



Outcomes Of Postinfarct Ventricular Septal Rupture

Fumiya Chubachi, Hiroyuki Nakajima, Tomomi Nakajima, Akitoshi Takazawa, Osamu Kinoshita, Akihiro Yoshitake, Toshihisa Asakura.
Saitama medical university International medical center, Hidaka, Japan.

BACKGROUND

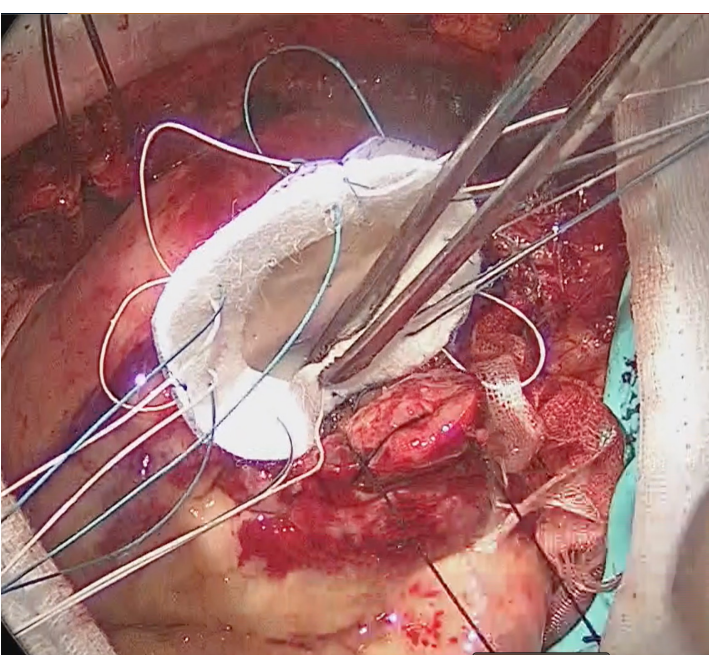
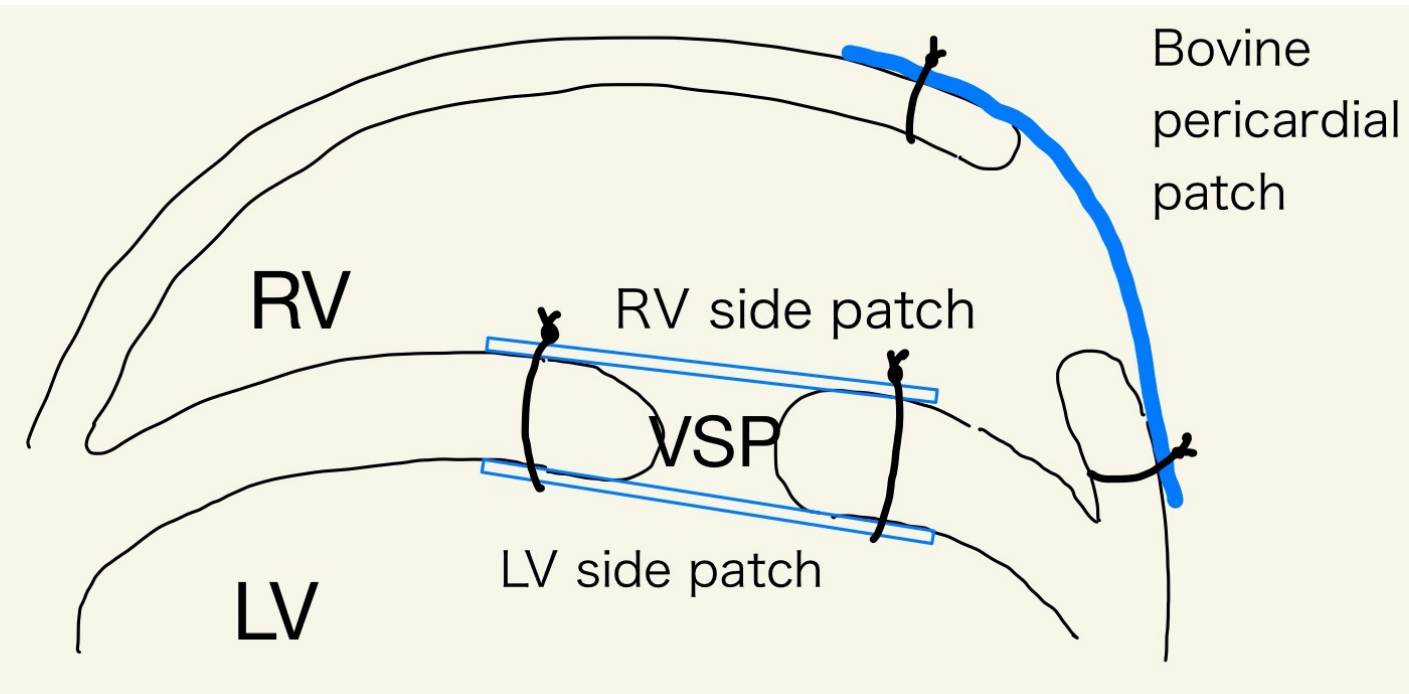
Postinfarct ventricular septal rupture (VSR) is a life-threatening complication which usually requires emergent surgery. Although VSR can be repaired via either left and right ventriculotomy, no comparative study has been reported yet. In this study, early and long-term results were examined according to two surgical approaches.

