 msec in one precordial lead: RS interval is less than 100 msec. 3) Atrioventricular dissociation: Not recognizable. 4) Morphology criteria for VT present in both precordial leads V₁ and V₆: No, because lead V₁ had a triphasic complex. Thus, by excluding VT with the four steps, the correct diagnosis of SVT was made.
SVT with aberrant conduction is made by exclusion of VT (Figure 9).

Obviously, the correct diagnosis depends on careful application of the four criteria. Of emphasis, only an RS complex or its absence in all precordial leads is valuable for the diagnosis. Complexes with QR, QRS, QS, monophasic R, or rSR morphology are not considered RS complexes. Only when an RS interval is measurable can the complex be considered an RS complex.

These new criteria incorporated in a stepwise approach may help prevent the frequent errors made in the differential diagnosis of tachycardias with a wide QRS complex.

References


KEY WORDS • ventricular tachycardia • supraventricular tachycardia • aberrant conduction • electrocardiography
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