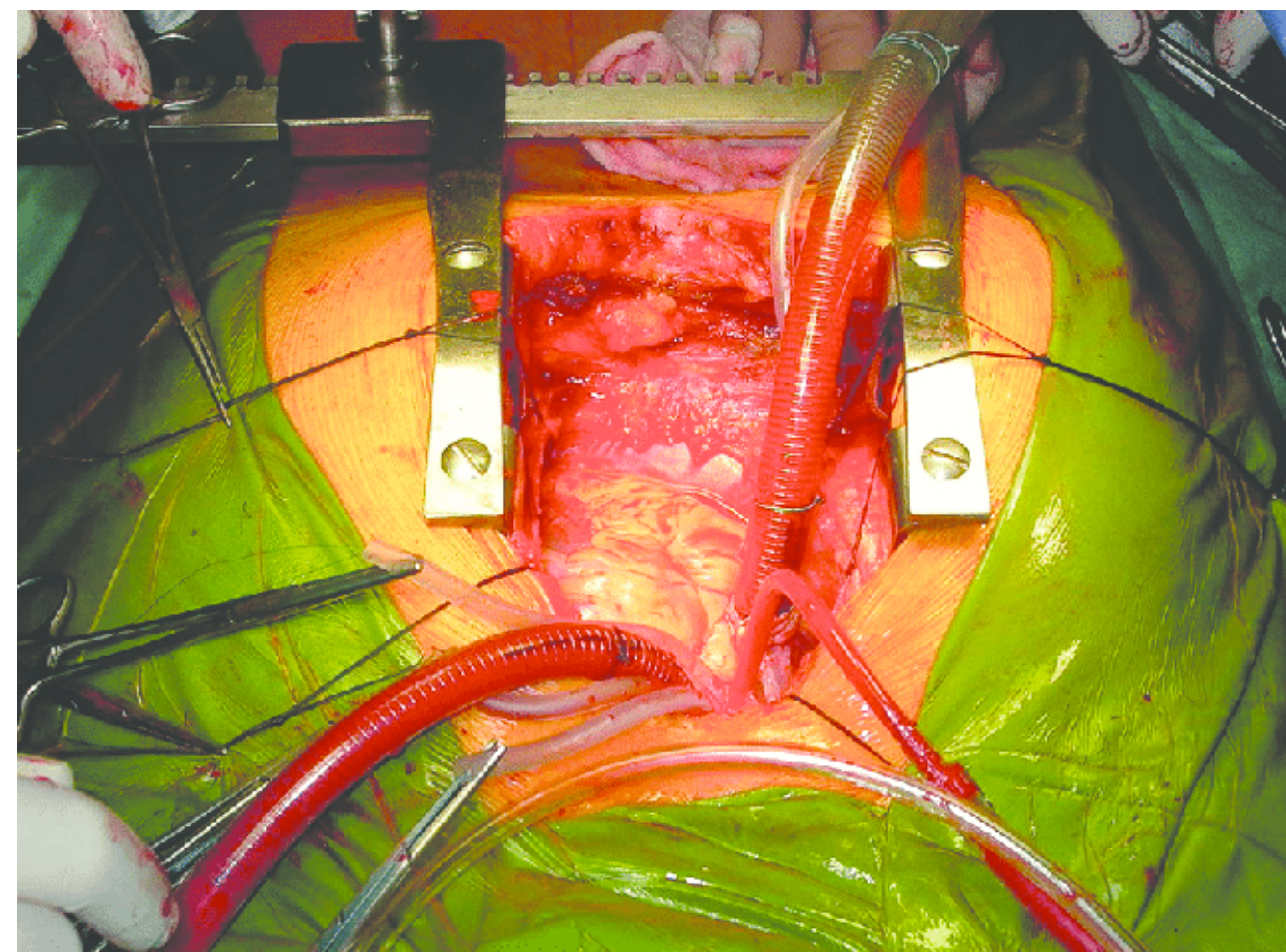


## Introduction

Patients undergoing emergency room thoracotomy (ERT) for torso gunshot have an extremely high mortality. The recommended initial incision has universally been a lateral thoracotomy (LT). However, whether this is the most efficacious approach has not been questioned. Median sternotomy (MS) is used to access the heart as well as other thoracic structures in non-ERT circumstances. This study was undertaken to determine whether injuries sustained in these ERT patients would be those better approached by median sternotomy rather than lateral thoracotomy.

