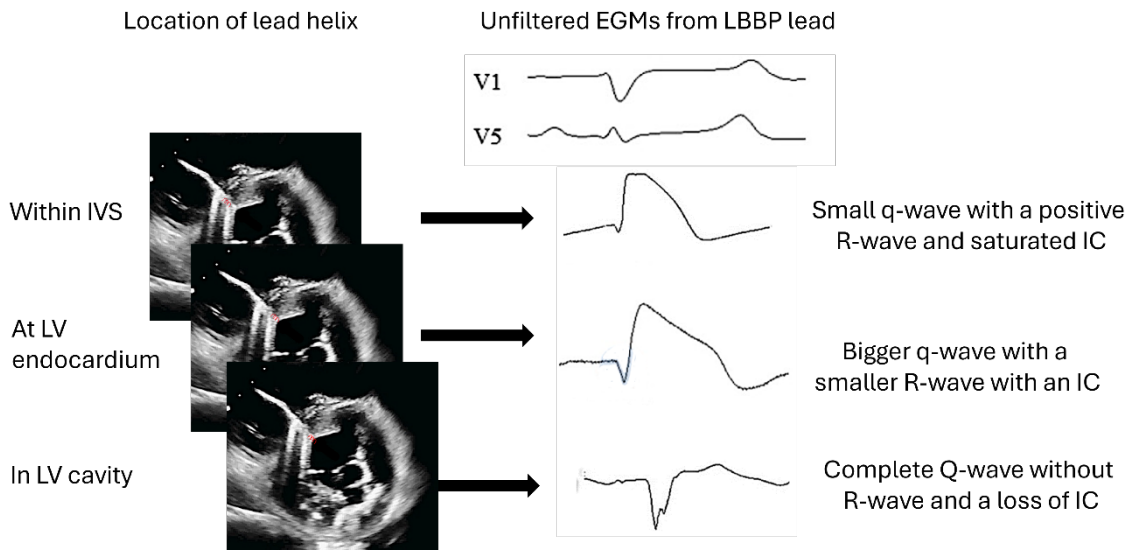
Supplementary Material

Supplementary Figure 1: Intra-procedural perforation and injury current.

Figure demonstrates IC characteristics (on the unfiltered channel) as the LBBAP lead advances through the IVS. When the lead is deep within the IVS, the injury current is saturated with a small ‘q-wave’ and large ‘R-wave’. As the lead gets to the LV endocardium and the helix comes in contact with the LV endocardial layer, the ‘q-wave’ gets larger and finally once the helix has perforated there is complete loss of the injury current pattern with a deep ‘Q-wave’ and small ‘r-wave’.

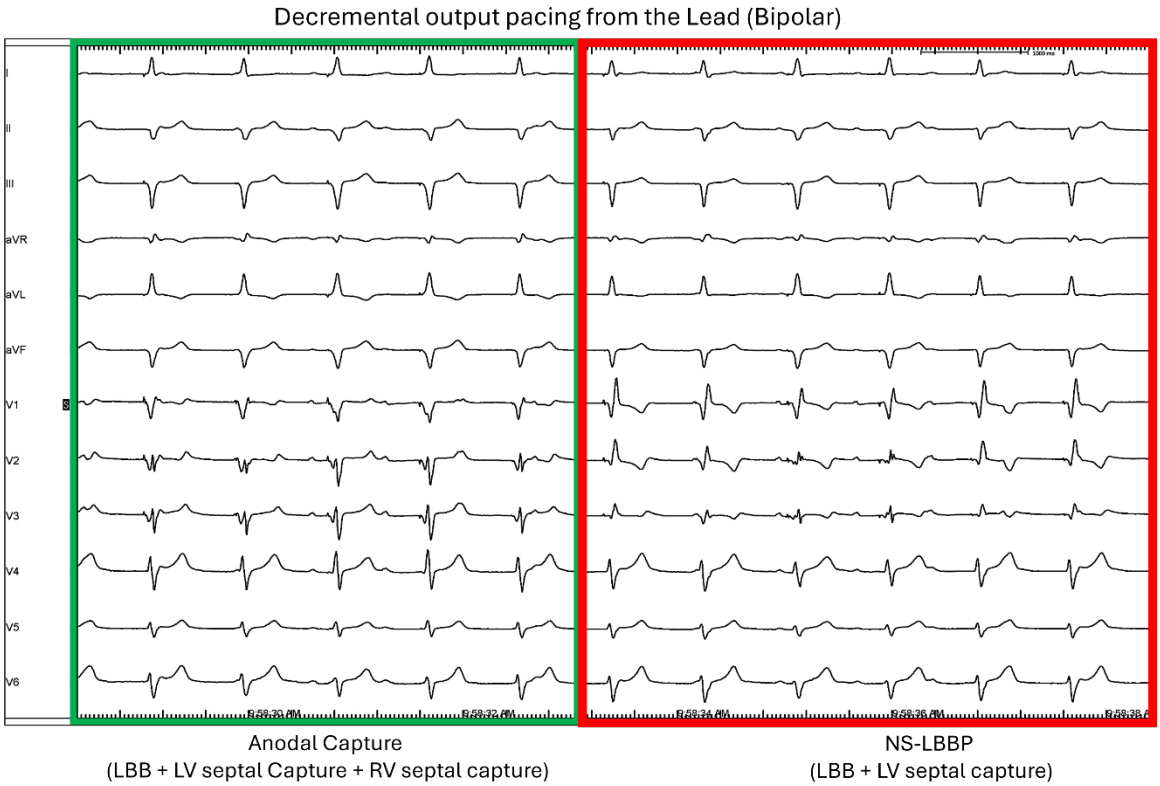
IC: injury current; IVS: inter-ventricular septum; LBBAP: left bundle branch area pacing; LV: left ventricle



Supplementary Figure 2: Transitions in morphology with LBBAP (NS-LBBP to S-LBBP).

