

TRAINEES' FORUM

ORAL PRESENTATIONS

A descriptive study on minimally invasive non-coronary cardiac surgeries

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Objective

To study the safety and outcome of minimally invasive non-coronary cardiac surgeries which were done in a single cardiothoracic surgical unit.

Methods

This is a retrospective descriptive study which includes all the minimally invasive non coronary surgeries done from May 2017 to November 2023. There are isolated mitral valve, aortic valve surgeries and ASD closures amounting to 19, of which complete data for four cases are missing. The data were collected from both electronic and hard copies of BHTs and the data was analyzed via IBM SPSS version 23.0.

Results

The mean age of the population was 47.89±13.06 years. There were 14 (73.7%) males. There were 8 (42.1%) mitral valve replacements, 5 (26.3%) ASD closures, 4 (21.1%) aortic valve replacements 1 (5.3%) mitral valve repair, and 1 (5.3%) PFO closure. Preoperatively 6 (40%) patients each were in NYHA class 1 and 11 and 3 (20%) were in NYHA class 111. 2 (10.5%) patients each had either mild or moderate pulmonary hypertension. The mean aortic cross clamp time was 163.57±37.00 minutes. The mean cardiopulmonary bypass time was 220.86±30.52 minutes. There were no MACCE reported during the hospital stay. 5 (33.3%) patients had post op AF, 1 (5.3%) had sick sinus syndrome, 4 (26.7%) had pneumothorax 1 (6.7%) had pleural effusion requiring intervention and none had AKI. Post operatively valve function and septal repair were satisfactory. The mean ICU stay was 4.43±2.149 days. The mean post operative hospital stay was 10.82 ± 4.73 days.

Conclusion

The minimally invasive non coronary surgeries are safe and efficient in our set up. They are a good alternative to conventional open surgeries.

A systematic approach to intraoperative hemostasis in cardiac surgery: mitigating postoperative bleeding and improving patient outcomes

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Introduction

Excessive postoperative bleeding can lead to an increased morbidity and mortality in cardiac surgery patients.

Objective

The aim of the study was to assess the effectiveness of the systematic approach employed by the authors in identifying mediastinal bleeders and achieving intraoperative hemostasis to reduce postoperative bleeding.

Methods

Cardiac surgery patients from 1st January 2022 to 30th June 2023, at a tertiary care center were selected. The identification of mediastinal bleeders and achievement of intraoperative hemostasis were carried out in a reproducible systematic manner by systematically checking the mediastinum, surgical sites, and chest wall. Packing with seven swabs was performed following the coming off bypass, and rechecking was done after removing swabs in the same order until hemostasis was achieved. Three patients with open chests during the initial surgery were excluded. Data were collected retrospectively.

Results

Of the 253 patients four patients (1.5%) were re-explored for bleeding having chest drains exceeding 1litre in the first four hours. Mean 24-hour blood loss was 284.5ml among the non-re-explored patients. Blood products were administered in all re-explored and in 18 non-re-explored patients (7.1%). Re-explored patients had prolonged ventilation (24 hours), increased ICU stay (9 days) compared to non-re-explored patients (6 hours and 3 days respectively). ICU mortality among re-explored patients was one (33%) and three among non-re-explored patients (1.1%).

Discussion

Low re-exploration rates, reduced blood product usage, and mean 12-hour blood loss indicate that the systematic approach to achieving intraoperative hemostasis is effective in reducing excessive postoperative bleeding, thereby decreasing the associated morbidity and mortality.

An audit of intra aortic balloon pump utilization in post cardiac surgery patients at a tertiary care centre

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Introduction

An intra-aortic balloon pump (IABP) is a type of mechanical device used in cardiac surgery to provide temporary mechanical circulatory support to the heart. It enhances diastolic flow, coronary circulation, and reduces left ventricular afterload.

Objective

This audit was conducted to identify demographics, indication and outcome following insertion of IABP in postoperative cardiac surgery patients.

