



Experience of Regional Anesthesia in breast Surgeries: A Case Series

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ABSTRACT:

Breast cancer surgeries, including Modified Radical Mastectomy (MRM), are commonly performed under general anesthesia. However, patients with multiple comorbidities, especially pulmonary issues and anticipated difficult airways, face increased perioperative risks. In this case series, we present successful perioperative management using regional anesthesia techniques in various breast surgeries, aiming to minimize pulmonary and systemic complications while providing effective anesthesia and postoperative analgesia.

Five cases are described, each illustrating the use of regional anesthesia modalities such as thoracic epidural anesthesia, Pectoral Nerve (PEC) I, and PEC II blocks. Patients with conditions like diabetes mellitus, bronchial asthma, hypertension, and difficult airways were managed safely and effectively under regional anesthesia, avoiding the risks associated with general anesthesia.

Discussion highlights the neuroanatomical considerations and specific regional anesthesia techniques employed in breast surgeries, including MRM and excision biopsies. Benefits of regional anesthesia include reduced perioperative analgesic consumption, superior postoperative analgesia, shorter recovery times, and improved hemodynamic stability.

By assessing the risk-benefit ratio, complications commonly associated with regional anesthesia, such as dural puncture or neurological injuries, can be mitigated with proper precautions and experience. Regional anesthesia emerges as a reasonable and safe alternative to general anesthesia for breast surgeries, offering optimal perioperative care and enhancing postoperative rehabilitation and pain management, ultimately promoting quicker recovery for patients.

Introduction

Breast cancer is one of the most common cancers in women around the world. Surgery remains the mainstay in the management due to the importance of controlling

metastatic and locally advanced diseases.

MRM (Modified Radical Mastectomy) is one of the standard surgical procedure in the management of breast



cancer routinely done and it remains as the mainstay of management in these patients. MRM is usually performed under general anesthesia but the patients with multiple comorbidities especially pulmonary illness and anticipated difficult airway are at high risk of perioperative morbidity and mortality especially because of pulmonary complications under general anesthesia. In this case series we reported successful perioperative management with thoracic epidural anesthesia in cases of carcinoma of breast.

Breast lumps or suspected tumors excisions and biopsies are routinely performed under general anesthesia. We managed the cases successfully with regional blocks like PEC I and PEC II providing adequate anesthesia and postoperative analgesia.

In this case series we are reporting perioperative management of the breast surgeries with various modalities of Regional Anesthesia thus minimizing the pulmonary and systemic complications while providing long lasting, effective anesthesia and postoperative analgesia while keeping it cost effective for the patient.

CASE DESCRIPTION

Case 1

A 65yr old female patients weighing 65kg ,short statured , diagnosed with invasive ductal carcinoma of Left Breast was posted for left Modified Radical Mastectomy with axillary node dissection. Patient was a known case of diabetes Mellitus for 10 years on medication (tab metformin 500mg bd). Patient has a known history of tobacco chewing for 30 years with mouth restriction present (2 fingers width) and Mpc 4 noted. On auscultation chest is clear. Patient was assigned to class III ASA. Investigation : hb 11 , FBS 198 , PPBS 300 , HbA1C 8.2 , Urea 28 , creatinine 0.9 , PT 14sec , INR 1.2 , TFT and LFT in normal range. Echo : no RWMA , grade 2 diastolic dysfunction, LVH with trivial MR and AR with EF 60%. Anesthetic management : Patient shifted to OT and standard monitors were attached and vitals were normal. Patient was put in sitting position and under strict aseptic precautions thoracic epidural catheter was placed at T2-T3 using a 18G Tuohy's epidural needle with loss of resistance technique,at Depth - 4cm , Fixed at 7cm .Test dose - 2ml 2% LOX +Adrenaline

followed by 10ml of 0.5% bupivacaine plain with 30mcg clonidine. Patient was monitored continuously and supplemented with 6lit O₂ with Hudson mask throughout the surgical procedure.The patient remained hemodynamically stable and comfortable throughout the procedure and uneventful. The estimated blood loss was 200 ml and a total of 1.5 litre of fluids was infused. Postoperative analgesia - 8 ml of 0.125% bupivacaine 8th hourly top ups was given for 48hrs.

