

CASE REPORT OF MODIFIED RADICAL MASTECTOMY SURGERY UNDER THORACIC EPIDURAL ANAESTHESIA PLUS INTERSCALENE BLOCK

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ABSTRACT

Surgery is one of the mainstays of treatment in breast cancers. Typically, modified radical mastectomy (MRM) is done under general anaesthesia (GA). However, GA is not a reasonable choice in patients with multiple comorbidities and difficult airways. Thoracic epidural anaesthesia (TEA) is a reasonable and safe alternative to GA as it involves blunting of stress response and avoidance of airway handling apart from hemodynamic stability, lower analgesic consumption, superior postoperative analgesia, reduced postoperative nausea and vomiting, earlier resumption of feeding, and shorter duration of hospitalization. We report a case of advanced breastcancer in a 72

-year-old female with a co-existing difficult airway, poor effort tolerance, COPD changes in whom MRM was conducted successfully under TEA plus right sided interscalene block. We also present a comprehensive review of literature on the use of TEA for MRM.

KEYWORDS: MRM, GA, TEA.

INTRODUCTION

Breast cancer is the most common cancer among Indian females with an age-adjusted rate as high as 25.8 per 100,000 women and mortality of 12.7 per 100,000 women.^[1] It can occur at any age but the incidence rates in India begin to rise in the early thirties and peak at ages 50-64 years.^[2]

Surgery is one of the main-stage of treatment in breast cancers. Typically modified radicle

mastectomy (MRM) is done under general anaesthesia however GA is not a reasonable choice in patients with multiple co-morbidities and difficult airways. Thoracic epidural anaesthesia (TEA) is a reasonable and safe alternative to GA. As it involves blunting of stress response and avoidance of airway handling apart from hemodynamic stability, lower analgesic consumption, superior post operative analgesia reduced post-op nausea, vomiting, earlier resumption of feeding and shorter duration of hospitalization TEA can be supplemented by interscalene block for axillary Dissection. In MRM surgery involves removal of entire breast including the skin, areola, nipple and most axillary lymph nodes. Pectoralis major muscle spread. I am reporting a case of Rt. Sided CA breast in a 72 years old female with co-existing difficult airway poor effort tolerance and B/L basal crepitations (COPD) changes in which MRM was conducted successfully under thoracic epidural anaesthesia supplemented by Rt. Sided interscalene block.

Written informed consent was obtained from the patient for reporting this case for publication.

CASE REPORT

A 72 years old female with Rt. Sided breast cancer confirmed by FNAC report was posted for MRM and was not having known co-morbidity like HTN, DM, Asthma, thyroid disorder. But having poor effort tolerance METS= ≤ 4 and having difficult airway as absent and loose teeth, with edentulous jaw. COPD changes on chest x-ray. Rt. Bundle branch block pattern on ECG. She was having B/L basal crepitation on auscultation. (COPD changes on CXR).

Her investigations were within normal limits expert CXR- (COPD changes) and B/L basal crepitations and having poor effort tolerance METS ≤ 4 . Her airway examination reveals reduced buccal fat which leads to difficult mask ventilation. Multiple loose and missing teeth Edentulous jaw.

MPS- 3

Due to difficult airway and B/L basal crepts she was counselled for thoracic Epidural Anaesthesia and written consent was taken. Advice to be NBM for 8hrs.

Conscious, oriented, co-operative Wt- 47 kg. Effort tolerance –poor; METS- ≤ 4 .

B/L –senile SNHL.

oedema+ locally, Lymphadenopathy + rt axilla No pallor, cyanosis, clubbing, icterus

O/E- P-87/ min ; BP- 152/80 mm hg,

RR-18/min ; spO₂-96% on RA

S/E- CVS -S1S2 present, no murmur

RS- B/L basal crepts+; decreased air entry on lower zones B/L CNS – conscious oriented.

P/A- soft.

