How to 'jimmy' the chest in emergency median sternotomy

MJ Ramdass

Port-of-Spain General Hospital, Trinidad and Tobago

CORRESPONDENCE TO

Michael Ramdass, E: jimmyramdass@gmail.com

BACKGROUND

Emergency thoracotomy is infrequently performed and necessary in penetrating trauma scenarios.^{1,2} To the general surgeon, this may be daunting, especially on the midnight shift with inexperienced staff. We describe a technique for opening the chest in less than three minutes based on experience with eight patients presenting with penetrating trauma to the chest, unstable and exsanguinating from massive haemothoraces. Using basic instruments (Fig 1), the technique was developed by the author after working in conditions whereby oscillating sternal saws were not easily available.

TECHNIQUE

A midline incision is made over the sternal area with division of the periosteum. This is followed by blunt digital dissection posteriorly to push the mediastinal structures away from the sternum using the volar surface of the surgeon's middle finger, starting caudally and moving in a cranial direction. The sternum is then divided in the midline using a large straight bone cutter starting at the xiphisternum (Fig 2) and it is easily opened after approximately three good bites, followed by clearance of the pleural membranes to enter the chest (Fig 3).

DISCUSSION

The approach of opening the chest via a median sternotomy using this technique is a useful option when conventional and more

Figure 1 Basic median sternotomy instruments including scalpel, rib cutter, large straight bone cutter and sternal retractor

Figure 2 The sternum is divided longitudinally using a large straight bone cutter after the mediastinal structures are pushed away digitally.

Figure 3 A self-retaining sternal retractor is placed to expose the mediastinum.

cumbersome tools such as Gigli or oscillating sternal saws are not available, especially in the out-of-hours situation or developing world setting. It is hoped that this may assist fellow surgeons with a quick and safe median sternotomy approach.

References

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2. Shields TW, LoCicero J, Reed CE, Feins RH. *General Thoracic Surgery*. 7th edn. Philadelphia: Lippincott Williams & Wilkins; 2009.