Case 2

A 60 year old female, known case of moderately controlled bronchial asthma for 10yrs on levosalbutamol and budesonide Metered dose inhaler was planned for MRM. Pre operative assessment : revealed normal vitals with bilateral polyphonic wheeze on auscultation. Her Breath holding time was 10 sec. Her BMI was 26.1 kg/m². Patient Optimized with nebulisation, Short acting beta agonists - symptomatic improvement noted. Based on comorbid conditions, she was assigned class III ASA.Considering risk factors for General Anesthesia she was Counseled for thoracic epidural anesthesia and postoperative analgesia, and consent for the same was obtained.

ON THE DAY OF SURGERY : NPO status, nebulisation, fresh complaints were confirmed and then shifted to OT and all Basic parameters were connected and vitals were stable.

Thoracic epidural anesthesia - Under strict aseptic precautions , Lateral position in T3-T4 space , in midline , 18G Tuohy's epidural needle and with loss of resistance technique, Depth - 4.5cm , Fixed at 10cm . Test dose - 2 ml 2% LOX +Adrenaline followed by 14 ml of 0.5% bupivacaine.

We have calculated a dose of 18 -20ml for 10 segments block(T2-TI) as per guidelines but we have given only 16ml of local anesthetic drug including test dose and she was monitored continuously. Patients tidal exchange was noted holding a face mask. In the middle of surgery, gradually the patient developed shallow respiration and tidal exchange came down which was noted in the bag. Before the patient goes for hypoxemia and desaturation, we have gently assisted the ventilation and give head up till the patient started breathing adequately with visible chest rise and we changed her to Hudson mask with 6 litres of oxygen. The patient remained hemodynamically stable and comfortable thereafter throughout the



procedure. The estimated blood loss was 250ml and a total of 1.0 litre of fluids was infused. Postoperative analgesia - 8 ml of 0.125% bupivacaine 8th hourly top ups was given for 48hrs.

Case 3

A 54 year old female patient weighing 80kg diagnosed with Right breast carcinoma posted for MRM with axillary dissection . Patient is a known case of hypothyroidism for 8 years on regular medication (tab thyronorm 100 mcg od). Patient is a known hypertensive and diabetic on medication (tab Atenolol 50 mg OD, tab metformin 500mg BD) for 4 years . She gives the history of snoring. Patient is short statured height of 148cm. On airway examination, she has a short webbed neck with MPC III . Investigation: Hb - 12 , urea -38 , creatinine - 1.2 , FBS - 152 , PPBS - 200 , PT - 16 seconds , INR - 1.3 , TFT and LFT in normal range.

Anesthetic management : Patient shifted to OT and standard monitors were attached and vitals were normal. Patient was put in lateral position and under strict aseptic precautions thoracic epidural catheter was placed at T7-T8 using a 18G Tuohy's epidural needle with loss of resistance technique, at Depth - 5cm , Fixed at 13cm. Test dose - 2 ml 2% LOX +Adrenaline followed by 10 ml of 0.5% Ropivacaine plain with 30 mcg clonidine. Patient was monitored continuously and supplemented with 6lit O2 with Hudson mask throughout the surgical procedure. The patient remained hemodynamically stable and comfortable throughout the procedure and uneventful. The estimated blood loss was 400 ml and a total of 2 litres of fluids was infused. Postoperative analgesia - 6 ml of 0.2% ropivacaine 8th hourly top ups was given for 48hrs.

