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Anesthesia Management in Beach Chair Position for Shoulder Arthroscopic Surgery

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Abstract:- Anaesthesia management of shoulder arthroscopy for a case of right subcapsular bursitis with partial supraspinatus tear posted for arthroscopic acromioclavicular joint decompression in a 39 yr old female patient using a combination of general anaesthesia with interscalene block in beach chair position successfully.

Keywords:- *Interscalene Block ,Beach Chair Position, Shoulder Arthroscopy.*

I. INTRODUCTION

Shoulder arthroscopy is a minimally invasive technique used for diagnostic and therapeutic indication related to rotator cuff, recurrent joint instability and subacromial pathology. It is associated with benefits such as lesser post operative pain and early rehabilitation as compared to open techniques. More than 1.4 million shoulder arthroscopies are carried out each year .Beach chair position was described in early 1980 as an alternative to address the issue of brachial plexus traction injuries experienced by patients in lateral decubitus position however have increasingly focussed on complications related to use of irrigating fluid, patientpositioning and anesthesia during shoulder surgery[1]. In our case was general anesthesia with interscalene block in a beach chair position

II. CASE REPORT

A case of 39yr old female presented to our hospital diagnosed with rt subcapsular bursitis with partial supraspinatus tear posted for arthroscopic acromioclavicular joint decompression.

Patient had history of fall 15 days back ,had history of snoring with gastroesophageal reflux disease. Patient had past history of tubectomy done 8 to 10 yrs ago. Patient had difficulty in raising her arm ,with difficulty to comb her hair.She complained of arm weakness also.

Weight of the patient was 52 kg , height-158cm ,BMI 20.8.Mouth opening 4.5 cm, mallampatti grade 2,missing teeth with protruding incisors . Thyromental distance-6.5 cm .Vitals : PR -96bpm,NIBP -136/84mmhg ,breath holding time of 20 seconds.

Chest auscultation was normal .Examination of central nervous system was normal, haematological ,biochemical investigation ,ecg, chest xray were normal .In the era of covid-19 ,her RT-PCR done was negative. Patient was accepted under asa grade II .Patient was kept NBM overnight .Patient was given tab ranitidine 150mg and tab alprax 0.25mg hs.Before shifting patient to operation table ,anesthesia machine and drugs and connections were checked. Standard monitors are attached like spo2,ecg,NIBP,etco2 .IV line secured with 20g angiocath over left hand .Patient was premedicated with inj glycopyrollate 0.1mg , inj midazolam 1.5 mg ,inj fentanyl 80mcg iv. Patient was preoxygenated with 100% oxygen .Induction done with inj propofol 120 mg iv,inj scoline 100mg iv .Trachea was secured with armoured endotracheal tube no 7 cuff inflated and tube fixed. Anesthesia was maintained with isoflurane 0.6-0.8% with O2:N2O(50:50).Inj vecuronium 6mg IV was given. Throat packing was done, head was turned to left side.

Under aseptic precaution usg guided interscalene block was given with 25mm stimuplex needle 10ml of 0.25% ropivacaine Vitals were stable intraop with pulse rate ranging from 82bpm to 78bpm .Spo2 maintained at 100%,NIBP maintained between 130/80 to 120/70mmhg.Beach chair position given stepwise and successful maintaining stable vitals .Her requirement of vecuronium is less as excellent analgesia by block was maintained intraop.

Surgeon used 5 to 6 litres of normal saline as irrigation fluid in shoulder joint using an arthroscopic infusion pump at 70mmhg. Procedure lasted for two to two and half hours. Before closure of arthrosopic ports fluid was vented out slowly by maintaining vitals stable .Patient was turned stepwise from beach chair to supine position. Here the neck