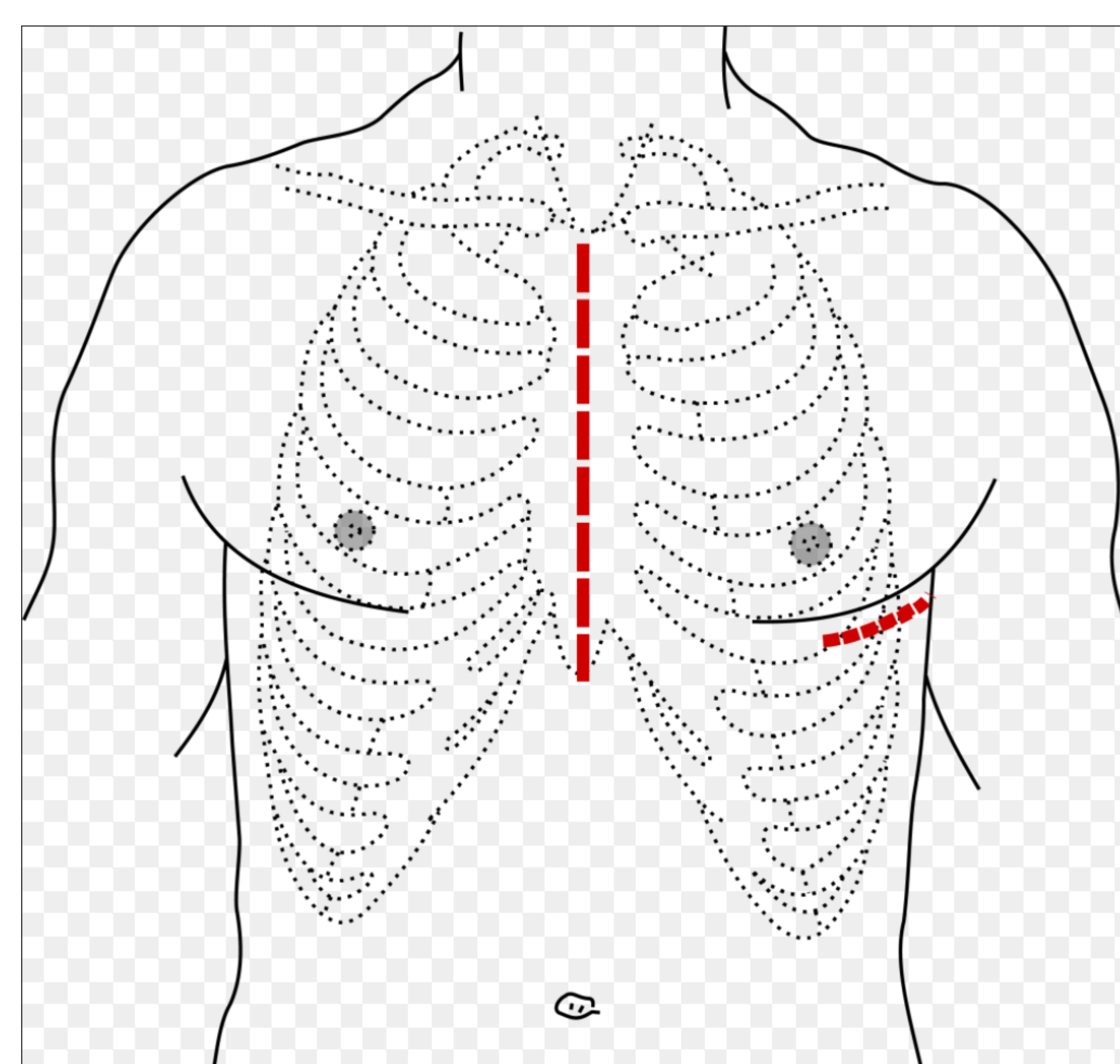
## Methods

All patients undergoing ERT for torso gunshot wound since the initiation of the trauma service at San Joaquin General Hospital in the latter part of 2013 until the present were reviewed. Medical records including the history and physical, operative notes, death summary as well as autopsies were collected and reviewed in detail.



Types of Injuries	
Thoracic	26
Cardiac	24
Abdominal	13
Thorax/Peripheral vessels	1
Thoracic + Abdominal	11
Unknown	6
Total	57

Table 1. Types of Injuries



## Results

57 patients meeting the above criteria were included. Mortality was 100%. Manner of death was homicide in all cases with available autopsies. Initial incision was LT in 44 (left 43, right 1) and median sternotomy in 12 (1 unknown). In 43% of those having initial LT, the incision was extended to the other chest cavity, while 0% of those having initial MS had a separate incision. Fatal injuries were isolated to the thorax in 26 cases and to the abdomen in 13 cases. In 11 cases, fatal injuries were both found in the thorax and abdomen. One case had both thorax and peripheral vasculature injuries. In 6 additional cases, there were fatal injuries in the thorax but abdominal injuries were unknown. 13/44 (30%) of LT patients made it through the ER phase of care while 6/12 (50%) of MS patients did so. 42% had cardiac injuries and 88% of those patients had injuries to the right atrium and/or right ventricle. 19/57 (33%) of all patients had fatal right chest cavity injuries, 16 of whom had an initial left LT. 5 of these 16 (31%) never had the right chest cavity opened.

## Conclusion

75% of patients undergoing ERT for torso gunshot wounds had a fatal injury in the thorax. 42% had a cardiac wound with 88% of those injuries difficult to address through a left LT only. Many (43%) of those with initial LT had to have subsequent extension of their incision to the contralateral side. Further, left LT resulted in delayed or complete lack of recognition of fatal right chest cavity injuries. Median sternotomy may afford more expeditious and improved access, visualization, control and repair of these injuries with less iatrogenic blood loss as well as decreased occupational health risk than LT and therefore should be given consideration as the incision of choice in this circumstance.

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