

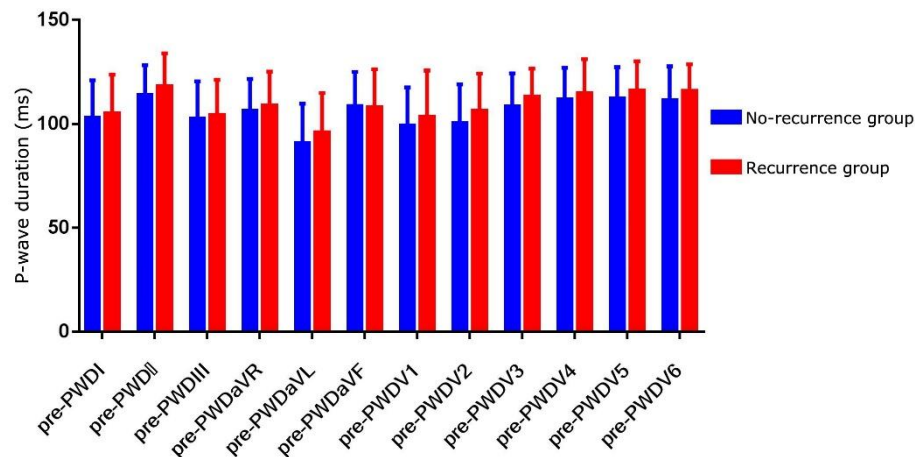
Supplemental data

1. Supplemental Tables (sTable) , table legends and Supplemental Figures (sFigure) , figure legends.

Supplemental Table 1.PWD of 12-lead electrocardiogram before operation in non-relapsing group and relapsing group

P wave parameters	No-recurrence group (N=168)	Recurrence group (N=45)	P value
pre-PWD _I (ms)	103.01±17.90	105.11±18.50	0.489
pre-PWD _{II} (ms)	114.03±14.18	118.11±15.82	0.096
pre-PWD _{III} (ms)	102.54±17.88	104.16±17.04	0.586
pre-PWD _{aVR} (ms)	106.34±15.24	108.78±16.26	0.348
pre-PWD _{aVL} (ms)	90.76±18.84	96.02±18.76	0.097
pre-PWD _{aVF} (ms)	108.64±16.31	107.89±18.35	0.789
pre-PWD _{V1} (ms)	99.29±18.21	103.42±22.22	0.199
pre-PWD _{V2} (ms)	100.37±18.60	106.27±17.90	0.058
pre-PWD _{V3} (ms)	108.31±15.99	113.22±13.36	0.060
pre-PWD _{V4} (ms)	111.61±15.35	114.80±16.31	0.223
pre-PWD _{V5} (ms)	112.32±14.96	115.93±14.12	0.147
pre-PWD _{V6} (ms)	111.54±16.16	115.80±12.85	0.103

* indicates $P < 0.05$



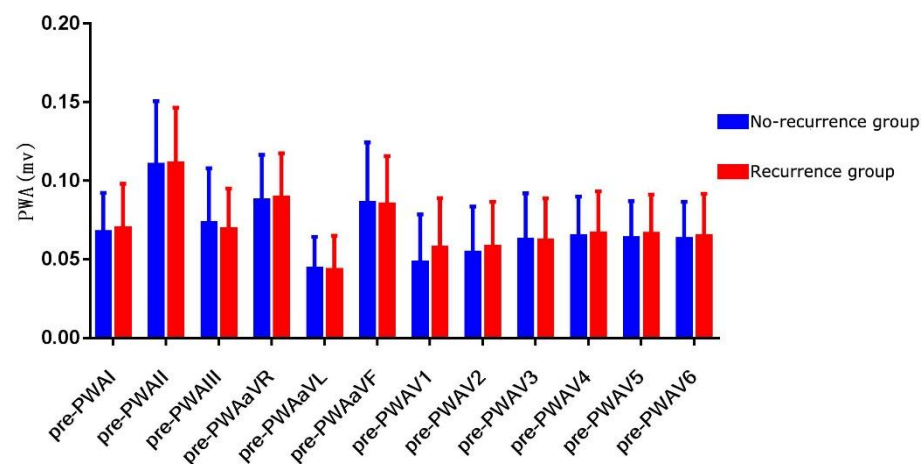
Supplemental Figure 1. The comparison of preoperative ECG PWD parameters between the non-Recurrence atrial fibrillation group and the Recurrence atrial fibrillation group. There

was no statistical difference in the PWD of 12 ECG leads.

