

APPENDICITIS IN THE ELDERLY PATIENT WITH MULTIPLE CO-MORBID CONDITIONS: CASE REPORT

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ABSTRACT

Acute appendicitis is commonly encountered surgical emergency worldwide.¹ Although, it is commonly found in young and middle aged groups, the incidence of the diseases in geriatric age group is very rare and possesses a great challenge to safe technique of anesthesia due to co-existing comorbid conditions and medications used.² Geriatric population are more susceptible to complications of appendicitis.³ This is a case report of 82 years old male patient, presented with appendicular perforation with localized abscess formation in a septic state with multiple comorbid condition. Routinely performed Spinal and general anaesthesia adds further challenge in management of this patient during and after surgery. Therefore, we performed the case in regional nerve block; paravertebral, ilioinguinal- iliohypogastric (ILIH) and coeliac plexus block and sedation.

KEYWORDS

Acute appendicitis, peripheral nerve block, coeliac plexus, paravertebral

CASE REPORT

This is a referral case of acute appendicitis of 82 years old male from other centre for regional anesthesia. He is a known case of diabetes II, hypertension, chronic obstructive airway disease on domiciliary oxygen and left frontal lobe gliosis. He was under tab. leveteracetam 500 mg BD, Tab rosuvastatin 10 mg OD, tab. amlodipine 5mg /losartan 50mg OD, Tab. clopidrogel 75 mg OD, Tab. aspirin 75 mg OD, tab metformin 500 mg BD, R/C budesonide /formetrol BD.

Lab investigations showed total count -16500 (N80,L15, E3, M1, B1) cells/cumm, haemoglobin -17 gm/dl, platelets 80,000cell/cumm, prothrombin time -21sec and international normalization ration 2.5, blood group A positive.

Serum biochemistry showed: sodium 140 meq/l, potassium 4.9 meq/l, random blood sugar -200 mg/dl, urea-55 mg/dl, creatinine-1.5 mg/dl chest X-ray showed hyper-inflated lung fields with diffuse opacities. ECG was unremarkable.

Ultrasonographic study of abdomen showed mild fatty changes in liver, right renal paraplevic cyst, ill defined collection in right iliac fossa with probe tenderness was noted. Appendix was not visualized.

Risks and benefits of the regional anesthesia and procedure were explained to the patient and his relatives and written consent was obtained for the procedure.

METHOD

On arrival in the operation theatre, standard ASA monitoring was done. Baseline values were blood pressure: 100/70mmHg, PR-100/min, SpO₂-53% in room air and 90% with oxygen supplementation at 6 lt/min via facemask in semi recumbent position.

Patient was sedated with midazolam of 0.5mg and fentanyl 25 mcg. Patient was kept in left lateral position. Under all aseptic precaution precaution 26 gauge spinal needle and color doppler was used in all procedures considering risk of bleeding.

Paravertebral block

Linear probe was used for paravertebral block. Scanning was done from midline identifying spinous process of T9 thoracic vertebrae. Probe was moved laterally and caudally to identify transverse process and intercostal muscle hence paravertebral space. Needle was then introduced in in-plane technique. 0.25% bupivacaine 25 ml was then injected in space and drug spread was confirmed by real time imaging (Fig.1).



Figure 1: Showing needle insertion and LA spread in Paravertebral space.

Coeliac plexus :

Coeliac plexus was approached from posterior side using convex probe ultrasound.

First lumbar vertebrae and upper pole of kidney were identified in transverse view (Fig.2)[4,5].

View was optimized such that kidney and only vertebral body were identified. Out of plane technique was used to reach anterolateral side of vertebrae in real time. Adequate depth was confirmed by depth measured in Ultrasound . Before injecting the drug, 300 ml of plasmalyte was administered to prevent hypotension. 15ml of 0.5% lignocaine with adrenaline was injected and probe placed in epigastrium to confirm drug spread (Fig.3). Same process was done for other side side.