Case 4

A 38 year old female weighing 79 kg was diagnosed with b/l fibroadenoma and was posted for Right side excision and biopsy. Patient was newly diagnosed with hypertension and was started on medication(tab amlodipine 5mg bd). Patient was asked to continue the medication on the day of surgery. On airway examination, the patient was MPC class 3 with adequate mouth opening and short neck. She was assigned class II ASA. Anticipating a difficult airway patient was explained about peripheral nerve block anesthesia(pec 1,

pec 2 block) and postoperative analgesia, and consent for the same was obtained. ON THE DAY OF SURGERY : NPO status, fresh complaints were confirmed and then shifted to OT and all Basic ASA Monitoring parameters were connected and vitals were stable. Patient was put in a supine position with arms abducted . Under aseptic conditions and with ultrasound guidance , the probe was placed below the lateral third of the clavicle at the level of 3rd - 4th ribs. Skin puncture site was infiltrated with 2% lignocaine. Block was performed with 23G Quincke needle. Needle was advanced between pectoralis major and minor muscles by identifying the pectoral branch of Thoracoacromial artery for PEC I block and 10 ml of 0.25% Bupivacaine plain + 2 mg dexamethasone was injected after clear aspiration. For PEC II block the needle was advanced into the plane between pectoralis minor and serratus anterior muscle and 20 ml of 0.25% Bupivacaine plain was injected after clear aspirations at the level of 4th rib in the mid axillary line. Sensory loss was checked and confirmed within 10 minutes of block administration. Patient was supplemented with 5 litres O2 in the Intraoperative period. Operation time was 50 minutes and vitals were stable throughout the surgery. No opioid was needed intraoperatively. The patient was shifted out and didn't complain of postoperative pain for the next 8 hours.

Case 5

A 28 year female weighing 60kg was diagnosed with a left sided breast mass and was posted for excision and biopsy. physical examination suggested a huge mass and patient was reluctant to general anesthesia thus regional anesthesia block was explained to the patient (PEC I and PEC II blocks) and consent was taken for the same. Patient was assigned ASA Class I . ON THE DAY OF SURGERY : NPO status, fresh complaints were confirmed and then shifted to OT and all Basic ASA Monitoring parameters were connected and vitals were stable. Patient was put in a supine position with arms abducted . Under aseptic conditions and with ultrasound guidance , the probe was placed below the lateral third of the clavicle at the level of 3rd - 4th ribs. Skin puncture site was infiltrated with 2% lignocaine. Block was performed with 23G Quincke needle. Needle was advanced between pectoralis major and minor muscles by identifying the pectoral branch of Thoracoacromial



artery for PEC I block and 10 ml of 0.5% Ropivacaine plain was injected after clear aspiration. For PEC II block the needle was advanced into the plane between pectoralis minor and serratus anterior muscle and 10 ml of 0.5% Ropivacaine plain was injected after clear aspirations at the level of 4th rib in the mid axillary line. Sensory loss was checked and confirmed within 15 minutes of block administration. Based on the Patient's wish to be sedated through the procedure, 60mcg dexmedetomidine infusion was started in 100 ml NS over 1 hour. Patient was supplemented with 6 litres O₂ in the Intraoperative period. Operation time was 1 hour and vitals were stable throughout the surgery. Patient was shifted out and didn't complain of postoperative pain for the next 6 hours.

Discussion

In this case series we have documented 5 breast surgeries which were performed successfully under regional anesthesia making them safe and reasonable alternatives to general anesthesia. Patient with difficult airways and by avoiding general anesthesia airway handling was reduced while blunting the stress response. Regional anesthesia further reduces perioperative analgesic consumption, superior postoperative analgesia, reduced PONV, shorter npo post surgeries and better Hemodynamic stability. The neuronal innervation to the breast and associated structures are from 1st to 6th intercostal nerve, intercostal brachial nerve (T₂,T₃), supraclavicular nerve, lateral and medial pectoral nerve from the cervical plexus.

The regional anesthesia techniques utilized in our case series were:

Thoracic epidural anesthesia

Pec I block

Pec II block

The postoperative rehabilitation and pain management that remains a major problem in the breast surgeries can be taken care of due to the longer action of regional anesthesia with minimal opioid and other analgesics like NSAIDs's usage.

Assessing the risk and benefit ratio, the common complications of regional anesthesia like Dural Puncture, neurological injuries or hematoma can be avoided with good precautions and experience.

Conclusion

In comparison to general anesthesia, regional anesthesia offers a reasonable and safe anesthesia for breast surgeries for patients with anticipated difficult airway or reactive airway or with multiple comorbidities.

The technique while beneficial perioperatively also provides good quality postoperative analgesia which further helps in patient's speedy recovery.

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