Supplemental Table 2. PWA of 12-lead electrocardiogram before operation in non-relapsing group and relapsing group

P wave parameters	No-recurrence group (N=168)	Recurrence group (N=45)	P value
pre-PWA _I (mV)	0.07±0.02	0.07±0.03	0.578
pre-PWA _{II} (mV)	0.11±0.04	0.11±0.04	0.895
pre-PWA _{III} (mV)	0.07±0.03	0.07±0.03	0.476
pre-PWA _{aVR} (mV)	0.09±0.03	0.09±0.03	0.688
pre-PWA _{aVL} (mV)	0.04±0.02	0.04±0.02	0.800
pre-PWA _{aVF} (mV)	0.09±0.04	0.09±0.03	0.915
pre-PWA _{V1} (mV)	0.05±0.03	0.06±0.03	0.074
pre-PWA _{V2} (mV)	0.05±0.03	0.06±0.03	0.462
pre-PWA _{V3} (mV)	0.06±0.03	0.06±0.03	0.899
pre-PWA _{V4} (mV)	0.06±0.03	0.07±0.03	0.705
pre-PWA _{V5} (mV)	0.06±0.02	0.07±0.02	0.483
pre-PWA _{V6} (mV)	0.06±0.02	0.06±0.03	0.612

* indicates $P<0.05$

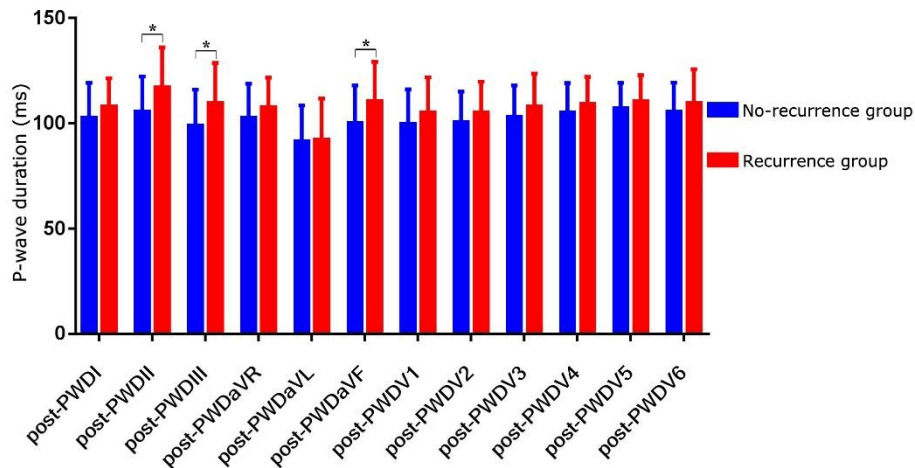


Supplemental Figure 2. The comparison of preoperative ECG PWA parameters between the non-recurrence atrial fibrillation group and the Recurrence atrial fibrillation group. There was no statistical difference in the PWA of 12 ECG leads.

Supplemental Table 3. Comparison of postoperative ECG P wave parameters between the non-recurrence group and the recurrence group

P wave parameters	No-recurrence group (N=168)	Recurrence group (N=45)	P value
post-PWD _I (ms)	102.86±16.48	108.02±13.44	0.054
post-PWD _{II} (ms)	105.70±16.56	117.13±18.94	<0.001 *
post-PWD _{III} (ms)	98.76±17.36	109.51±19.15	<0.001 *
post-PWD _{aVR} (ms)	102.62±16.21	107.82±13.93	0.051
post-PWD _{aVL} (ms)	91.48±17.02	92.22±19.64	0.801
post-PWD _{aVF} (ms)	99.98±18.02	110.56±18.67	0.001 *
post-PWD _{V1} (ms)	99.74±16.45	105.18±16.67	0.051
post-PWD _{V2} (ms)	100.51±14.60	105.16±14.69	0.059
post-PWD _{V3} (ms)	103.16±14.93	107.98±15.64	0.058
post-PWD _{V4} (ms)	105.33±13.84	109.22±12.81	0.090
post-PWD _{V5} (ms)	107.03±12.22	110.44±12.46	0.099
post-PWD _{V6} (ms)	105.38±14.04	109.60±16.06	0.084

* indicates $P < 0.05$

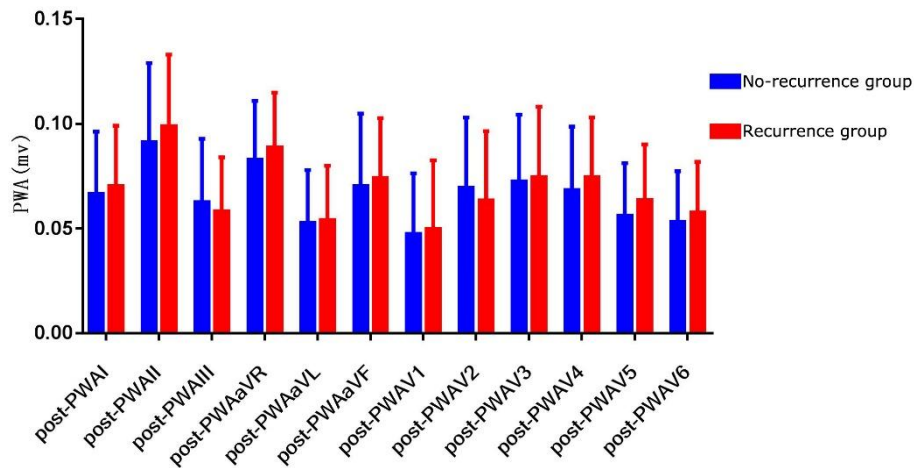


Supplemental Figure 3. The comparison of PWD in 12 lead electrocardiograms after catheter ablation. The PWD difference of lead II, III and _{aVF} was statistically significant compared with that of the same lead in the no-recurrence group and the recurrence group. * $P < 0.05$.