AIRWAY EXAMINATION

Mouth opening -3 fingers; MPS –grade 3

Reduced buccal fat ; Neck movements –N;

Teeth- multiple missing teeth; loose teeth; edentulous jaw

Expected difficulty in – mask ventilation

- laryngoscopy

Spine- no deformity, no local infection, no tenderness.

Bedside pulmonary function test

Subrasez breath holding test-18 sec (N: >25 SEC)

Single breath count – 15 (N:30-40)

Greene and bercowitz cough test – negative

Wheeze test –negative

Forced expiratory time -5 sec. (N:3-5 SEC)

INVESTIGATIONS

Hb-12.6 gm/dl; plt-2.52 lakh/cc; WBC- 11000/cc

S. creatine -0.8 gm/dl; BUN- 28 mg/dl

S. bilirubin -0.3 gm/dl; SGPT-22; SGOT- 26; S. AP- 125 CxR- COPD changes (prominent bronchial markings) ECG-RBBB changes; 2d ECHO –WNL, LVEF-60%.

USG- breast-heterogenous lesion 38*29*28 mm; increased vascularity axilla- enlarged LN 15 mm size rt side.

abdo - B/L small kidneys ; increased cortical echos with reduced cortical thickness.

ADVICE

Nebulization with duolin-budecort BD. Arrange adequate blood and blood products.

Arrange post op ICU bed with ventilatory support.

PROBABLE PLANS OF ANAESTHESIA

1. General Anaesthesia.
2. General Anaesthesia with Thoracic epidural anaesthesia (analgesia).
3. Segmental thoracic spinal anaesthesia.
4. Thoracic Epidural anaesthesia (plain).
5. Thoracic Epidural Anaesthesia supplemented with interscalene block.

PRE-OP CHECK-UP:

O/E – P-82/MIN

BP-152/92 mmhg

RR- 19/MIN

SpO₂- 97% on RA

S/E- CVS-S1S2 +, no murmur

RS-B/L basal crepitations +, decreased air entry on lower zone B/L.

CNS-conscious, well oriented.

Preloading with 500 ml RL.

Inj. Perinorm 10 mg iv.

Inj. Ondansetron 4 mg iv.

In operation room, multiparameter monitor attached

Vitals- P-87/min, BP-146/88 mmhg

SpO₂-96%; RR- 18/min

Started i.v line with ringer lactate.

Thoracic epidural procedure:

Under all aseptic conditions – midline Thoracic epidural performed



at T7-T8 interspinous space by 18 G Tuohy needle target space identified by loss of resistance to air technique. Skin to epidural space- 4 cm.

6.5 cm of epi. Catheter inserted cephalad direction. catheter fixed at 10.5 cm with adhesive dressing.

3 ml test dose of inj. lignocaine (2%) +adrenaline (1:200000) given

10 ml loading dose of inj. bupivacaine (0.5%) after 10 min of test dose.

INTERSCALENE BLOCK (Right sided)



Pt in supine position

Landmarks drawn

Under all aseptic condition

As per winnie's technique prick taken

Needle inserted INWARD, CAUDAL (45°) and slight BACKWARD manner; 2 cm inside.

Drugs injected

Inj. Ligno(2%)+adre[4 ml]

inj. Bupi(0.5%) [4 ml]

inj tramadol 50 mg [1 ml]

Oxygen administered to pt via face mask at 5 L/min.

Assessment of both thoracic epidural block (over T1-T8 dermatome level) [15 min after loading dose] and interscalene block over deltoid and axilla region [after 5-7 min of dose given] was done by pin prick technique.

A sensory block height of T1 TO T8 was achieved bilaterally.

And sensory block over rt deltoid and axillary region was achieved Then started with surgery.

And got over in 3 top-up doses Epidural top-up 40 min after loading dose [inj. lignocaine with adrenaline(3ml)+0.5% bupi[3 ml].

2nd top-up 45 min after 1st top-up [inj. Ligno-adre (3ml) +0.5% bupi(3ml)]. 3rd top-up 40 min after 2nd top-up [inj ligno-adre (3ml) +0.5% bupi(3ml)].

