

BACKGROUND & AIMS

Sternotomy wound complications are more frequent in heart transplantation than other types of cardiac surgery due to the presence of additional risk factors, including immunosuppression. Definitive treatment often necessitates flap closure. However, since a 1995 review published by the senior author (J.A.A), there has been little published on the management of SWC in heart transplant recipients. This study focuses on the indications, operative characteristics and outcomes in the subset of those patients who have undergone heart transplantation.

METHODS

We retrospectively reviewed 604 sternal wound reconstructions performed by a single surgeon from 1995 to 2023. Patients who underwent heart transplantation as the index cardiac surgery were included. Surgical interventions involved sternal hardware removal, debridement, and muscle flap closure. Cultures of deep tissue and bone were collected.

RESULTS

Sixty-six patients were included. Patient demographics and comorbidities may be found in Table 1.

Table 1: Demographics of patients undergoing sternal wound reconstruction		
	No.	% (n=66)
Age (years, mean ± SD)	56.1 ± 12.5	
Sex		
Female	21	31.82
Male	45	68.18
Race		
White	47	71.21
Black or African American	8	12.12
Asian	1	1.52
Other	10	15.15

RESULTS CONT.

Sixty-six patients were included. In the 48 hours prior to sternal reconstructive surgery, 32.8% of patients experienced a serious medical complication such as sepsis, ventilator dependence, and pneumonia. Culture positive wound infection (51.5%) was the most common indication for surgery (Figure 1). Sternal wounds were reconstructed with bilateral pectoralis major advancement flaps (n=63), rectus abdominis flaps (n=2), or pectoralis major turnover flaps (n=1). The majority (92.4%) of patients underwent single-stage debridement and closure. However, five patients (7.6%) with life threatening or evolving infections necessitated a delayed, two-stage approach with muscle flap reconstruction after 3 to 5 days of open wound packing. Intraoperative wound cultures were positive in 48 patients (72.7%), and staphylococcus epidermidis was the most frequently cultured organism (25.0%). The overall postoperative complication rate was 31.8% (Figure 2). Two patient deaths were related to the sternal wounds, with these patients dying of multiorgan failure following septic shock within 30 days of surgery. The majority of patients reported excellent long-term functional and aesthetic outcomes.