Methods

All patients who underwent elective cardiac surgery between 1st of January 2022 and 31st of December 2022 at a tertiary care center were included. Patients who underwent cardiac surgery following trauma were excluded. Data were obtained retrospectively from patient records.

Results

There were 852 patients who underwent cardiac surgery, of whom 25 (2.9%) received a postoperative intra-aortic balloon pump (IABP). The mean age of the patients was 52.5. The majority of the patients were male (n=21). IABP was inserted in 24 CABG patients and one mitral valve replacement patient. The most commonly used IABP size was 34 (n=13), followed by size 40 (n=10). There were no cases of acute limb ischemia or bleeding from the IABP site. There were also no balloon-related complications. The in-hospital mortality rate among patients who underwent IABP insertion was 20% (n=5).

Conclusion

The insertion of IABP in hemodynamically unstable cardiac surgery patients yields reasonable survival benefits.

Anomalous origin of Coronary arteries in a patient with congenital bicuspid aortic valve undergoing AVR

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Background

Anomalous origin of coronary arteries is common in a patient with bicuspid aortic valve. Here we present a case where the right and left coronary ostia were found unusually close to each other in a patient with bicuspid aortic valve.

Case presentation

A 43-year-old gentleman with not known commodities had presented with pyrexia of unknown origin and was found to have infective endocarditis of aortic valves. The 2D Echo revealed vegetations attached to AV and severe AR. He was clinically NYHA 1 and CCS 1. He had a regular but a collapsing pulse with a rate of 75/min and an early diastolic murmur in the aortic area. The calculated EuroSCORE II was 0.68%. The preoperative 2D Echo revealed an EF of >60% with severe AR and no RWMA but didn't reveal a bicuspid AV. The coronary angiogram couldn't identify the LMCA origin and subsequent aortogram (Figure 1) showed aberrant origin of LMCA. He underwent median sternotomy and AVR via Hockey-stick incision and antegrade warm blooded cardioplegic cardiac arrest. Intraoperatively it was found that both coronary ostia were adjacent to each other in the common cusp (Figure 2) of a bicuspid aortic valve. The postoperative period was uneventful but the post op 2D Echo revealed an EF of 45% with septal dyssynergy. He went home on post operative day 6.



Figure 1. The aortogram showing the anomalous origin of coronary arteries.

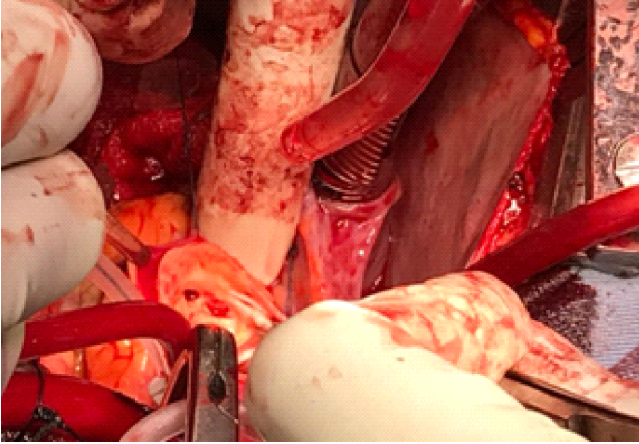


Figure 2. Arrow indicates the adjacent coronary ostias.

Conclusion

In a patient with AR undergoing AVR, it is imperative to study the coronary anatomy to avoid damage to the ostia and to facilitate seamless administration of antegrade cardioplegic technique.

Audit for assessment of compliance to cardiac 'enhanced recovery after surgery (ERAS)' protocols in a cardiac surgical unit of a tertiary care centre

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Introduction

ERAS protocols are a multimodal, multidisciplinary evidence-based care bundle, implemented to promote recovery of patients undergoing cardiac surgery, throughout the entire peri-operative journey. These protocols aim to reduce complications and promote an earlier return to normal activities.

Methods

A retrospective review of clinical records to identify patients who underwent off pump and on pump coronary artery bypass grafting surgery (CABG) in October 2023, was carried out at Sri Jayewardenepura General Hospital, Colombo. Compliance to 9 preoperative, 3 intraoperative and 10 postoperative criteria were analysed. Emergency surgeries were excluded.