Rt breast tissue and tumour were excised en-block along with axillary LN dissection and

removal was done.

Duration of surgery was 130 min. Pt was hemodynamically stable; vitals within normal limits. There was fall in blood pressure initial 15-20 min of loading dose and then normalized and was in range of 100/66 to 132/84 mm hg.

Inj. midazolam 1 mg given to relieve anxiety.

Estimate blood loss was around 350-400 ml.

Urine output 300 ml.

Pt was comfortable throughout surgery

Post operative pain managed by 8 ml inj. bupivacaine 0.125% given in epidural catheter 6-8 hrly.

Epidural catheter removed after 48 hrs post op.

Pt was discharged on 8 th day of surgery without any complication.



DISCUSSION

In this report, we have demonstrated that TEA plus interscalene block is a reasonable and safe alternative to GA for MRM. Our patient had poor effort tolerance, obstructive airway disease, and a difficult airway which precluded the safe conduct of GA. As such, we preferred TEA plus interscalene block over GA as it involves blunting of stress response and avoidance of airway handling. Other potential advantages of TEA that have been widely reported in the literature include hemodynamic stability, lower analgesic consumption, superior postoperative analgesia, reduced postoperative nausea and vomiting (PONV), earlier resumption of feeding, and shorter duration of hospitalisation. However, in our patient, adequate analgesia was achieved with epidural bupivacaine supplemented with intravenous paracetamol.

In general, the infrequent use of TEA plus interscalene block for oncologic breast surgeries may be attributed to fear of potential complications like spinal cord injury, respiratory complications, spinal/epidural hematoma, and post-dural puncture headache. However, with experience and due precautions, these complications are extremely rare. The breast, axillary nodes, and pectoral muscles derive their innervation from multiple sources, including branches from the first to the sixth intercostal nerves, brachial plexus, intercostal brachial nerve (T2-T3), supraclavicular nerve, and lateral and medial pectoral nerves from the cervical plexus.^[3] The supplementation of TEA with interscalene block in patients undergoing MRM has been shown to improve pain scores and reduce opioid consumption during the first 24 hours postoperatively.^[4] Local anaesthetic infiltration has been used along with TEA for axillary lymph node dissection.^[5] The paravertebral block is another method that can be employed as an alternative to GA for mastectomies. Surgical anaesthesia by thoracic paravertebral block alone, however, causes considerable patient discomfort during neural block and surgery. Ono et al. concluded that the combined use of paravertebral block and GA can be a preferable choice of anaesthesia for patients undergoing major breast cancer surgery.^[6] Cervical epidural anaesthesia has also been used successfully for MRM, however, it is not recommended in patients with compromised pulmonary functions and poor cardiovascular reserve.

Moreover, there is a possibility of paralysis of the phrenic nerve with a cervical epidural block.^[7]

Adequate epidural analgesia in the postoperative period has been shown to improve the

perioperative outcome in patients at high risk for postoperative pulmonary complications.^[8] Ropivacaine has a better safety profile than bupivacaine and may be a better choice during TEA. However, at lower doses, bupivacaine is equally safe. Previous reports have shown a high incidence of pruritus and urinary retention with TEA. However, all such reports involved the addition of opioids as an adjuvant with a local anaesthetic. Epidural fentanyl produces more segmental analgesia with a reduced risk for delayed respiratory depression, unlike hydrophilic morphine which also produces late respiratory depression necessitating intensive monitoring in the postoperative period.^[9] In our case, we avoided the addition of an opioid with bupivacaine.

CONCLUSIONS

Thoracic epidural anaesthesia plus interscalene block^[11] is a feasible and safe alternative to general anaesthesia for oncologic breast surgeries particularly in high-risk patients having comorbidities and difficult airways. The use of thoracic epidural anaesthesia plus interscalene block for breast surgery could enhance postoperative outcomes and curtail the overall cost of these procedures. Based on the available evidence, we recommend thoracic epidural anaesthesia plus interscalene block for major breast surgeries in high-risk patients, though, large, randomised control trials are the need of the hour.

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