METHODS

- Postinfarct VSR 36 cases
- 2010-2023 (14 years)
- LV approach(infarct-exclusion) vs RV approach

	LV approach	RV approach	P
cases	22	14	—
age	70.6±8.7	71.1±10.2	0.800
male:female	12:10	7:7	0.950
preoperative EF	47.5±13.0%	53.1±15.4%	0.330
preoperative PCI	5(22.7%)	3(21.4%)	0.881
preoperative ECMO	3(13.6%)	2(14.2%)	0.812

right
ventriculotomy



After double-patch closure of the perforation, the right ventricle is closed with a large bovine pericardium covering a large incision.
→Reduction of the risk of postoperative right ventricular rupture and hemorrhage, and preventing excessive right ventricular suture and preserving right heart function.

RESULTS

- Operation time and cardiac arrest time

VSR site	time(min)	LV approach	RV approach	p
anterior	operation time	328 ± 74	273 ± 32	0.0825
	arrest time	146 ± 32	100 ± 6	0.0043
Inferior	operation time	401 ± 62	363 ± 86	0.3479
	arrest time	184 ± 34	147 ± 44	0.0650
Total	operation time	354 ± 77	318 ± 78	0.1846
	arrest time	160 ± 37	123 ± 34	0.0068

RV approach: shortening arrest time.

- Postoperative complications

	LV approach	RV approach	p
tracheostomy	5(22.7%)	2(14.2%)	0.676
hemodialysis	12(54.5%)	5(35.7%)	0.721
cerebral infarction	1(4.5%)	3(21.4%)	0.115
postoperative PCPS	2(9.0%)	0(0%)	0.529
residual shunt	14(63.6%)	5(50%)	0.288
MR(moderate-severe)	3(13.6%)	3(21.4%)	0.641
TR(moderate-severe)	4(18.2%)	5(35.7%)	0.224

No significant difference.

- Complications and reoperation

	LV approach	RV approach
bleeding	5(22.7%)	1(7.1%)
residual shunt →re-operation	14(63.6%) 3(13.6%)	5(35.7%) 4(28.6%)
papillary muscle rupture → MVR	0	1(7.1%)
pseudoaneurysm repair	1(4.5%)	0
LV thrombosis → thrombectomy	3(13.6%) 2(9.0%)	0