Figure 1: Preoperative findings

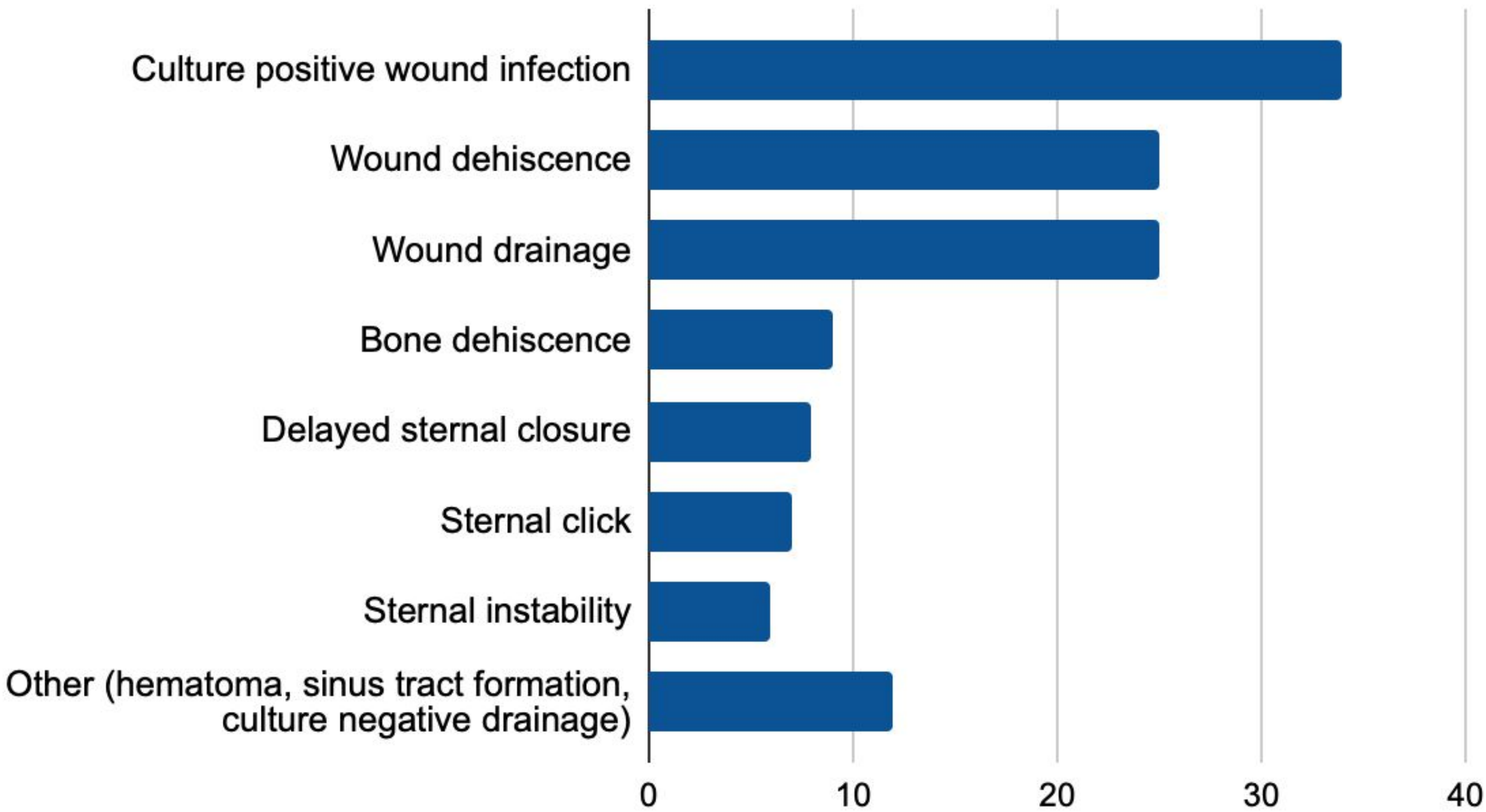
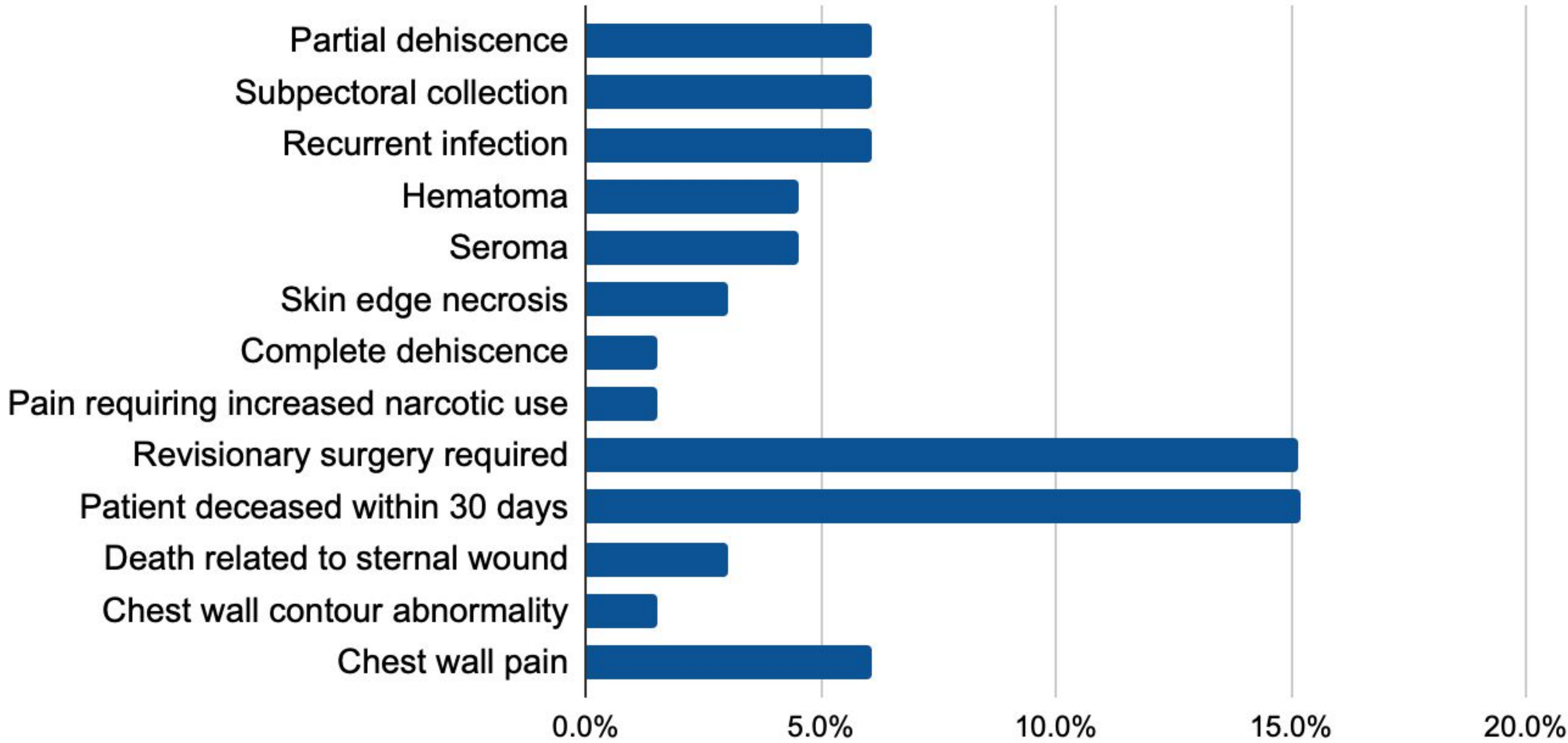


Figure 2: Complications following sternal wound surgery



CONCLUSION

While functional and aesthetic outcomes are excellent, sternal wounds remain a highly morbid condition, particularly among heart transplant recipients. The 30-day mortality rate is significantly higher than that of our overall sternal wound cohort. The reported mortality rate is also higher than in our 1995 study of heart transplant recipients, possibly due to expanded eligibility criteria for transplantation and increased medical complexity of transplant recipients. Moreover, we observed changes in the postoperative time course and complication characteristics compared to our 1995 analysis. Future treatment protocols can make use of these findings to better assess patient prognosis and optimize operative management.