Case Report

Anaesthetic Management of 66 year old with severely reduced ejection fraction Undergoing Gastrojejunostomy

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Absract

Patients of gastric outlet obstruction are usually sick because of underlying pathology, electrolyte imbalances and subsequent poor intake. Such patients with cardiac compromise is further challenging . The combined risk of low ejection fraction and poor cardiac reserve may predispose to increase perioperative mortality. Complications in the perioperative period include acute exacerbation of heart failure which can arise from pump failure. Therefore, maintaining good systolic function and cardiac rhythm will ensure cardiovascular stability. We present the case of an 66 year old man k/c/o DMT2 who had severe LV systolic dysfunction with EF 25% that successfully had gastrojejunostomy under general anaesthesia.

Keywords: Gastrojejunostomy, Low Ejection fraction, High Risk Patient.

Introduction:

Gastrojejunostomy is surgical procedure in which anastomosis is created between stomach and jejunum. Comorbidities like diabetic, cardiac dysfunction, low EF, COPD, electrolyte imbalance, acute kidney injury predisposes the patient to perioperative as well as postoperative mortality. According to the latest recommendations of the American Society of Echocardiography (ASE) [1], LVEF is considered normal if it is within the range of 54–74% for females and 52–72% for males. Mildly reduced ejection fraction is defined as 41–53% for females and 41–51% for males. Moderately and severely reduced ejection fraction is defined as 30–40 and < 30%, respectively, for both sexes. In patients with normal LVEF there is decreased incidence of AKI with less positive fluid balance and those with reduced LVEF who received less fluid experienced more AKI. The association between reduced fluid and reduced AKI in the normal ejection fraction population is at odds with prospective studies comparing restrictive and liberal fluid resuscitation in patients undergoing general anaesthesia [2] . Overall, this supports future studies aimed at improving our ability to guide administration this requires individualized management of fluid to patients with reduced LVEF particularly given the association of AKI with increased death rate , prolonged hospital stays and worse patient outcomes [3,4]. While careful monitoring of salt and fluid intake with prescription of diuretics has well established roles in the care of patient.

The main role of anaesthetist is to maintain haemodynamic stability, proper use of pharmacological agent as well as optimal anaesthesia technique to maintain sinus rhythm and effective myocardial contractility, avoid fluid overload and any increase in pulmonary vascular resistance which may lead to adverse cardiac event. However Mortality has not been shown to be reduced by perioperative monitoring [5]. Emergency drugs and ionotropes should be ready prior to induction. Patient may require invasive BP monitoring .We report case management of 66 yrs. old male k/c/o DMt2 with severely reduced EF 25% with severe LV dysfunction who had gastrojejunostomy done under general anaesthesia.