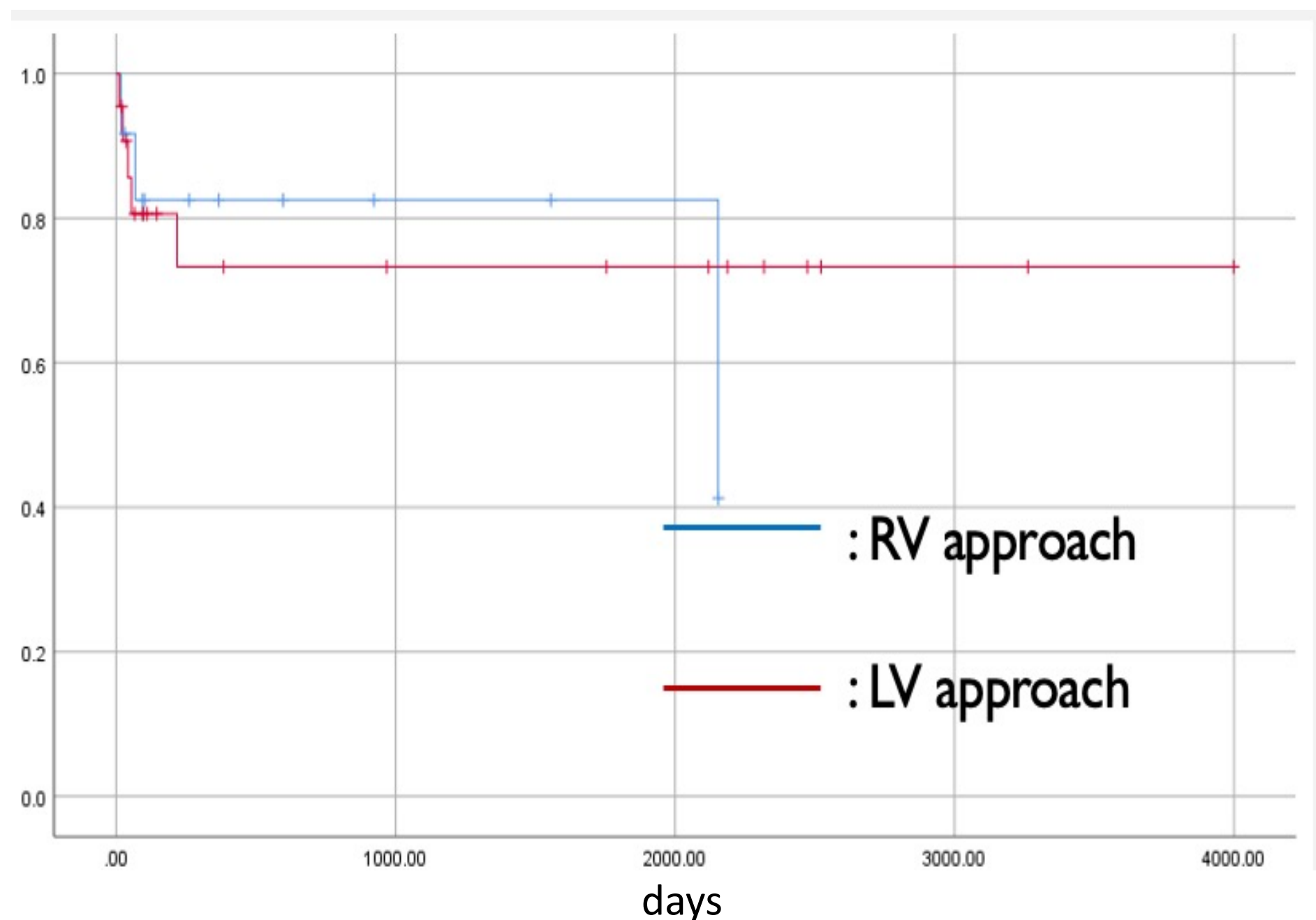
In the left ventriculostomy group, LV thrombus was found in 3 (13.6%) patients, and 2 patients underwent reoperation.

- Hospital death and causes of death

		LV approach	RV approach	p
hospital death		3(13.6%)	2(14.2%)	0.812
due to	MOF	2	1	—
	sepsis	1	1	—

There were no significant differences.
The causes of death were multiple organ failure and sepsis.

- Kaplan-Meier survival curve



	Cumulative survival rate (1 year)
RV approach	82%
LV approach	73%
p	0.904

- No significant difference.
- In the long-term results, two patients in the LV approach group and two in the right RV approach group died.

CONCLUSIONS

- VSR repair via RV incision necessitated shorter procedural time and a smaller patch in the LV, compared with repair via LV incision.
- No significant difference in early and late mortality, valvular dysfunction and residual or recurrence of shunt between RV and LV incisions.
- RV approach is beneficial regarding the minimal risk of LV thrombus and avoidance of anticoagulation during follow-up period.