



**Libyan International Medical University
Faculty of Basic Medical Science**



**Sternal And Costochondral Infections Following
Open-Heart Surgery**

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Summary (Abstract)

From a series of **2,594** patients undergoing open-heart surgery, **39** had sternal or costochondral infections. Most of these infections were associated with a number of predisposing factors. One important factor was the use of bilateral internal mammary artery implants. The prognosis for patients with sternal wound infections appears related to the length of time required for institution of treatment and the adequacy of initial therapy, the prevention of serious sternal infections depends on a combination of proper preoperative preparation, attention to minute details at the time of operation, and recognition of variables predisposing to wound complications.

Introduction

The incidence of sternal wound infection ranges from **0.43%–2.3%** though this incidence is low but it has serious consequences as it contributes to morbidity, increased cost and prolonged hospital stay as well as mortality many risk factors have been identified and analysed by randomized studies and most of these, however, remain unclear.

Discussion

-The first study: is a supplement of the abstract in which there is a predisposing factors that cause like these infections such as factors: prolonged perfusion time, excessive postoperative bleeding, depressed cardiac output in the postoperative period, and a history of re-exploration for the control of hemorrhage. and most of these infections are caused by staphylococcus (and although the more complicated infections often are caused by fungus, other factors from the external cardiac message, or the presence of active endocarditis. The uses of bilateral internal mammary artery has been associated with an infective rate **8.3%** and staphylococcus aureus is the organism responsible for as many as **70%** of cases.

-The second study: ((Sternal wound complications: Prevention is better than cure)) Six hundred and thirty patients underwent open heart surgical procedures between January 2001 through December 2002 for various indications.

Group A: Consisted of **117 patients**, operated, age ranged from **10 to 74 years (mean 37.6 years)**; **80 were male**. Surgical procedures performed were coronary artery bypass grafting (CABG) in **21**, Valve Surgery in **90**, and closure of atrial Septal defects in **6** patients. Seven patients were diabetic.

Group B: Consisted of **513** patients operated, age ranged from **11 years to 73 years (mean 36.3 years)** **332** patients were male. 75 patients underwent CABG, **415** patients underwent valve surgery and 23 patients underwent ASD closure. **Twenty two** patients were diabetic (**all underwent CABG**).



Pre-operative preparation All patients were required to get clearance from oral surgery department for oro-dental hygiene. Any dental procedure was carried out prior to open heart surgery under antibiotic cover.

Operative technique All the patients were operated by the same surgeon. **Anticoagulants**, Aspirin and other **anti-platelet medication** were discontinued prior to surgery. cardiac drugs such as beta-blockers were continued till the day of surgery. **Prophylactic antibiotics** were administered by intravenous route as soon as an intravenous line was inserted.

Post-operative Procedures Prophylactic antibiotics were continued for **48 hours** or until all invasive lines were removed. Surgical wounds were first inspected on the 3rd postoperative day. The previous dressings were removed. The wounds were cleaned with spirit.

Result: Results The operative and early mortality was **3.9%** (25/630). No patient died from sternal wound complications. Nineteen patients were re-explored for bleeding within the first 48 postoperative hours; however none of these patients developed any sternal wound complication. The patients in both groups were similar with respect to age distribution.

Recommendations:

There is a pre and post surgical procedures that prevent such as these infections.

Conclusions:

We have maintained a low incidence of Sternal wound infection by adopting good aseptic technique, use of antibiotics, and application of good surgical techniques. Of all the preoperative diabetes mellitus and hypertension still seems to influence the rate of sternal wound infection and also non staphylococcus organisms should be looked into and treated aggressively and thus early and aggressive resulted in good treatment outcome and zero mortality.



References

1. Culliford, A. T., Cunningham, J.R., Zeff, R. H. Isom, O. W., Teiko, P., & Spencer, F. C. (1976, November). Sternal and costochondral infections following open-heart surgery. A review of 2,594 cases. Retrieved from <https://www.ncbi.nlm.nih.gov/pmed/1086408>
2. Major Sternal Wound Infection after Open-Heart Surgery: A Multivariate Analysis Of Risk Factors in 2,579 Consecutive Operative Procedures. (2013). (Ebook). Retrieved from [https://www.annalsthoracicsurgery.org/article/S0003-4975\(10\)62035-8/pdf](https://www.annalsthoracicsurgery.org/article/S0003-4975(10)62035-8/pdf)