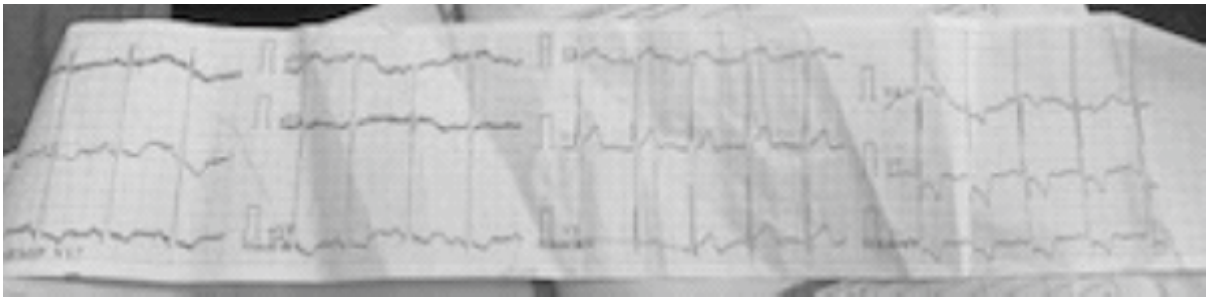
Case Description

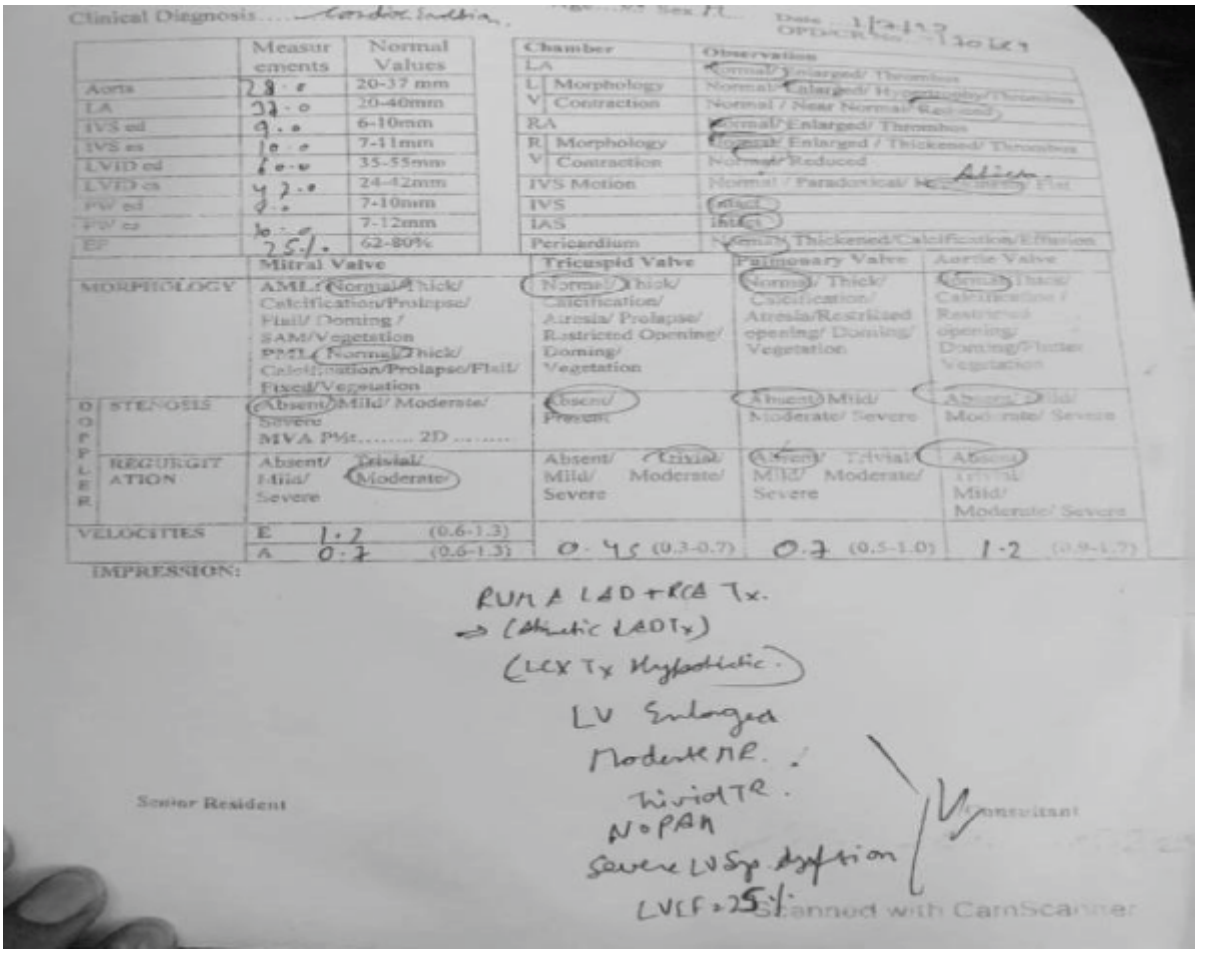
An 66 year old retired army man k/c/o DM on oral hypoglycaemic drugs (tablet Metformin 500mg od), had history of breathlessness and palpitations on rest 2 years back . On evaluations patient had severe LV dysfunction with LVEF 25% and patient was prescribed cardiac medications (Tablet carvedilol 3.125 mg OD , Tablet Ramipril 1.25 mg OD, Tablet Dytor Plus 10/25mg ½ OD). patient responding to cardiac medications and got clearance for surgery under moderate risk by the cardiologist and now presented with history of dysphagia on solids and generalized pain abdomen aggravated by food intake with vomiting .

