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Case Report

Ultrasound Guided Femorosciatic Block for Diabetic Foot Ulcer in a Psychiatric Patient with Sepsis, Anaemia and Coagulation Defect

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ABSTRACT

Diabetes mellitus is a metabolic disorder of multiple etiology characterized by chronic hyperglycemia with disturbances in carbohydrate, fat and protein metabolism, due to defect in insulin secretion, insulin action or both. Complications of Diabetes mellitus are macrovascular (coronary artery disease, peripheral vascular disease), microvascular (diabetic nephropathy, neuropathy and retinopathy), electrolyte and metabolic derangements. Foot ulcer is a common complication of diabetes mellitus with deranged Blood Sugar Level, which needs debridement or amputation. As central neuraxial block is contraindicated and general anaesthesia is risky in our patient due to coagulation abnormalities, anaemia, sepsis and left lung pneumonia. Hence, we planned for femorosciatic block.

Anaesthetic management in debridement or below knee amputation of diabetic foot patient with anaemia, depression, sepsis, coagulation abnormalities with deranged liver function tests and renal function tests is challenging as central neuraxial block and general anaesthesia is risky in such case. Case was successfully managed under ultrasound guided femorosciatic block.

Case Report

44yrs old female, known case of diabetes with depression on antipsychotic medication was diagnosed with left foot ulcer in sepsis with anaemia, coagulation abnormalities and left lung pneumonia and was posted for below knee amputation. Preoperatively patient was

on injection noradrenaline infusion owing to hypotension. Patient is a known case of diabetes since 7 years, on injection human atrapid insulin subcutaneous fixed dose and injection basalog 80 units subcutaneous HS, known case of depression since 8 yrs on treatment, tablet alprazolam, tablet sertraline. Three packed cell volumes and two fresh frozen plasma transfused in view of low haemoglobin.

On general examination, she was afebrile with pulse of 100/min, blood pressure of 108/66 mmHg in supine position, maintaining saturation 94% on room air and respiratory rate 20/min. On systemic examination, patient was conscious oriented, on auscultation air entry decreased on left side, heart sounds S1 S2 heard. Her lab investigations showed preoperative blood sugar level 122 mg/dl, mild anaemia, raised total leukocytes, deranged PT INR, LFTS, RFTS. Chest X ray showed left lower zone haziness. USG (A+P) showed mild hepatomegaly. Urine analysis showed 1-2 RBC/hpf, 34-35 pus cells/hpf.

Plan of surgery was below knee amputation as she was in septic shock. We planned to give femorosciatic block as there were contraindications to general anaesthesia and central neuraxial block.

After obtaining written informed consent with high risk explained and confirming nil per oral status, patient shifted to operation theater and all standard moniters were attached. Patient was positioned laterally, under all aseptic precautions, ultrasound guided popliteal nerve

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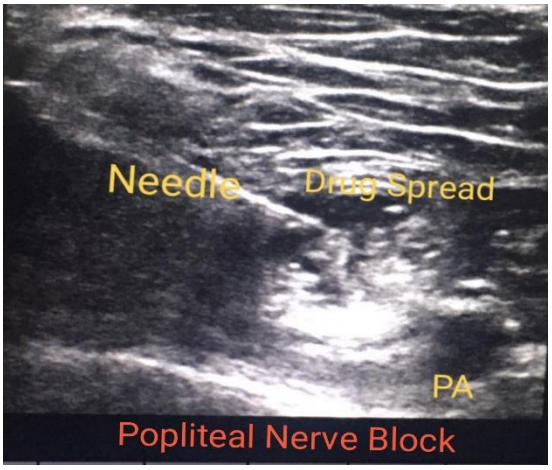
block given with injection bupivacaine 0. 5% 10cc and injection lignocaine+adrenaline 2% 10cc (Figure 1). Femoral nerve block was given with injection bupivacaine 0. 125% 10cc and injection lignocaine+adrenaline 1% 10cc. Hydrodissection can be seen (Figure 2). Adequate action achieved. Tourniquet was inflated after milking out the blood with esmarch bandage to avoid intraoperative blood loss. Intraoperative blood sugar level was monitored. Postoperatively patient was shifted to surgical intensive care unit for monitoring and observation. VAS score was monitored for 24 hours.

Figure 1- Image showing position of patient and position of probe while giving femorosciatic neuraxial block

Figure 2- Image showing ultrasound guided femorosciatic nerve block-needle placement, drug spread



Discussion

Diabetes mellitus comprises a group of metabolic disorders that share the common phenotype of hyperglycemia. INDIA is the diabetic capital of world. Metabolic consequences of surgical stress and anaesthesia leads to increase in hepatic glucose production, stimulates protein catabolism and promotes gluconeogenesis, increase in catecholamines, glucagon, cortisol and growth hormone results in excess release in inflammatory cytokines, enhanced lipolysis and high free fatty acid concentrations which inhibit insulin, stimulated glucose uptake, relative state of insulin resistance contributes to need of strict monitoring and management of blood sugar level. Diabetes complications like peripheral neuropathy which interfere with assessment of regional block, stiff joints supporting airways makes difficult neck extension and laryngoscopy.

Type, duration of diabetes mellitus, medications, level of glycemic control, end organ damage particularly autonomic dysfunction, nature of surgery (minor or major), need for critical care are the factors affect perioperative anesthetic management of diabetes mellitus. Goals of anaesthetic management should aim at avoiding exacerbation of outflow tract obstruction due to sympathetic stimulation. Since, general anaesthesia results in sympathetic response during airway manipulations, during intermittent reduction in neuromuscular action, it was not our prefered anesthetic modality. Neuraxial block was contraindicated as patient was in sepsis with hypotension and coagulation abnormalities [1]. Ultrasound guided single shot femorosciatic neuraxial block has seldom been used as a sole anesthetsic technique in such cases. Chaudhary SK et al.found prolonged postoperative analgesia with ultrasound guided femoro sciatic nerve block in below knee orthopaedic surgeries under subarachnoid block [2]. This technique avoids risk of postoperative residual paralysis, hypoxia, cardiovascular instability [3]. Femorosciatic nerve block provides regional anaesthesia, postoperative analgesia without haemodyanamics or systemic disturbances and exact region of surgery is anaesthetized even in patients with cardiovascular disease [4]. As the patient was awake, airway and saturation was maintained. Ultrasound guidance provides precision and less requirement of drugs.

Conclusion

From our case of diabetic foot amputation with depression, sepsis, anaemia, hypotension and coagulation abnormalities, it can be concluded that femorosciatic neuraxial block is safe and effective technique for anaesthesia as well as postoperative analgesia in such high risk cases. So we hereby recommend use of femorosciatic neuraxial block for lower limb surgeries when central neuraxial block is contraindicated and general anaesthesia may require prolong postoperative ventilation.

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