TPM Vol. 32, No. S3, 2025
ISSN: 1972-6325
https://www.tpmap.org/

Open Access

# SUCCESSFUL REPAIR OF AN INCISIONAL SUB-XIPHOID HERNIA IN A HIGH-RISK PATIENT WITH COMORBIDITIES: A CASE REPORT

DR. ANUSUYA C[1], PROF. DR. MUTHUKUMARAN G[2], DR. TOUZEEN HUSSAIN[3] , DR. MOHAN VALIATHAN[4]

[1]POSTGRADUATE, DEPARTMENT OF GENERAL SURGERY, SAVEETHA MEDICAL COLLEGE AND HOSPITAL, THANDALAM, TAMIL NADU, INDIA

[2]PROFESSOR, DEPARTMENT OF GENERAL SURGERY, SAVEETHA MEDICAL COLLEGE AND HOSPITAL, THANDALAM, TAMIL NADU, INDIA

[3]SENIOR ASSOCIATE PROFESSOR, DEPARTMENT OF GENERAL SURGERY, SAVEETHA MEDICAL COLLEGE AND HOSPITAL, THANDALAM, TAMIL NADU, INDIA

[4]PROFESSOR, DEPARTMENT OF PERIODONTOLOGY, SREE BALAJI DENTAL COLLEGE & HOSPITAL, CHENNAI, INDIA

CORRESPONDING AUTHOR:
DR. ANUSUYA C
DEPARTMENT OF GENERAL SURGERY, SAVEETHA MEDICAL COLLEGE AND HOSPITAL, THANDALAM, TAMIL NADU, INDIA

**Abstract**

**Background:**

Sub-xiphoid incisional hernias are rare postoperative complications, often following median sternotomy or upper midline laparotomy. Surgical repair is technically demanding due to the proximity to the diaphragm, sternum, and great vessels. Risk factors such as diabetes, hypertension, and coronary artery disease complicate perioperative management.

**Case Presentation:**

A 68-year-old female presented with a 1.5-year history of a progressively enlarging swelling in the sub-xiphoid region, following coronary artery bypass grafting (CABG). The swelling was reducible and associated with dull pain and exertional dyspnoea. CT imaging confirmed a 3×3 cm incisional hernia without strangulation. After multidisciplinary optimization of comorbidities, the patient underwent open onlay mesh repair. Intraoperatively, the defect was closed with prolene sutures and reinforced with a 10×10 cm polypropylene mesh. The postoperative course was uneventful, and the patient was discharged on day 5.

**Conclusion:**

This case demonstrates that with adequate multidisciplinary planning and optimization of comorbidities, open onlay mesh repair is a safe and effective treatment for sub-xiphoid incisional hernias, even in high-risk patients.

**Keywords:**

Incisional hernia, Sub-xiphoid hernia, Onlay mesh repair, High-risk surgery, Coronary artery bypass grafting

## INTRODUCTION

Incisional hernias occur in 10–15% of abdominal surgeries, with incidence increasing in patients with advanced age, obesity, diabetes, and poor wound healing (1,2). Sub-xiphoid hernias are an uncommon subtype, typically developing after median sternotomy or upper midline incisions (3,4). These hernias present unique surgical challenges due to their proximity to the sternum, diaphragm, pericardium, and major vessels, and the potential for respiratory compromise (5).

Repair techniques include primary closure, onlay meshplasty, sublay repair, and component separation, with mesh reinforcement generally recommended to reduce recurrence risk (6,7). The presence of significant comorbidities requires careful perioperative risk assessment and optimization (8).

We report a case of a sub-xiphoid incisional hernia in a high-risk patient with multiple comorbidities, managed successfully with open onlay mesh repair.

**Case Presentation**

History:

A 68-year-old female presented with a swelling in the sub-xiphoid region for 1.5 years. The swelling developed after undergoing CABG via median sternotomy. She reported dull-aching pain exacerbated by coughing, and mild shortness of breath on exertion.

Past Medical History:

- Hypertension (10 years)
- Type 2 diabetes mellitus (HbA1c: 8.7)
- Coronary artery disease
- Previous laparoscopic hysterectomy (3 years ago)
- CABG (1.5 years ago)

**Examination:**

A reducible 3×3 cm swelling was noted just below the xiphoid process, with a positive cough impulse and no overlying skin changes. No signs of obstruction or strangulation were present.

