

*Case Report*

Exploratory Laparotomy done under IM+IV Sedation & Upper Abdominal Field Block in a Rare Case of Severe Mitral Stenosis with RVHD, Pulmonary Hypertension and Pulmonary Oedema with Atrial Fibrillation Having DU Perforation

Shashi Jadhav Patil¹, Yashwant S. Patil²

¹Consultant at Sanjeevan Super Speciality Hospital and DNB Institute, Satara.

²Head of DNB Institute, Professor & Guide of DNB Gen. Surgery, Sanjeevan Super Speciality Hospital, Satara.

Corresponding Author: Shashi Jadhav Patil

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ABSTRACT

A 75 year old female was referred from peripheral hospital as case of DU perforation. X-ray erect abdomen showed gas under diaphragm. 2D-ECHO showed severe mitral stenosis, atrial fibrillation with EF55%. Chest radiograph showed bilateral lower zone congestion. Patient was not fit for any type of anaesthesia and deteriorating. Patient was operated under field block anaesthesia and the closure of DU was done. Abdominal field block anaesthesia was given with prior intravenous/intramuscular sedation. This was the first case to be operated under field block anaesthesia in our institute.

Key Words: Laparotomy, Transverse abdominis plane, Field Block Anaesthesia, DU perforation

INTRODUCTION

Patient with rheumatic valvular heart disease in severely decompensated cardiac status, old age with multiple comorbid conditions for major abdominal surgery raises chances of perioperative complications. Regional anaesthesia remains an attractive options where the morbidity, mortality risk is very high particularly in elderly patients. Abdominal field block anaesthesia a combination of subcostal nerve block and rectus sheath block in transverse abdominis plane is being used. There are recent reports of ultrasound-guided approach and subcostal technique for TAP block for abdominal surgeries above the umbilicus. We herein report a case of elderly female who successfully underwent

emergency upper abdominal surgery using this technique of abdominal field Block Anaesthesia supplemented with Intramuscular, Intravenous Sedation. We also discuss how the compromised cardiac patient did well intraoperatively and postoperatively.

CASE REPORT

A 75 year old female patient was brought to emergency room with severe abdominal pain, breathlessness since yesterday, with h/o abdominal pain since last 15 days. Patient had past history of Ca breast operated with chemo radiation taken, Rheumatic Valvular Heart Disease not on regular treatment, Bronchial asthma, # femur nailing done with broken implant in

recent past, ambulation with walker. On physical examination patient was febrile 101⁰F, tachycardia HR-120/min, blood pressure of 90/60 mm of Hg, Respiratory Rate-26/min, oxygen saturation-93-94%, raised jugular venous pressure, severe dehydration with pedal edema. Jugular venous distension was observed with basal crepitations on chest auscultation. Oxygen at 4 litres/min via venti mask was applied to patient. Nasogastric and urinary catheterization was done. Intravenous access was secured and isotonic ringers lactate fluid and antibiotics were started. On admission, Hemoglobin was 11.9gm%, white blood cell count-13000/cmm, platelet-2.25lakhs/cmm, random blood sugar-108mg/dl, serum sodium-125.5meq/l, serum potassium 5.71meq/l, serum calcium-8.8meq/l, Blood Urea-39.3, serum creatinine- 1.7. sero negative, Australia antigen neative. Electrocardiogram showed atrial fibrillation, old septal wall myocardial infarction. Patient was moved in intensive care unit for further management.

As patients gc was poor, patient was in severe dehydration, hypotension, septicemia, raised JVP with bilateral chest congestion immediate central venous line was annulated for guarded fluids and CVP monitoring. USG abdomen showed mild to moderate fluid collection in abdomen, sluggish to absent bowel peristalsis, ?bowel perforation. 2DECHO showed severe mitral stenosis, dilated left atrium, moderate pulmonary hypertension, atrial fibrillation, ejection fraction 55%. Physician advised following medications, Inj. Digoxin stat over 10min, Inj. Amiodarone 150mg iv tds, Inj. Lasix 20mg iv 4 hourly, Inj. Doxofyllin 100mg iv bid, Inj. Effcorlin 100mg iv tds, nebulization tds. CVP of 11cm Of H₂O, blood pressure dropped to lower limit of systolic 70mm of Hg. Overnight patient maintained blood pressure of systolic 100mm of Hg. Patient was planned for

definitive surgery, laparotomy with closure of DU.

