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THORACIC EPIDURAL ANESTHESIA FOR MODIFIED RADICAL MASTECTOMY IN CARCINOMA OF BREAST PATIENT WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A CASE REPORT

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ABSTRACT Modified radical mastectomy, the standard surgical procedure in the management of carcinoma of breast is routinely performed under general anaesthesia. Carcinoma breasts patients are considered to be at high risk for anaesthesia due to high possibility of perioperartive complications and mortality when associated COPD with other co morbidities. Here we present a case report of successful perioperative management of modified radical mastectomy only with thoracic epidural anesthesia in a diagnosed case of carcinoma of breast with COPD, hypertension, type 2 diabetes mellitus . case report: A 58-year-old female, a known case of chronic obstructive pulmonary disease since five years with comorbidites (ASA grade III), presented with carcinoma of breast was scheduled for modified radical resection. Continuous thoracic epidural anesthesia was administered at T4-5 level. Local anesthetic supplementation titrated as per the demands of surgery and postoperative analgesia for 48 hours. chromic obstructive pulmonary disease has been considered as independent risk factor for postoperative morbidity and mortality because of cardiopulmonary complications. but thoracic epidural anesthesia, one of the regional anesthesia techniques, with use of low dose of local anesthetic helps preserving respiratory function. the procedure was well tolerated without cardiopulmonary complications which lead to prompt recovery with additional effect of prolonged postoperative analgesia. conclusion: thoracic epidural anesthesia provided not only hemodynamic, cardiopulmonary stability but also adequate anesthesia, analgesia and satisfaction to patient in postoperative phase. It proved to be an excellent anesthesia technique for modified radical mastectomy in patient with chronic obstructive pulmonary disease.

KEYWORDS : Modified radical mastectomy, thoracic epidural anesthesia, Carcinoma breast chronic obstructive pulmonary disease (COPD)

INTRODUCTION

Globally, Carcinoma of the breast is considered as the major leading cause of mortality in women. Prevalence of carcinoma of breast varies from 12–31 cases per 100,000 women in India.[1] Modified radical mastectomy (MRM), the Gold standard surgical procedure of choice remains the mainstay of management in these patients. Usually, MRM is performed under general anesthesia. But the patients of chronic obstructive pulmonary disease (COPD) with other comorbidites are at high risk of perioperative morbidity and mortality especially because of pulmonary complications under general anesthesia .[2] Further, general anesthesia in cancer patients may depress the immune system.[3]Several studies reported usefulness of cervical and thoracic epidural anesthesia for MRM in patients of carcinoma of breast.[4,5] But these techniques are not routinely practiced. In the present report we describe successful perioperative management with thoracic epidural anesthesia in a diagnosed case of carcinoma of breast with severely compromised pulmonary function due to COPD undergoing MRM.

Case report

A 58-year-old female patient weighing 74kg presented to surgical out patint department (OPD) with a chief complaint of a lump in left breast gradually increasing in size over last Eight months. On clinical examination, a hard lump of size 5x5 cm, with irregular surface, not fixed to skin, with no history of any discharge from nipple, and enlarged axillary lymph nodes were noticed. Fine needle aspiration cytology revealed presence of malignant cells and patient was scheduled for MRM.

Patient was a known case of COPD since last five years. She had episodes of exaggeration and remission once or twice in a year. She required admission twice in last two years for COPD. During preoperative evaluation, anesthesiologists found that because of compromised respiratory status patient is at high risk for the procedure to be done under general anesthesia. On clinical examination, she was afebrile with pulse rate 104/MINUTE, respiratory rate 22/MINUTE with SPO2 93% in lying down position and 94–96% on pulse oxymetry in sitting position. Bilateral coarse crept were present. Her hemoglobin was 15.6 g/dL suggesting chronic hypoxia. Her other laboratory investigations blood glucose levels, liver, renal and thyroid parameters were within normal limit. Patient was a known case of hypertension since two years and type 2 diabetes mellitus since three years maintained on oral medication. Her HBA1C was 7.5% suggesting moderate glycemic control. Chest X ray and CT scan Chest showed emphysematous right lung. Chest Physician Opinion obtained, 'Patient was taken up for the surgery under high risk.

Pulmonary evaluation revealed severe obstructive airway disease with following results of pulmonary function tests (PFT) as given in Table 1. This indicates severe airway obstructive disease. There is increased residual volume that means increased air trapping. With such compromised pulmonary status, COPD, hypertension, diabetes mellitus and pulmonary hypertension patient was accepted as grade III as per ASA (American Society of Anesthesiologists) and posted for MRM under thoracic epidural anesthesia. General anesthesia was relatively contraindicated so as to avoid postoperative ventilatory support and complications. Meanwhile we tried to optimize patient's respiratory status for five days by round the clock nebulisation with steam, N-acetyl cysteine, deep breathing exercises, maintaining adequate hydration.

Patient was explained about the procedure and technique of the anesthesia and high risk informed consent was obtained. Good intravenous (IV) access was secured with a wide bore cannula. Monitoring started with pulse oxymetry, noninvasive blood pressure and five-lead electrocardiograms.