Figure 2: Showing renal Vessels (RV) and Lumbar 1st vertebrae

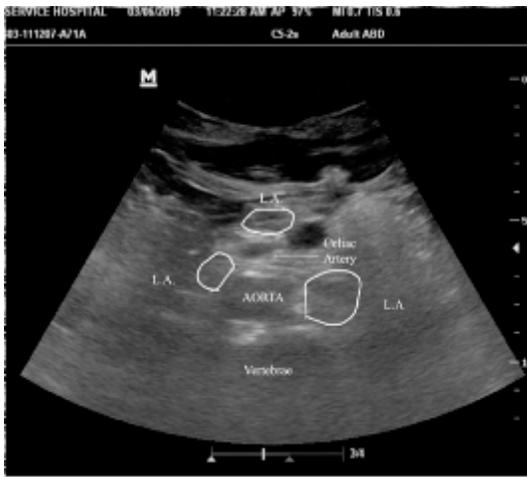


Figure 3: Anterior view of drug spread around aorta and celiac artery

Ilioinguinal – Iliohypogastric Nerve block

Linear probe was used to identify iliac crest and abdominal muscles. 10 ml of 0.25% Bupivacaine was injected in in plane technique after identifying nerves. Adequacy of the block was checked by performing pinprick test after achieving anesthesia in required dermatome (T8-L1 dermatome level) then only surgery was proceeded. Dexmedetomidine was started in titrated maintenance dose. Further 25 mcg of fentanyl was used 2 mins before incision. Grid iron incision was given and surgery carried out. Intra operative finding was appendicular lump with localized abscess. Duration of surgery was 45 mins and lumpectomy was done. Dexmedetomidine was stopped during closure of abdominal wall muscle. Patient had the Ramsay sedation score of 2 at the end of surgery. Patient was kept in surgical intensive care unit for 2 days for close monitoring. Patient was kept in ward for next 3 days then discharged on oral antibiotics and continuation of his regular medicines.

DISCUSSION

In the recent years, ultrasound guided peripheral nerve block (PNB) is gaining popularity for analgesia and anesthesia. Being resource limited country practice of PNB for anesthesia is more common in our region. Patient undergoing emergency surgery with co-morbid condition like COAD on domiciliary oxygen can develop several post-operative complications like delayed recovery from general anesthesia, post operative lung atelectasis, difficult weaning.

Though all procedures and surgery itself carry high risk of bleeding in this case. Neuroaxial intervention carries highest risk and devastating complication⁶ in patient with deranged INR of 2.5 & hence avoided. Use of small gauge 26 G spinal needle under real time guidance with color doppler can identify vessels thus decrease risk of bleeding and will be an excellent alternative⁷.

Total of 35 ml 0.25% bupivacaine plane was used for the

procedure which is within recommended safe limit. However there might be altered pharmacodynamics in geriatric age groups and have to act judiciously as it's not possible to get report of expected changes in absorption, metabolism and elimination and act accordingly.

Maximum dose of local anesthetics presented in textbooks or companies are not evidence based.

Toxicity depends on peak concentration of drugs in blood which is multifactorial like injection near artery, using higher concentration of drugs, presence of adipose tissues at that site, lipophilic nature of drugs, size of needle used, use of adrenaline along with local; apart from volume and pharmacodynamics⁷. Toxic dose should be revised as per site and technique specific.

Similar plasma concentrations of lidocaine are achieved after 300 mg in intercostal nerveblock, after 500 mg in epidural block, after 600 mg in brachial plexus block, and after 1,000 mg in subcutaneous infiltration of the skin of the legs demanding site and techniques specific recommendation for maximum safety dose⁷.

Celiac plexus block was first used in 1946 by Pitkin as a blind technique for surgical anesthesia and later gained popularity as a choice of analgesic for pancreatic carcinoma and abdominal visceral pain. Various approaches transintervertebral discal, transcrural, transaortic, posterior (retrocureal) & anterior approaches has been described¹⁰. All of which techniques identifies L1 or T12 vertebrae as a bony landmark. Similiary renal vessels which arise from L1 & taken as landmark in USG. Furthermore real time imaging provides safety not injuring kidney, small, large vessels & real time drug spread can be possible to visualize with USG only adding further safety over C-arm technique.

Role of regional anesthesia in abdominal surgeries peripheral nerve block is limited to post operative analgesia worldwide, however when performed by routinely practicing anesthesiology it is very safe compared to any other techniques and can be used as an anesthesia technique with high success rate⁵.

CONCLUSION

PNB with sedation is an excellent technique for appendectomy surgeries in high risk and geriatric age group and pave a path to be used routinely in future in these group.

CONFLICT OF INTEREST

None

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None

FINANCIAL DISCLOSURE

None

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