Results

Clinical records were analysed in 45 patients. 53.3% (24) underwent off pump CABG while 46.7% (21) underwent on pump CABG. Adherence to preoperative criteria was 50.1%, intraoperative criteria was 66.7% and postoperative criteria was 50.1%. Overall adherence to guidelines was 53%. Mean length of stay (LOS) in the off pump and on pump group was 5.88 and 7.27 days respectively.

Conclusion

We conclude that this cardiac surgical unit was below par in compliance to ERAS protocols with a higher mean LOS in both off pump and on pump CABG groups. More compliance is necessary especially concerning the preoperative and postoperative criteria. Homogenous and accurate clerking may also aid in improving outcomes.

Short-term outcomes in diabetic and non-diabetic patients undergoing bilateral internal mammary artery grafting – a comparative study

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Introduction

Bilateral internal mammary artery grafting (BIMA) has shown superior long-term results in patients undergoing coronary artery bypass grafting. With the global prevalence of diabetes on the rise, there is controversy surrounding the use of BIMA grafting in diabetic patients.

Objective

We conducted this study to compare short-term outcomes between diabetic and non-diabetic groups following bilateral internal mammary artery grafting.

Methods

All patients who underwent coronary artery bypass grafting with bilateral internal mammary arteries from 1st July 2015 to 31st October 2023, at a Cardiothoracic Unit of a tertiary care centre were selected. Data were analyzed retrospectively using patient records. Patients were propensity scored across age, sex, BMI, number of grafts, and ejection fraction. Diabetic

BIMA patients were matched 1:1 by nearest neighbor matching to nondiabetic BIMA patients. The outcomes measured included in-hospital mortality, superficial and deep wound infection, re-exploration, stroke, and acute renal failure.

Results

Out of the 108 patients who underwent BIMA grafting, 45 patients (41.6%) had diabetes. We matched 45 diabetic and non-diabetic BIMA patients. Superficial wound infection was present in 5 patients (11.1%) in the diabetic group and 2 patients (3.1%) in the non-diabetic group. There were no cases of deep wound infection in either group. Three patients were re-explored for bleeding in the non-diabetic group. In both groups, there were no instances of in-hospital mortality, renal failure, or stroke.

Conclusion

Except for superficial wound infections diabetic BIMA patients did not experience major short-term complications compared to non-diabetic BIMA patients making BIMA a relatively safe procedure in diabetic patients.

Low EF cases are not a contraindication for OPCAB (off pump coronary artery bypass surgeries) – a descriptive study

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Objective

To assess the safety and outcome of Low EF cases in OPCABs.

Methodology

This is a retrospective descriptive study of low EF cases defined by EF less than 40%. All the OPCAB cases from 2021 September to 2023 May were analyzed. There were 476 cases, but the BHT data was available for only 370 cases. There were 9 patients with Low EF who underwent OPCAB surgery. The data was entered into the IBM SPSS 23.0 database and analyzed.

Results

The mean age of the patients was 53.33±8.67 years. 8 (88.9%) were males and 1 (11.1%) was a female. 55.6% (5) had diabetes

mellitus and 4 (44.4%) had hypertension. 2 (22.2%) each had mild and moderate MR. The mean EF was 33.86% (±3.15). 5 (55.6%) cases had 3 grafts and 4 (44.4%) had 4 grafts. There were neither MACCE nor respiratory complication reported during the hospital stay. There were no AKIs reported. The mean ventilation time was 12.43±5.85 hours. The average post operative ICU and hospital stay were 3.00±0.57 days and 7.67±3.57 days respectively. There was no emergency cardiopulmonary bypass required in these cases. These results are comparable to the outcome of OPCAB surgeries in high EF cases when compared with the existing literature data.

Conclusion and discussion

OPCAB surgeries are safe and leads to good outcome in Low EF patients as well. Prospective studies with larger sample size are recommended.