Supplemental Table 4. Comparison of postoperative ECG P wave parameters between the non-recurrence group and the recurrence group

P wave parameters	No-recurrence group (N=168)	Recurrence group (N=45)	P value
post-PWA _I (mV)	0.07±0.03	0.07±0.03	0.457
post-PWA _{II} (mV)	0.09±0.04	0.10±0.03	0.210
post-PWA _{III} (mV)	0.06±0.03	0.06±0.03	0.379
post-PWA _{aVR} (mV)	0.08±0.03	0.09±0.03	0.220
post-PWA _{aVL} (mV)	0.05±0.03	0.05±0.03	0.756
post-PWA _{aVF} (mV)	0.07±0.03	0.07±0.03	0.476
post-PWA _{V1} (mV)	0.05±0.03	0.05±0.03	0.624
post-PWA _{V2} (mV)	0.07±0.03	0.06±0.03	0.280
post-PWA _{V3} (mV)	0.07±0.03	0.07±0.03	0.696
post-PWA _{V4} (mV)	0.07±0.03	0.07±0.03	0.211
post-PWA _{V5} (mV)	0.06±0.03	0.06±0.03	0.081
post-PWA _{V6} (mV)	0.05±0.02	0.06±0.02	0.297

* indicates $P < 0.05$



Supplemental Figure 4. The comparison of PWA in 12 lead electrocardiograms after catheter ablation.

There was no statistical significance in PWA of the same lead between the non-recurrence group and the recurrence group.

**Supplemental Table 5. Changes of P wave parameters of ECG before and after operation
between the non-recurrence group and the recurrence group**

P wave parameters	No-recurrence group (N=168)	Recurrence group (N=45)	P value
Delta-HR(times/min)	9.44±14.41	8.29±12.65	0.626
Delta-QRS interval(ms)	-1.75±15.24	-6.37±28.80	0.146
Delta-QTc interval(ms)	7.29±30.29	9.78±33.59	0.633
Delta-PR interval(ms)	2.21±18.23	4.38±24.49	0.514
Delta-P-area(ms.mV)	-1.44±2.44	-0.69±2.10	0.061
Delta-Pmax(ms)	-4.48±11.68	0.40±14.37	0.019 *
Delta-PtfV1 Absolute value(mm.s)	-0.01±0.02	0±0.02	0.031 *
Delta-Pd(ms)	-5.46±15.27	-0.18±17.79	0.048 *
Delta-P-index(ms)	-0.97±5.37	0.22±6.27	0.208
Delta-PWD _I (ms)	-0.15±17.38	2.91±22.65	0.327
Delta-PWD _{II} (ms)	-8.33±17.91	-0.98±22.73	0.022 *
Delta-PWD _{III} (ms)	-3.78±20.02	5.36±18.66	0.006 *
Delta-PWD _{aVR} (ms)	-3.71±19.13	-0.96±17.43	0.383
Delta-PWD _{aVL} (ms)	0.71±23.79	-3.80±18.64	0.240
Delta-PWD _{aVF} (ms)	-8.66±19.39	2.67±19.93	0.001 *
Delta-PWD _{V1} (ms)	-1.37±20.21	2.49±22.42	0.268
Delta-PWD _{V2} (ms)	-5.33±21.63	-1.36±19.47	0.266
Delta-PWD _{V3} (ms)	-7.71±19.97	-4.49±18.51	0.330
Delta-PWD _{V4} (ms)	-9.10±18.49	-3.93±22.41	0.113
Delta-PWD _{V5} (ms)	-8.57±17.07	-1.73±15.21	0.016 *
Delta-PWD _{V6} (ms)	-7.09±17.67	-5.51±18.70	0.600
Delta-PWA _I (mV)	0.00±0.03	0.00±0.03	0.791
Delta-PWA _{II} (mV)	-0.02±0.04	-0.01±0.03	0.256
Delta-PWA _{III} (mV)	-0.01±0.04	-0.01±0.03	0.955

Delta-PWA _{aVR} (mV)	0.00±0.03	0.00±0.03	0.468
Delta-PWA _{aVL} (mV)	0.01±0.03	0.01±0.03	0.641
Delta-PWA _{aVF} (mV)	-0.02±0.04	-0.01±0.03	0.424
Delta-PWA _{v1} (mV)	0.00±0.04	-0.01±0.04	0.317
Delta-PWA _{v2} (mV)	0.02±0.04	0.01±0.04	0.107
Delta-PWA _{v3} (mV)	0.01±0.03	0.01±0.04	0.643
Delta-PWA _{v4} (mV)	0.00±0.03	0.01±0.03	0.381
Delta-PWA _{v5} (mV)	-0.01±0.03	0.00±0.03	0.366
Delta-PWA _{v6} (mV)	-0.01±0.03	-0.01±0.03	0.639
Delta-PWN(N)	-0.38±2.14	-0.18±3.14	0.622

* indicates $P<0.05$