Continued Experience (First 275 Patients) with VariTrax™ Sternal CircumFixator

A Promising New Sternal Closure System

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Updated Abstract (Based on First 275 Cases)

Background:
Median sternotomy remains the standard approach for cardiac surgery, yet traditional wire cerclage is associated with pain, instability, and risk of dehiscence—particularly in high-risk patients. Rigid fixation systems improve outcomes but add cost, complexity, and bone violation. The CircumFix VariTrax™ Sternal Circumfixation System, composed entirely of PEEK, provides full-length sternal splinting with locking cerclage bands, offering a screwless, bone-sparing alternative designed for reproducible application and removal.

Methods:
We evaluated **275 consecutive patients** undergoing sternotomy closure with VariTrax over a 12-month period. Case types included isolated CABG, isolated valve, aortic surgery, and complex multivalve or combined procedures. The cohort reflected real-world practice: mean age **~67 years**, mean BMI **~31**, with substantial comorbidity burden including diabetes (~24%), chronic narcotic use, ESRD, COPD, and frequent atrial fibrillation. Redo sternotomy represented ~6% of cases. No patients were excluded based on anatomy, bone quality, or risk profile.

Results:
Median postoperative length of stay remained **5–6 days**, consistent with earlier experience. Across 275 cases, **no deep sternal wound infections, no dehiscence, and no device-related failures** occurred. Superficial infections were rare and resolved with standard therapy. VariTrax maintained fixation integrity in patients requiring CPR, mechanical circulatory support, or reoperation for non-sternal indications. The system performed reliably in high-risk scenarios including obesity, diabetes, chronic steroid exposure, severe bone fragility, redo sternotomy, and complex aortic reconstruction. Pain scores remained consistently low (often 2–3/10 on POD1), with reduced narcotic requirements compared with historical wire closure. Surgeons reported predictable application, excellent sternal stability, and straightforward removal when required.

Economic Impact:
We save **$2,000 per procedure**, generating **more than $600,000 in annual savings** compared to the plate-and-screw systems previously used.

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Conclusions:
In this expanded 275-patient experience, the VariTrax Sternal Circumfixation System demonstrated **consistent safety, durability, and ease of use** across a broad spectrum of cardiac surgical procedures and patient risk profiles. The absence of deep sternal wound complications, combined with reduced pain and narcotic use, supports VariTrax as a **cost-effective, bone-sparing, and reproducible alternative** to traditional wire cerclage and rigid plating. These results reinforce the system's potential to redefine standard practice for sternal closure.

The average age was 66 years, and the average BMI was 31.4. Of the 275 patients, 61 (22%) were diabetic, 16 (6%) were reoperations from prior sternotomy in which CircumFix was not used, 6 (2%) were on chronic steroids, and 30 (11%) were current smokers. There was one postoperative death in the cohort.

***n*=275**	**Mean**	**Median**	**Range**
Age (y)	66 y/o	67 y/o	19-82 y/o
BMI	31.4	30.7	18.8-48.7
Weight (kg)	96 kg	94 kg	53-158 kg
LOS (post-op) days	6.1 d	5.0 d	1-30 d
Male	70% (193)		
Reoperations (%) [New implant system not used]	6% (16)		
Diabetic (%)	22% (61)		
Chronic Steroid Use (%)	2% (3)		
Current Tobacco Use (%)	11% (30)		



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