Parameters	Measured volume	% Predicted volume
FEV1	1.17	44.6
FVC	2.60	74.9
Residual volume	2.93	112
FEV1:FVC	45	

***Anesthesia technique*:** In sitting position, with all aseptic precautions landmark identified and T4-5 level demarcated. Local anesthetic agent 2% lignocaine was infiltrated with number 26 hypodermic needle. In the sitting position, a midline thoracic epidural was performed at the T4/T5 interspinous space using a size 18G Tuohy epidural needle and loss of resistance to air technique. Epidural catheter was inserted 4 cm into epidural space through Touhy needle in cephalad direction. Epidural catheter was fixed and 3 mL test dose of lignocaine 2% with adrenalin 1:200000 was given. Patient was monitored for vital signs for three minutes to rule out intravenous placement. Confirming the proper placement of the catheter initial dose of 7 mL of 0.75% ropivacaine and 1 mL fentanyl (50 microgram) injected through catheter which resulted in bilateral anesthesia of thoracic wall in the area from C6 to T7 level in next 15 minutes. Following the satisfactory anesthesia and analgesia patient was handed over to surgeon for MRM. At the time of axillary exploration, fentanyl 50 microgram and midazolam 1 mg were administered. Injection ondensetron 4 mg was given intravenously to avoid nausea and vomiting. Surgeon infiltrated the area with 5ml of 0.75% ropivacaine. We deliberately avoided oxygen supplementation to maintain patient's hypoxic drive. All airway control equipment kept ready for emergency. Surgery lasted for 120 minutes without evidence of any untoward events and throughout the procedure patient was hemodynamically stable. Then patient was observed in the post operative recovery room for 1 hour and then

shifted to surgical intensive care unit with continuous monitoring for vital parameters. Postoperative analgesia was managed with epidural infusion of 0.125% bupivacaine 6 mL/h till next 24 hours. Patient continued to receive nebulization and chest physiotherapy in postoperative period comfortably as she was pain free.

DISCUSSION

Thoracic epidural anesthesia (TEA) has been established as a cornerstone in perioperative care after thoracic and major abdominal surgery providing most effective analgesia.[6] It is possible to use single dose TEA for oncology mastectomies with axillary clearance, and this technique has many advantage when compaired with general anesthesia.[7] TEA is associated with decreased incidence of nausea and vomiting and earlier discharge from the hospital compaired the patients with general anesthesia.[8] Cardiopulmonary complications in COPD has been considered as an independent risk factor for postoperative morbidity and mortality. From anesthesiologist point of view, general anesthetic agents, opiods, muscle relaxants and mechanical ventilation interfere with respiratory function. This combined effect of general anesthesia in supine position leads to instant fall in lung volumes with atelectasis in dependent part of lungs.[9] These patients are difficult to wean from ventilator and may require postoperative prolonged ventilation. . So in our case of COPD with hypertension, T2DM , we planned the procedure using a sole anesthetic technique of TEA which provided safe and excellent analgesia with improved surgical conditions. The procedure was well tolerated without cardiopulmonary complications which lead to prompt recovery with additional effect of prolonged postoperative analgesia.

Thoracic epidural anesthesia, one of the regional anesthesia techniques, with use of low dose of local anesthetic helps to preserve respiratory function. O'Connor et al. reported successful anesthetic management for bilateral mammoplasty with TEA in a Klippwl–Feil syndrome with difficult airway .[10] In a study among Thai women researchers observed TEA combined with brachial plexus block an alternative safe anesthetic technique for MRM provided effective anesthesia and postoperative analgesia than general anesthesia.[11] Ashok Jadon highlighted utility of cervical epidural analgesia in managing a complex case of carcinoma of breast with chronic regional pain syndrome.[12] A recent meta-analysis about pulmonary effects of TEA showed decline in postoperative pulmonary complication like pneumonia due to earlier ambulation, reduced opiods consumption and improved compliance of patient for chest physiotherapy.[13] Some retrospective studies reported improved survival with reduced prevalence of tumor recurrence after TEA or paravertebral block in cancer patients.[14,15]

Successful use of high TEA avoids tracheal intubation hence also minimizes postoperative pulmonary complications.[16] WITH TEA using high concentrations of local anesthetics (lidocaine 2%, bupivacaine 0.5%) paralysis of the intercostal and abdominal wall muscles are responsible for 10–20% decrease in inspiratory and expiratory capacity without affecting the hypoxic pulmonary vasoconstriction.[17] Diaphragmatic function remains unimpeded as far as the neuraxial blockade remains below the cervical emergence of phrenic nerves (C3–C5). So, it is extremely important to watch level of epidural block because if level reaches above C6, Horner's syndrome may develop. If level goes up to C4, patient's voluntary efforts of respiration stop and might require ventilatory support. Site of puncture decides the cephalad extension of block. But the higher the placement site, the lesser is cephalad spread and more caudal spread,[18] hence we selected site T4-5.

Even though we performed present surgery using technique of TEA, we always have to assess risk and benefit ratio. Common complication of this technique is dural puncture, neurological injury and epidural hematoma. With maximum precautions and experienced hand dural puncture is rare while the incidence of neurological injury is 0.01–0.001% .[19]

CONCLUSION

In conclusion, thoracic epidural anesthesia offers better option to genaral anesthesia for modified radical mastectomy with severely compromised pulmonary functions. Another distinct advantage of the technique is good quality postoperative analgesia which enhances patient's compliance for chest physiotherapy and hence speedy recovery and alsolower incidence of post operative nausea and vomiting.

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