On examination patient was average built his pulse rate was 78b/min bp was 108/72 mmHg in left upper limb in sitting position. Patient had no pallor, Icterus, cyanosis, clubbing, and edema. On per abdomen examination- abdomen was distended, RT aspirate present. On Auscultation of chest B/L air entry was present clear without added sound, heart sounds- S1S2 normal without murmur.

Investigation

ECG showed LBBB.





Clinical Diagnosis.... Cardiac Ischemia

	Measurements	Normal Values
Aorta	28.0	20-37 mm
LA	32.0	20-40mm
IVS ed	9.0	6-10mm
IVS es	10.0	7-11mm
LVID ed	60.0	35-55mm
LVID es	42.0	24-42mm
PW ed	8.0	7-10mm
PW es	10.0	7-12mm
EF	25%	62-80%

Chamber	Observation
LA	
LV Morphology	Normal/ Enlarged/ Thrombus
LV Contraction	Normal / Near Normal / Reduced
RA	Normal/ Enlarged/ Thrombus
RV Morphology	Normal/ Enlarged / Thickened/ Thrombus
RV Contraction	Normal/ Reduced
IVS Motion	Normal / Paradoxical/ Akinetic / Dyskinetic
IVS	Intact
IAS	Intact
Pericardium	Normal/ Thickened/Calcification/Effusion

	Mitral Valve	Tricuspid Valve	Pulmonary Valve	Aortic Valve
MORPHOLOGY	AML: Normal/ Thick/ Calcification/Prolapse/ Flail/ Doming / SAM/Vegetation PML: Normal/ Thick/ Calcification/Prolapse/Flail/ Fixed/Vegetation	Normal/ Thick/ Calcification/ Atresia/ Prolapse/ Restricted Opening/ Doming/ Vegetation	Normal/ Thick/ Calcification/ Atresia/Restricted opening/ Doming/ Vegetation	Normal/ Thick/ Calcification / Restricted opening/ Doming/Flutter Vegetation
DOPPLER STENOSIS	Absent/ Mild/ Moderate/ Severe MVA PHt..... 2D	Absent/ Present	Absent/ Mild/ Moderate/ Severe	Absent/ Mild/ Moderate/ Severe
DOPPLER REGURGITATION	Absent/ Trivial/ Mild/ Moderate/ Severe	Absent/ Trivial/ Mild/ Moderate/ Severe	Absent/ Trivial/ Mild/ Moderate/ Severe	Absent/ Trivial/ Mild/ Moderate/ Severe
VELOCITIES	E 1.2 (0.6-1.3) A 0.7 (0.6-1.3)	0.45 (0.3-0.7)	0.7 (0.5-1.0)	1.2 (0.9-1.7)

IMPRESSION:

RUN A LAD+RCA Tx.
⇒ (Akinetic LAD Tx)
(LCX Tx Hypokinetic.)
LV Enlarged
Moderate MR.
Trivial TR.
NO PAH
Severe LV Sys. dysfunction
LVEF = 25%