Decremental pacing from LBBAP in bipolar configuration demonstrating a change in morphology on 12- lead ECG (rhythm strip) from a narrow (incomplete RBBB pattern) paced QRS (NS-LBBP) to a wider (complete RBBB) paced QRS (S-LBBP). Bottom panel represents simultaneous device EGMs with near-field (tip-ring) and far-field EGMs. Note widening of far-field EGMs with transition to S-LBBP along with a change in near-field EGM pattern upon transition from NS-LBBP to S-LBBP.

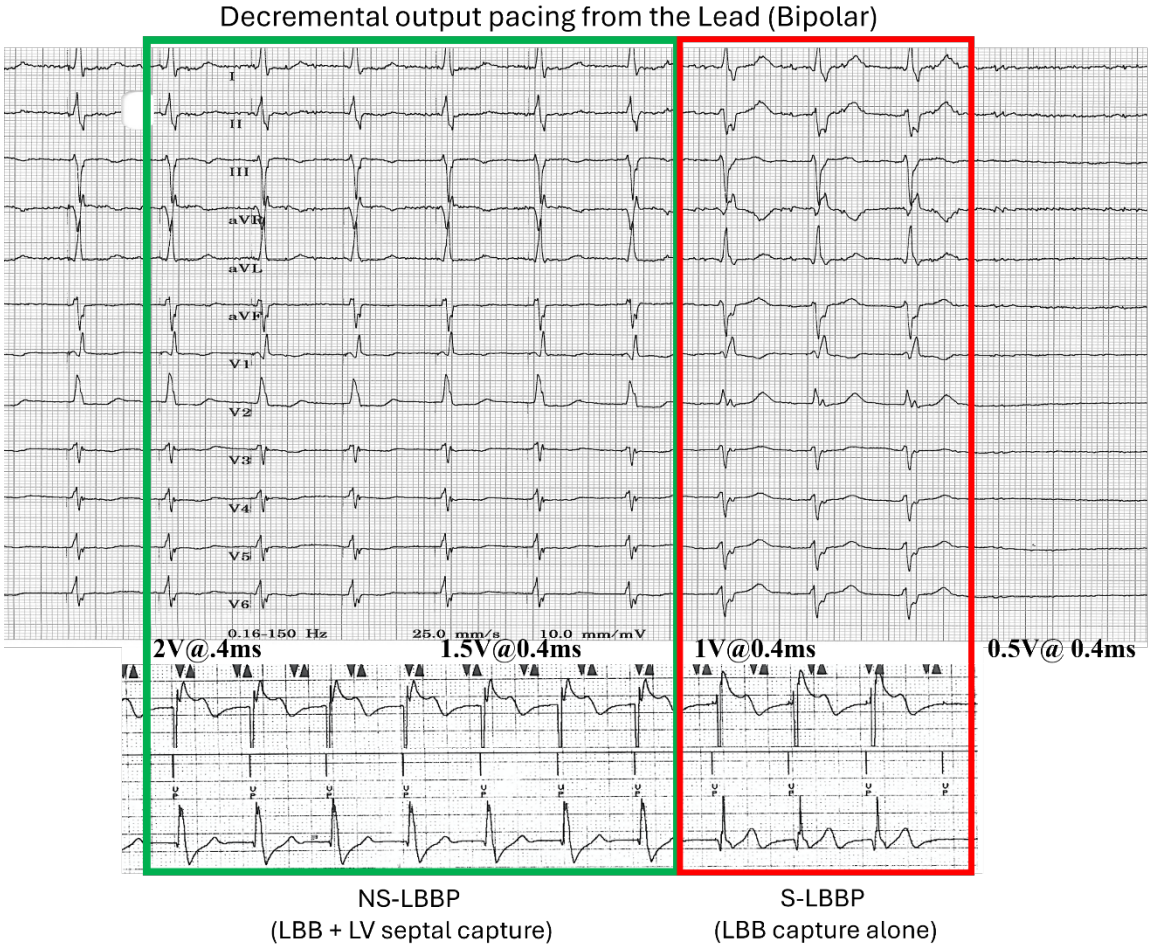
EGM: electrogram; LBBAP: left bundle branch area pacing; NS-LBBP: non-selective left bundle branch pacing; RBBB: right bundle branch block; S-LBBP: selective left bundle branch pacing



Supplementary Figure 3: Transitions in morphology with LBBAP (Anodal to NS-LBBP).

Decremental pacing from LBBAP in bipolar configuration demonstrating a change in morphology on 12- lead ECG (rhythm strip) from wider paced QRS with a 'notch (w)' in lead V1 (anodal capture) to a narrow (incomplete RBBB pattern) paced QRS (NS-LBBP) with a qR in lead V1.

LBBAP: left bundle branch area pacing; NS-LBBP: non-selective left bundle branch pacing; RBBB: right bundle branch block



Supplementary Figure 4: Adjusting AV delays to overcome paced RBBB in a patient with underlying LBBB

An example of adjusting AV delays in a patient with underlying LBBB undergoing LBBAP for CRT. Adjusting the AV delay from 30ms to 60ms results in fusion of LBBAP with conduction over the RBB, resulting in complete narrowing with loss of qR in V1.

CRT: cardiac resynchronization therapy; LBBAP: left bundle branch area pacing; RBBB: right bundle branch block