Mitral valve repairs are a better alternative to replacements in selected patients – a single unit experience

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Objective

This study intends to analyze the outcome and safety of mitral valve repairs done in a single cardio thoracic surgical unit.

Methods

This is a retrospective descriptive study on mitral valve repairs done in a single cardiothoracic surgical unit from January 2018 to October 2023. All the patient's data were taken from BHTs and entered and analyzed via IBM SPSS 23.0 version. There were 31 patients and only 26 patients' data is available for analysis.

Results

The mean age was 51 ± 11.7 years. There were 80.8% (21) male patients and the rest were females. There were 48.4% (15) open mitral valve repairs 3.2% (1) minimally invasive mitral valve repairs, 10 (32.3%) CABG + MV repairs and 5 (16.1%) MV and TV repairs. 61.5% (16) had blood transfusion. There were

no MACCE reported during the hospital stay. 38.5% (10) had new onset AF following surgery. 1 (3.8%) each had pneumonia and pleural effusion requiring intervention. No AKI was reported. Post operatively 65.4% (17), 11.5% (3) and 23.1% (6) had none, mild and trivial MR respectively. Post operatively septal dyskinesia was present in 65.4% (17) of patients. The mean post op hospital stay and ICU stay were 9.31 ± 4.77 days and 2.96 ± 1.2 days respectively. 88% (23) were prolapsing myxomatous mitral valves and 12 (3) were normal valves with tethered PMVL

Conclusion

Mitral valve repair is safe and effective in this study in addition to the inherent advantages of better preservation of heart function and avoidance of life long warfarin treatment

Off pump coronary artery bypass (OPCAB) vs multi-vessel minimally invasive direct coronary artery bypass graft (MV MIDCAB) surgery in coronary revascularization – a comparative study

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Objective

Minimally invasive multi-vessel MIDCAB surgeries are a good alternative to conventional midline sternotomy OPCABs as they cause less surgical trauma and faster recovery. This study compares the safety and outcome of multi-vessel MIDCAB surgery with OPCAB surgery.

Methodology

Retrospective case matched comparative study was done in a single unit. This study was conducted using data from BHTs of all patients who underwent multivessel MIDCAB surgery and 1311 patients who underwent OPCAB from January 2018 till May 2023 in a single unit. The cohort of 59 patients who underwent multivessel MIDCAB were matched with a cohort of 59 patients who underwent OPCAB surgery in terms of age, sex, ejection fraction category and NYHA class. The outcome is compared in terms of MACCE (Major adverse cardiovascular and cerebral events), blood transfusion, post op hospital stay, and post op ICU stay. Descriptive analysis was done by SPSS version 23.

Results

MACCE were not seen in both cohorts. Post op ICU stay was 3.49 days (± 1.62) and 3.64 days (± 2.84) ($p > 0.05$) respectively for OPCAB and MV MIDCABs. Post op hospital stay was 7.03 days (± 2.59) and 6.71 days (± 2.14) ($P > 0.05$) respectively for OPCAB and MV MIDCABs. Blood transfusion rates were lower in MV MIDCAB cohort, there were two grafts in 88.1% and three grafts in 11.9% of cases.

Conclusion

Multi-vessel MIDCAB surgery shows comparable results in safety and outcome when compared to OPCAB surgery in this study.

Safety in bilateral internal mammary artery grafting: A retrospective analysis of short-term outcomes with pedicled left internal mammary artery and skeletonized right internal mammary artery

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Introduction

The bilateral internal mammary artery (BIMA) is an excellent choice for coronary artery bypass grafting, considering the long-term graft patency rate. The major concern for using BIMA is sternal infection. The skeletonized technique in BIMA grafting has been favored to reduce sternal complications. We practice pedicled left internal mammary artery (LIMA) and skeletonized right internal mammary artery (RIMA) grafting with the advantages of reducing harvesting time, operative time, and easy handling of LIMA.

Objective

The aim of the study was to assess the safety and short-term outcomes associated with the use of pedicled LIMA and skeletonized RIMA in BIMA grafting.