On day 2 patient's general condition was slightly improved and the decision of operation was made. Before shifting the patient to operative table half an hour before patient was given Inj. Phenargan 1 amp IM and Inj. Diclofenac 50mg IM. Patient was given Inj. Glycopyrolate 0.2mg iv, Inj. Midaz 1mg iv, Inj. lasix was withheld on the day of surgery. Upper abdominal field block anaesthesia was given. It was given in the area of upper abdominal wall (as shown in figure 2). Nerve endings of each segment lie in a plane between transverse abdominis and internal oblique muscle (as shown in fig 1).

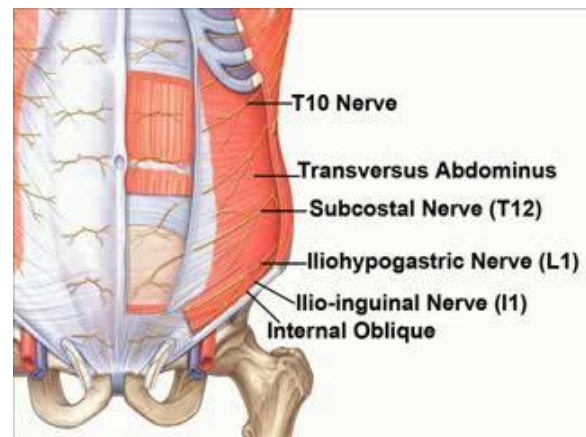


Figure-1. Nerve endings of abdominal segment.

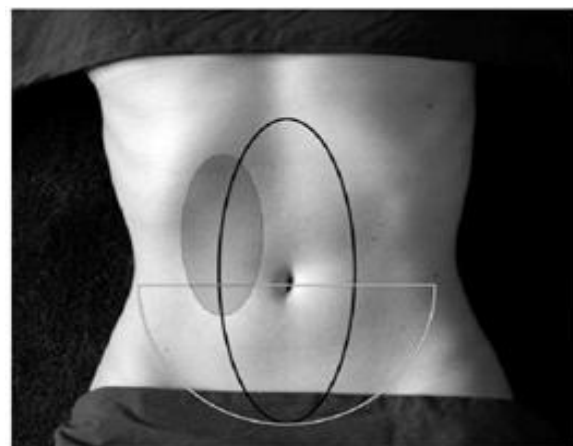


Figure-2. Comparison of sensory block achieved by rectus sheath block (large black circle over abdominal midline), bilateral standard TAP block (grey semicircle over lower abdomen), and unilateral oblique subcostal TAP block (which can vary but approximately covers the area shaded in grey in upper abdominal quadrant).

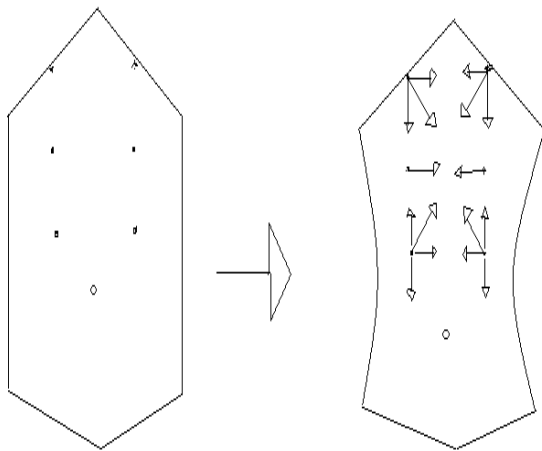


Figure-3. Points of drug infiltration which were merged later in superficial plane in fanning way.

Preparation: Inj. 2% Lox 70ml diluted in 200ml of NS. Abdominal field block was given in following way.

