Temporary Epicardial Pacing Wires in Cardiac Surgery

Contemporary Management From Placement to Removal and Retention

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RESEARCH DAY

BACKGROUND

Temporary epicardial pacing wires (TEPWs) provide immediate rhythm support after cardiac surgery. [1,2]

Removal can cause acute bleeding. Retention avoids forceful extraction but creates a foreign body with possible delayed complications.

OBJECTIVE

Synthesize evidence and practice gaps across placement, postoperative management, removal and long-term retention.

METHODS

Design. Structured narrative review of adult and pediatric evidence.

Sources. PubMed/MEDLINE, Scopus, and Embase through, August 30, 2026.

Evidence. Guidelines and cohorts prioritized. Case reports included for rare complications.

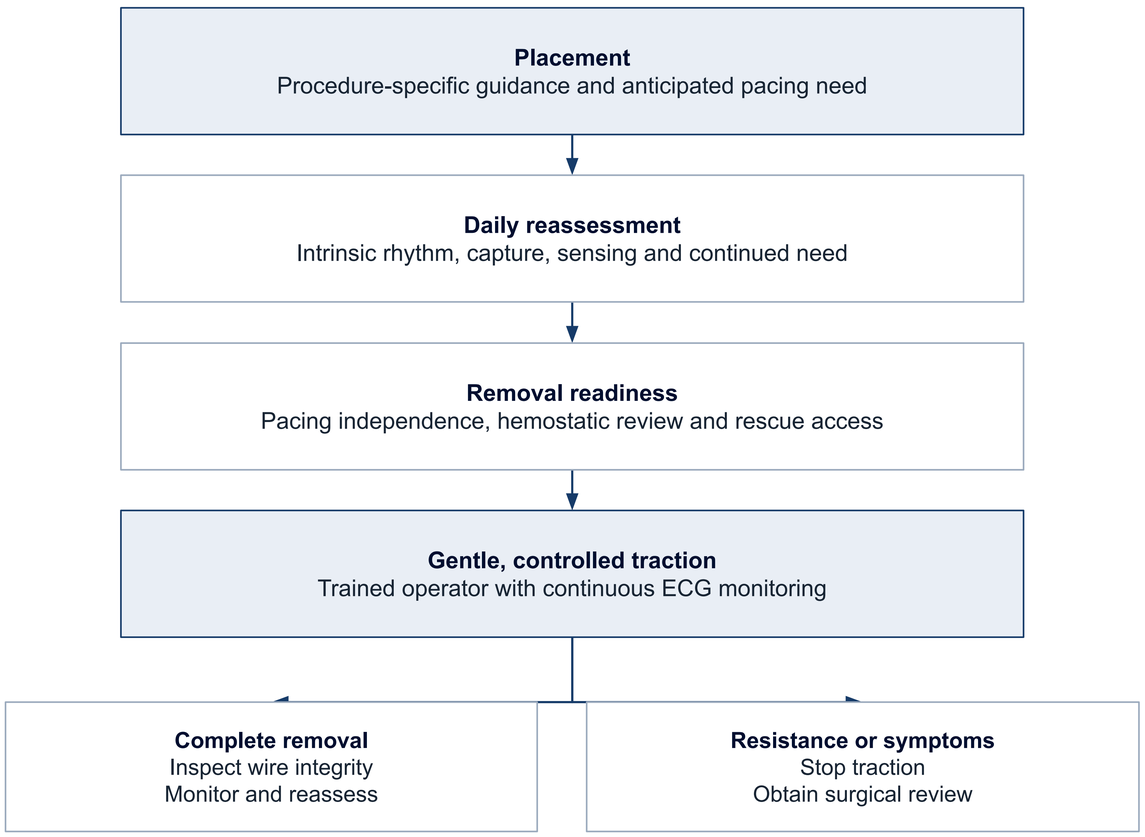
Synthesis. Descriptive review without pooled estimates.

LIMITATIONS

Mostly retrospective cohorts, rare events and inconsistent definitions. Published migration cases cannot estimate population risk.

CLINICAL MANAGEMENT PATHWAY

Figure 1. Evidence-informed care framework [1,2,7]



If clipping is necessary, document the retained wire, counsel the patient and establish a follow-up plan.

Table 1. Selected clinical evidence

Study / population	Observed outcome
Elmistekawy 2016 [3] 1,582 patients	104 patients had wires clipped for resistance or suture concern (6.6%)
Cote 2020 [4] 11,754 patients	11 removal-related tamponade events requiring reoperation (0.09%)
Bougioukas 2017 [5] 4,244 patients	8 removal-associated bleeding / tamponade events requiring intervention (0.19%)*
Chamberlin 2025 [6] 54 patients, 104 MRI exams	0 major adverse events 1 minor sensory event

*8/4,244 = 0.19% (recalculated). Cohorts use different endpoints and denominators. These estimates are not pooled.

KEY FINDINGS

Placement. Procedure-specific guidance and rescue capability should guide selection. Universal omission criteria remain unvalidated. [1]

Removal. No universal removal day, laboratory threshold, traction limit or observation period is validated. Antithrombotic decisions require individualized coordination. [2–5]

Retention. 22 publications described 23 migration cases, presenting 12 days to 17 years after surgery. These selected reports do not establish incidence. [7]

After removal. New symptoms require prompt assessment for bleeding or tamponade, even before hypotension develops. [2]

RETAINED-WIRE FOLLOW-UP

Document the location and reason for retention, and inform the patient.

New fever, drainage, pain, dyspnea or neurologic symptoms warrant evaluation. Routine surveillance imaging in asymptomatic patients lacks supporting evidence. [7]

MRI. Cut retained fragments merit formal MR-safety review. Reassuring cohort data do not apply to active external pacing systems. [6]

CONCLUSIONS

Use risk-informed placement, daily reassessment and gentle removal. When wires remain, a clear handoff and follow-up plan are essential.

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