Senior Resident

Consultant

Scanned with CamScanner

ECHO–Regional wall motion abnormality, left anterior descending +right coronary artery territory, Akinetic Left anterior descending territory, left circumflex artery territory hypokinetic, LV Enlarged, Moderate MR, Trivial TR, No Pulmonary artery hypertension, SEVERE LV dysfunction, LVEF 25%. UGE Report showed Infiltrative ulcero-Nodular mass replacing whole Antrum, pyloric opening narrowed ? CA stomach. CBC : HB -13gm ,PLT – 2.2 lakh, TLC 4800, LFT: Bilirubin 0.8, SGOT – 12, SGPT-10, ALP-78, RFT: Urea–28 Creatinine – 1.4, SE- Sodium – 138mEq/L, potassium – 4mEq/L, FBS – 80 mg%, TSP 6.7 gm%, S. Albumin- 3.8 %, S. Globulin - 2.9 gm%. PTI – 100%, INR -1 . CHEST X Ray-normal CECT Abdomen – circumferential mural thickening of Antropyloric region of stomach and D1 part of Duodenum, left side mild pleural effusion.. Patient was kept fasting overnight. Cardiac medications continued as per cardiologist advice. Oral hypoglycemic agents stopped on day of surgery. Tablet- Anxit was given night prior to the surgery and injection Ranitidine 150mg and metocloperamide 10mg were given an hour before surgery. Morning FBS was 80 hence IV 5% Dextrose started as maintainence 50ml/hour .

Risk stratification – A general assessment of cardiac risk in peri-operative period requires taking into account the type of surgical treatment, presence and form of specific clinical signs and symptoms of coronary artery disease as well as patient's condition. previously, the Goldman et al. multifactorial risk score[6] was used to stratify patients according to cardiac risk. subsequently, Detsky et al.[7] provided improved risk assessment in patients undergoing vascular surgery. This patient belong to RCRI (Revised cardiac risk index) 2points Class 3 .

Intraoperative management

After informed written high risk consent. Patient shifted to operating room. 2 large 18G bore cannula secured. All routine monitors were attached (ECG, BP, Pulse -oximeter). Infusion NORAD @ 0.03 microgm /kg/min started to maintain MAP 55-65. I/V midazolam 1 mg and injection Fentanyl 100microgm given. After local anaesthetic infiltration, the arterial cannulization was done in right Radial artery for invasive BP monitoring. Patient preoxygenated with 100% oxygen for 3min. Anaesthesia was induced with titrated dose of injection Etomidate(0.2 mg /kg), along with Isoflurane 1%, nitrous in oxygen (50:50) after achieving neuro-mulcular blockade with 30 mg Atracurium and Administration of 60 mg preservative free lidocaine endoTracheal intubation with endotracheal tube 7.5 was inserted and fixed with adhesive tape . we checked the adequacy by raise of chest wall and auscultating and presence of square wave of Capnogram. The ventilation was adjusted to achieve end tidal CO2 of 32-35 mmHg through TV of 6ml /kg ,respiratory rate 10-14 /min and I:E – 1:1.5 Intraoperatively RBS checked it was normal . Intraoperatively only 500 ml of fluid is given and urine output is 400 ml . After completion of surgery all gases were turned off. Patient brought to spontaneous breathing with adequate tidal volume. NG and oral suctioning done. residual neuromuscular blockade was reversed with injection Glycopyrolate 0.01mg/kg and injection Neostigmine 0.05 mg/kg. ET tube was removed after patient has spontaneous breathing return of airway reflexes, spontaneous or on command eye opening and purposeful movement. The patient was transferred to intensive care unit with O2 saturation of 92% on room increased to 100 % on low flow o2. Patient shifted to ward on room air with O2 saturation of 98% on the next day. Patient stay at hospital remain uneventful and gót discharged in satisfactory condition.

Discussion:

A full anaesthesia related history is essential, including drugs and recent compliance. Missed medications can effect perioperative morbidity. Assessment guides pre-operative investigations, resuscitation, pre-optimization and necessity for invasive monitoring. As these patients are prone for myocardial ischaemia, infarction and arrhythmias during perioperative period, a proper evaluation regarding history and investigations has to be done. Anti-failure medications, beta-blockers and statins have to be continued perioperatively . The ultimate goal of perioperative cardiovascular management is to avoid tachycardia, to maintain BP, to avoid

hypotension, to avoid fluid overload and monitor hourly urine output. Post -operative monitoring include cardiovascular and respiratory monitoring, fluid and electrolyte imbalance and urine output. Post-operatively pain is another important aspect and should be managed. Hence proper evaluation and management of peri-operatively are most important.

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