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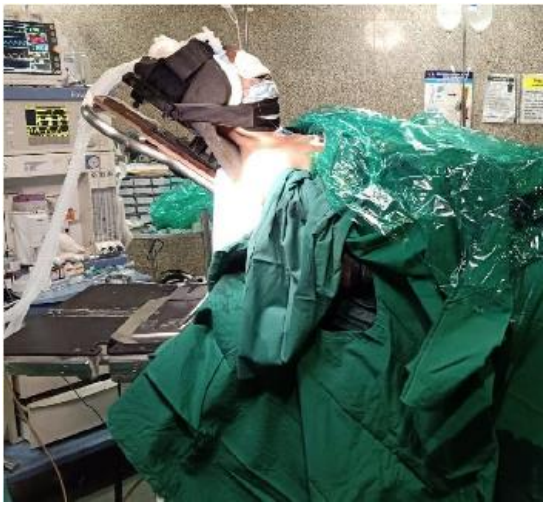
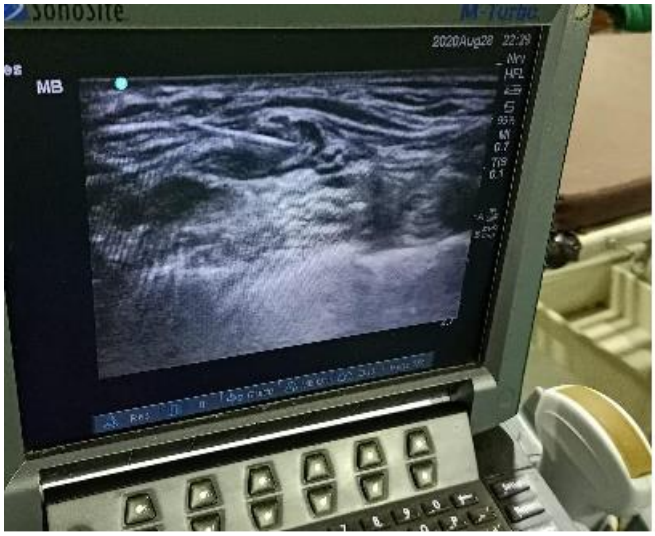
circumference was measured again and it was same as preoperative.

After returning spontaneous respiratory efforts ,neuromuscular blockage was reversed with inj Myopyrolate 5ml iv slowly .Head lift ,muscle power ,ET blast was good ,cuff deflated ,throat pack removed .Patient was extubated ,patient was fully conscious followed oral commands ,haemodynamically stable with vas score of 2.



Usg guided interscalene block



Usg guided interscalene

III. DISCUSSION

Arthroscopic shoulder surgery can be performed in both beach chair position and lateral decubitus position .Regardless of position ,proper setup ,team approach for the positioning are of utmost importance to optimize surgical success and patient safety[2]. In our case ,we had given beach chair position stepwise[3]:

1. Position the patient properly in supine, so that the buttocks will be pressed against the back of the bed.
2. Raise the back of the bed to 60 degrees, shift the patient so the medial scapula is on the edge of the table, folded.
3. Placealargepillowunderneaththepatient'slegs , secure the non operative arm to the patient's abdomen/ an arm board.
4. Position the arm in the proper position using an armpositioner. Secure the patient position with safety belt and tape.
5. Rotate the bed 60-90° to provide surgical team the appropriate amount of space. Secure the head and airway accessibility.

While giving Beach chair position when the anesthetised patient brought upto a sitting position of 45-90°,the maximum reduction of SBP and MAP should be within ≤20° baseline measurement to prevent cerebral hypoperfusion. However cerebral oxygenation monitoring is required in high-risk cases.

Beach chair position[4] advantages are its anatomic position ,easy to examine under anaesthesia and ability to stabilise the scapula,arm not in the way of anterior portal, mobility of the surgical arm and ability to set up arm holder to the operating room table;no need of reposition to convert to an open procedure.

Disadvantages of Beach chair position are increased risk of vasovagal episode ,cerebral ischaemia, hypotension and bradycardia causing cardiac complication, air embolism, visual loss, deafness are rare. As compared to BeachChair position, LD [lateral decubitus] position gives better cerebral perfusion, no risk of hypotension/bradycardia, traction increases space in the glenohumeral joint and subacromial space, cautery bubbles move laterally, so can'tobscure theview etc.

But there are certain disadvantages of LD position like non anatomic orientation, glenoid is parallel to the floor,traction can cause neurovascular /soft tissue injury, increased risk of injury to axillary and musculocutaneous nerve when placing anteroinferior portal, may need to redrape when converted to open procedure.

Large amount of irrigating fluids for good visualisation of surgical field is required. As the subacromial area is uncapsulated, it communicates well via various anatomical planes to the soft tissues of the neck and chest with the risk of fluid extravasation into these areas leading to subcutaneous emphysema, tension pneumothorax etc. It can even cause external compression on the larynx and trachea with threatening airway obstruction.

Unilateral vision loss, deafness, neurapraxia and embolic events, though rare, are associated with beach chair position. Thus, the surgeon must be cognizant of the complications associated with both patients positions and should take extra care in the set up, co-ordinating with anesthesiologist during initial patientpositioning to minimise the risk of complications and patients morbidity.

In our case,also we had given USG guided interscalene brachial plexus block with 25mm Stimuplex needle 10 mL of 0.25% Ropivacaine

IV. CONCLUSION

A successful management of 39yr old female diagnosed with right subcapsular bursitis with right supraspinatus tear in a beach chair position with combination of general anaesthesia with interscaleneblock provide ideal conditions for the patient undergoing shoulder arthroscopy

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