

Left septal fascicular block (LSFB) - 2008

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The sequence of ventricular activations in the presence of LSFB will depend on the LSFB occurring in isolation or in association to other fascicular blocks and/or RBBB. Thus, we can divide ventricular activation into the following groups:

- 1)** Isolated, lone or LSFB without other conduction defects (rare)
- 2)** Associated with other fascicular or divisional blocks:
 - (2-1) LAFB: LSFB + LAFB.
 - (2-2) LPFB: LSFB + LPFB.
- 3)** Associated with bundle branch blocks:
 - (3-1) Associated with RBBB: LSFB + RBBB
 - (3-2) Associated with LBBB: LSFB + LBBB.
- 4)** Trifascicular blocks:
 - (4-1) Trifascicular: RBBB + LAFB + LSFB.
 - (4-2) Trifascicular: RBBB + LPFB + LSFB
 - (4-3) Trifascicular: LBBB+ LAFB+ LSFB.
- 5)** Tetrafascicular blocks:
 - (5-1) RBBB + LPFB + LSFB + first-degree AV block..
 - (5-2) RBBB + LAFB + LSFB + first-degree AV block
- 6)** Transient, intermittent forms.

LAFB with variable degree, RBBB, intermittent LSFb (intermittent trifascicular block).

ELECTRO-VECTROCARDIOGRAPHIC CHARACTERIZATION OF LSFb ASSOCIATED TO Complete RBBB

Hypothetical model of the sequence of ventricular activation in LSFb associated to CRBBB is the following:

The sequence of ventricular activation begins necessarily in two points:

1) The base of the anterolateral papillary muscle of mitral valve (ALPM) dependent on Left Anterior Fascicle (LAF) in the anterior paraseptal wall, just below the attachment of Anterolateral Papillary muscle ALPM (We denominated 1AM vector);

2) The base of the PosteroMedial Papillary Muscle (PMPM) of mitral valve dependent on Left Posterior Fascicle (LPF). It is located on the posterior paraseptal wall, about one third of the distance from apex to base (We denominated 1PI vector). These 3 initial vectors (1AM and 1PI) have opposite directions, and they annul each other with minimal predominance of vector 1PI directed backward(embryonic initial q wave in V2-V3). Next, the stimulus is heading to the middle-septal or left paraseptal region, blocked by numerous Purkinje areas of passage, thus shifting the forces to the front and the left: Prominent Anterior Forces (PAF).

Finally, via slow trans-septal conduction, the activation of the blocked Right Ventricle occurs, showing the CRBBB characteristics with right end conduction delay located in the right anterior quadrant on HP (glove finger morphology).

In brief, the first portion of the QRS complex (initial 20 to 60 ms) shows the characteristics of LSFb and the final 60 ms to 80 ms it shows the characteristics of CRBBB.

Electrovectorcardiographic characterization of LSFb associated with CRBBB.

1) QRS duration \geq 120 ms(here we have)

- 2) qR pattern or monophasic R wave in V2-V3(the last one we have)
- 3) $R-V2 > RV3$
- 4) $R-V3 \geq 15 \text{ mm}$ (We have not)
- 5) R waves with great voltage and sharp-pointed in V2-V3(here we have not)
- 6) R wave with the final portion of descending ramp wide(here we have not)
- 7) Progressive decrease of R wave voltage from V4 to V6(here we have not)
- 8) Absence of initial q wave in V5-V6(here we have)
- 9) Final S wide waves in left leads V5-V6, DI and aVL(here we have)
- 10) QRS loop in the HP round, with CW rotation and located predominantly in the left anterior quadrant????
- 11) The 10 to 20 ms initial vector heading backward. ????