1. In 20cc syringe with 21 gauze spinal needle the above preparation was given at the tip of xiphisternum opposite the body of T9.^[1]
2. One on each side at the 9th costal cartilage, where the rectus muscle originates.^[1]
3. One on each side at the lateral margins of the rectus just above the Umbilicus.^[1]
4. One on each side at the lateral margin of the rectus below the umbilicus wheals were raised at all these points and later deep injections were given at these points. All above points were later connected to each by infiltrating local (as shown in figure 3). The incision site i.e. midline incision above umbilicus was also infiltrated.^[1]
5. The patient was fully sedated and there was sufficient analgesia and relaxation of abdomen to do exploratory laparotomy.^[1]

Patient underwent Laparotomy with upper abdominal midline incision which showed the large anterior wall DU perforation with free fluid all over. Thorough suction and peritoneal wash was given with normal saline 2- 3 times. Closure of DU perforation in single layer with

placement of omental patch was done. Corrugated rubber drain at perforation site and tube drain in pelvis were placed on right and left side respectively. Abdomen was closed in layers and patient was immediately moved to Intensive care unit for further monitoring.

DISCUSSION

DU perforation remains the dreaded complication of Chronic duodenal ulcer, which if not treated in time worsens the general condition of patient, recovery, extends the stay and overall increases the morbidity and mortality. If patient does not have significant past medical history it is easy to select any type of anaesthesia for definitive surgery. Problem arises when patient has multiple associated illnesses along with. Especially cardiorespiratory status, which plays a crucial role in altering the hemodynamic state considering the current surgical pathology. This adds to the increased morbidity and mortality in perioperative period.

Though multiple studies have examined the influence of various anaesthetic drugs and techniques of monitoring on cardiac morbidity, it appears that there is no one best myocardial protective anaesthetic technique.^[2-5]

Though there are good options available in field of anaesthesia if u apply them in your routine practice. If any of the type of the anaesthesia is questioned for the operative in a patient with multiple illnesses, regional anaesthesia in the form of field block anaesthesia is a choice.

Monitored anaesthesia care (MAC) including local anaesthesia and IV sedation/analgesia was associated with increased 30-day mortality in a study by Cohen et al.^[6] MAC can eliminate some of the general and neuraxialanaesthesia-related complications, but inadequate analgesia, inadvertent vascular injections and systemic

toxicity of local anaesthetics is still a possibility.

Abdominal incision and parietal peritoneum (somatic) contribute maximally towards pain of a laparotomy. Terminal branches of T7-T12 and L1 somatic nerves course through the lateral abdominal wall within a plane between the internal oblique and transverses abdominis called as transverses abdominis plane (TAP) (as shown in figure 1). Additionally subcostal TAP described by Hebbard et al. for an upper cholecystectomy subcostal incision just parallel to the right subcostal margin about 6-7 inches in length. ^[7] Apart from the usual beneficial effects of regional anaesthesia technique on postoperative morbidity, TAP block reduces the surgical stress response. ^[8] Neural blockade techniques can attenuate the classic pituitary, adreno-cortical and sympathetic responses to surgery thereby reducing postoperative organ dysfunction and facilitating early recovery. ^[9] The sustained release of catecholamines due to unattenuated surgical stress response would result in hypertension, tachycardia, and dysrhythmias may lead to myocardial ischaemia in susceptible patients like this one. Obtundation of surgical stress response with use of TAP block was the key to early and successful recovery of our patient with cardiac compromise. It has been reported earlier that volume of injectate is critical to the success of TAP block and in an average sized adult, 30 ml of local anaesthetic agent can be used for unilateral block and 25-30 ml on each side for a bilateral block. ^[10] Lignocaine, bupivacaine and ropivacaine have been used so far strictly adhering to maximum recommended dose of each individual agent. ^[10]

CONCLUSION

Field block anaesthesia could be a regional anaesthesia of choice for the high

risk, elderly patients with multiple comorbidities associated in coming days. It's the simple technique with no chance of major perioperative complications. It offers good postoperative analgesia. Failure of block if the drug is not injected in the proper plane is only the weakness. This could be a good option if practiced routinely in some big institutes. Being in a periphery we have tried our level to manage this case with minimum of advances available at our setup.

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