Methods

Retrospective data collection was done for all the patients who underwent BIMA grafting with pedicled LIMA and skeletonized RIMA from July 1, 2015, to October 31, 2023, at the cardiothoracic surgery unit of a tertiary care center. Outcomes measured included superficial sternal wound

infection, deep sternal wound infection, re-exploration, and in-hospital mortality.

Results

Of the 108 patients, 94 were male, and 15, female. The mean age was 47.6 years. Pedicled LIMA was always grafted to the LAD. The RIMA was grafted to the right coronary artery branches in 6 patients, to obtuse marginal branches in 80 patients, and to diagonal branches in 20 patients. Seven patients had superficial wound infections, and three patients were re-explored for bleeding. There were no cases of deep sternal wound infection or in-hospital mortality.

Conclusion

Pedicled LIMA and skeletonized RIMA is a safe technique in BIMA grafting, with short-term results showing no instances of deep sternal infection or in-hospital mortality.

Necessity of thoracic surgical interventions for retrosternal thyroids – a single unit experience

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Introduction

Although the thyroid gland is not within the direct scope of thoracic surgery, often patients are referred to such units in anticipation of specialised thoracic interventions. The aim of this study was to analyse the number of surgeries that needed any thoracic interventions.

Methods

A retrospective review of clinical records was carried out among the patient who underwent thyroid surgeries at NHRD Welisara unit one for the year 2022. The grade of retrosternal extension was assessed according to CT findings.

Results

31 patients were taken into account and analysed. Out of the 26 (83%) were females. 18 (58%) were referred by surgeons while the rest were by medical subspecialties. There were neither direct admissions nor GP referrals. All retrosternal

goitres were identified as grade 1. 19 (61%) had tracheal compression while 20 (64%) had tracheal deviation identified in CT. 29 were multi nodular goitres while the rest were identified as neck masses on CT. All patients underwent total thy-roidectomies with standard collar incision. Only two needed any form of sternotomies (6.4%).

Conclusion

The majority of patients with grade 1 retrosternal goitres didn't need any thoracic interventions could have been managed in a general surgical unit with standard cervical incision. However wide range of complications are associated with these surgeries which may require thoracic surgical interventions. Anticipating such complications may have prompted such referrals.

Surgical audit: A single surgeon's experience with mitral valve repair through transeptal approach

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Introduction

Mitral valve repair has shown excellent surgical outcomes in experienced hands. The transeptal approach, with or without extension, is popular. Our preferred method involves a transeptal approach without extending the incision beyond the fossa ovalis.

Objective

The audit aimed to evaluate patient demographics, valvular dysfunction type, surgical techniques, and outcomes subsequent to mitral valve repair surgery through transeptal approach.

Methods

Patients who underwent mitral valve repair via the transeptal approach by a single surgeon at a tertiary care center from June 1, 2016, to October 31, 2023, were included. Exclusions included patients under 18 years old and those with improperly filled data forms. Valvular dysfunction was characterized using Carpentier's functional classification.

Results

Of the 103 patients, 76 were males, and 27 were females, with a mean age of 47.8 years. There was type 1 dysfunction in 12 patients, type 2 dysfunction in 84 patients. Among type 2 patients, 46 had posterior mitral valve leaflet prolapse, 26 had anterior mitral valve leaflet prolapse, and 12 had bileaflet prolapse. 7 patients had type 3b dysfunction.

75 patients had isolated mitral valve repair. 11 underwent CABG and mitral valve repair, and 7 had ASD closure with mitral valve repair. Concomitant mitral and tricuspid valve repair performed in 6 patients, and one patient had aortic valve replacement with mitral valve repair. There was no postoperative mortality. 11 patients had residual MR not needing surgery. 92 had good postoperative outcome.

Type of surgical technique	Number of patients	Percentage
Annuloplasty ring	101	98.05
Triangular resection	76	73.7
Commisuroplasty and Carpentier's magic stitch as primary techniques	08	7.7
Neo chordae insertion	06	5.8
Pericardial patch for mitral valve perforation	03	2.9

Conclusion

Mitral valve repair via the transeptal approach can be conducted with favorable postoperative outcomes.