**Investigations:**

- CT scan abdomen and thorax: sub-xiphoid incisional hernia containing omentum; no bowel involvement; no evidence of strangulation. (Figure -1 and 2)
- Baseline cardiac evaluation and pulmonary function testing were performed as part of preoperative workup.
- Multidisciplinary clearance obtained from cardiology, pulmonology, and anaesthesiology

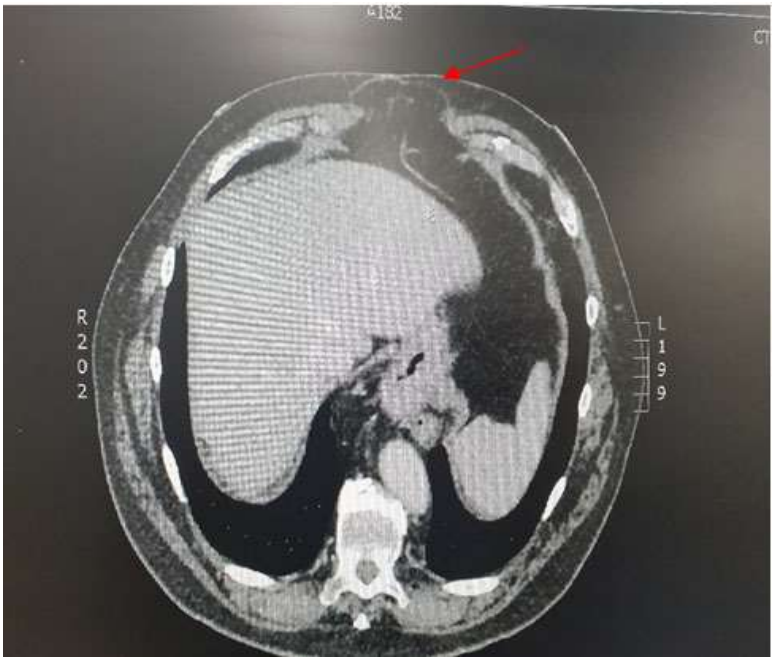



Figure - 1

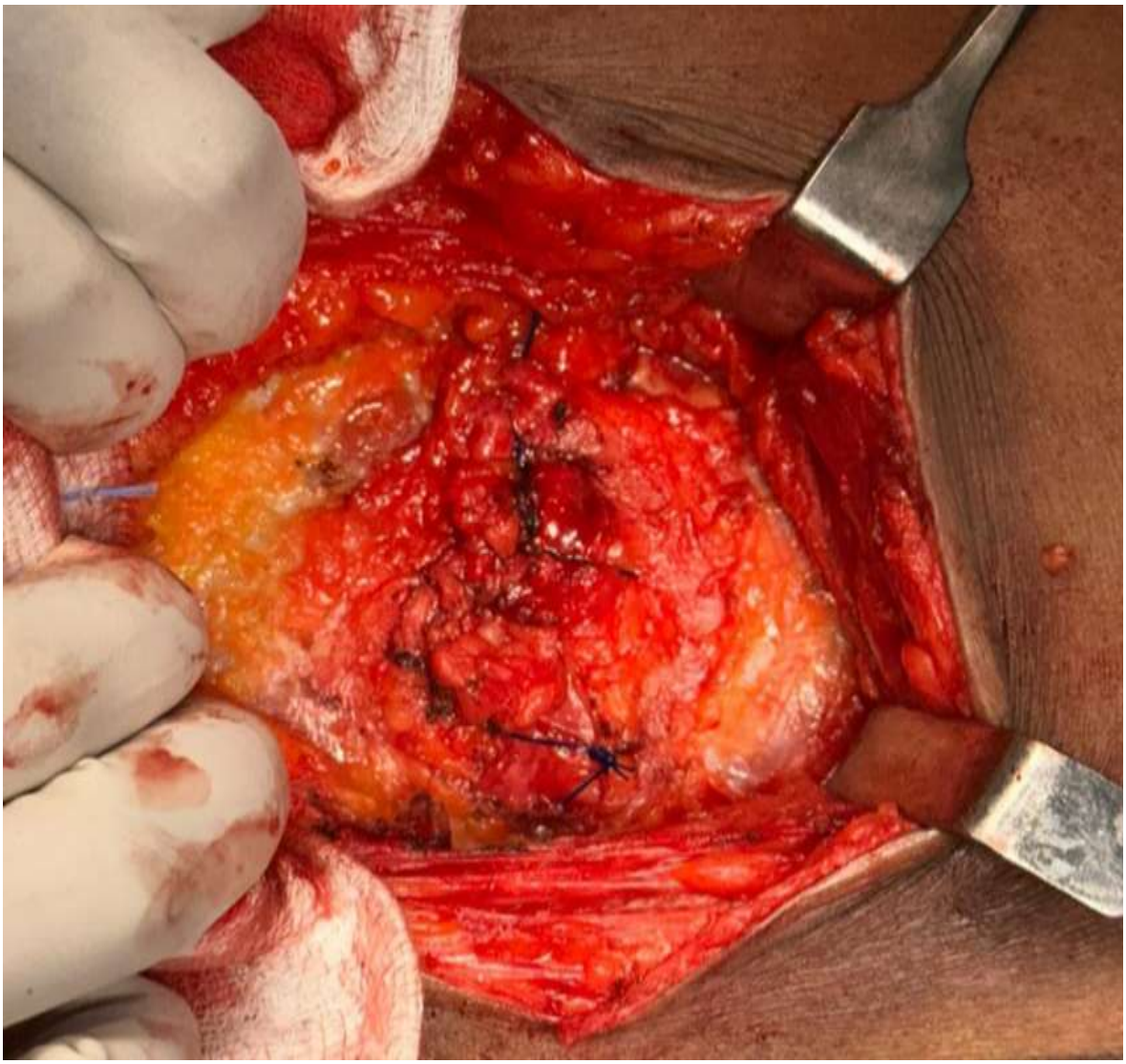
Figure -2


Surgical Procedure:

An open onlay mesh repair was performed under general anaesthesia. The hernia sac containing omentum was reduced. (Figure-3). The 3×3 cm fascial defect was closed with interrupted 1-0 prolene sutures. A 10×10 cm polypropylene mesh was placed over the closed defect (onlay technique) and fixed with prolene. (Figure-4). A subcutaneous suction drain was placed, and wound closure was performed in layers.

Figure-3

Figure -4



Postoperative Course:

The patient had an uneventful recovery. The drain was removed on postoperative day 3, and she was discharged on day 5 with instructions for glycaemic control, wound care, and gradual return to activity.

## DISCUSSION

Epidemiology and Risk Factors:

Sub-xiphoid incisional hernias are rare, accounting for <5% of all incisional hernias (3,4). They most commonly follow median sternotomy performed for cardiac surgery (9). Risk factors include poor wound healing from diabetes, obesity, chronic cough, and postoperative wound infection (1,2,8).

Technical Considerations:

Repair is complicated by:

- Limited tissue availability for closure near the costal margin.
- Proximity to the diaphragm and heart, which increases intraoperative risk.
- Potential tension on the repair due to respiratory movements (5,6).

**Choice of Repair:**

Mesh repair is the standard of care for ventral and incisional hernias, reducing recurrence rates compared to primary suture repair (6,7,10). The onlay technique, while associated with slightly higher seroma rates than sublay repair, is technically simpler in the sub-xiphoid location and avoids dissection near major vessels (11).

Multidisciplinary Management:

In high-risk patients, collaboration with cardiology and anaesthesiology teams is essential to minimize perioperative complications (8). In this case, stringent preoperative glycaemic control and cardiovascular optimization were key to a smooth recovery.

**Literature Review:**

Previous studies, such as Ko et al. (2019) and Novitsky et al. (2012), emphasize that while laparoscopic approaches can be used, open mesh repair remains reliable in anatomically complex and scarred fields (7,11). Recurrence rates for sub-xiphoid hernias after mesh repair range from 0–10% over 2–5 years (6,10).

## CONCLUSION

This case highlights that open onlay mesh repair, when combined with meticulous preoperative optimization and multidisciplinary care, is a safe and effective treatment for sub-xiphoid incisional hernias in high-risk patients.

## REFERENCES

1. Luijendijk RW, Hop WC, van den Tol MP, et al. A comparison of suture repair with mesh repair for incisional hernia. N Engl J Med. 2000;343(6):392–8.
2. Muysoms FE, Miserez M, Berrevoet F, et al. Classification of primary and incisional abdominal wall hernias. Hernia. 2009;13(4):407–14.
3. Loos MJ, Roumen RM, Scheltinga MR. Classifying primary and incisional abdominal wall hernias after median sternotomy. Hernia. 2008;12(5):461–4.
4. De Meijer VE, Gosemann JH, Scheltinga MR, et al. Subxiphoid hernia after median sternotomy: Incidence, risk factors, and management. Ann Thorac Surg. 2008;86(3):902–7.

5. Hodgkinson JD, Maeda Y, Leo CA, et al. Complex abdominal wall reconstruction in high-risk patients. Hernia. 2017;21(4):601–9.

6. Burger JW, Luijendijk RW, Hop WC, et al. Long-term follow-up of a randomized controlled trial of suture versus mesh repair of incisional hernia. Ann Surg. 2004;240(4):578–83.

7. Ko JH, Salvay DM, Paul BC, et al. Laparoscopic repair of subxiphoid hernias after median sternotomy: technique and outcomes. Surg Endosc. 2009;23(5):1080–4.

8. Saunders DI, Murray D, Pichel AC, et al. Variations in mortality after emergency laparotomy: the first report of the UK Emergency Laparotomy Network. Br J Anaesth. 2012;109(3):368–75.

9. Swanson SJ, Halloran BG, Sugimoto JT, et al. Subxiphoid hernia after median sternotomy. J Thorac Cardiovasc Surg. 1999;117(3):473–7.

10. Bikhchandani J, Fitzgibbons RJ Jr. Repair of large, complex, recurrent ventral hernias with component separation technique and mesh reinforcement. Am J Surg. 2013;205(2):209–13.

11. Novitsky YW, Elliott HL, Orenstein SB, Rosen MJ. Transversus abdominis muscle release: a novel approach to posterior component separation during complex abdominal wall reconstruction. Am J Surg. 2012;204(5):709–16.