

ULTRASOUND-GUIDED PSOAS COMPARTMENT BLOCK IN GENITOFEMORAL NEURALGIA WITH LATERAL FEMORAL CUTANEOUS NERVE INJURY AFTER LUMBAR SYMPATHETIC BLOCK – A CASE REPORT

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ABSTRACT

Lumbar sympathetic block (LSB) and chemical sympathectomies are used for the pain treatment of Complex Regional Pain Syndrome (CRPS). 45-year-old patient was followed in our pain department with clinical signs and symptoms of CRPS after tibiofibular fracture. We did Lumbar sympathetic block with alcohol sympathectomy for several times for treatment reasons. After last procedure, patient experienced profound pain relief. But after 1 week later, Groin pain with tingling sense in anterior thigh was developed as side effect. We assessed patient's symptoms for Lumbar sympathetic block induced Genitofemoral neuralgia and lateral femoral cutaneous nerve injury. Therefore, we did psoas compartment block for diagnostic and therapeutic injection. The patient has had relief of pain for few months.

KEYWORDS : Neuralgia, Nerve block, Ultrasonography

INTRODUCTION

Lumbar sympathetic block (LSB) can be used to treatment complex regional pain syndrome (CRPS), neuropathic pain, postherpetic neuralgia, and vascular insufficiency[1]. Although complication from LSB itself is very low, complication can be occurred, such as hypotension, bleeding, nerve root injury, neuritis/neuralgia, paralysis, neuraxial injection, and renal puncture or trauma[2]. Adverse effect with damage to genitofemoral nerve(GFN) and lateral femoral cutaneous nerve(LFCN) during LSB is also one of the reported complication due to its anatomical characteristics[3][4].

Treatment of genitofemoral neuralgia and lateral femoral cutaneous nerve injury differs among the physicians. In this case, patient's symptoms correlated with not only genitofemoral neuralgia but also lateral femoral cutaneous nerve injury after LSB, we did ultrasound-guided psoas compartment block for diagnostic and therapeutic purposes. And the patient's pain is relieved for several months.

CASE REPORT

A 45-year-old man presented to our pain clinic, with chronic left distal leg pain for 6years. His medical history included diabetes mellitus and orthopedic surgery followed after left tibiofibular fracture. He complained of severe left lower leg pain, the numeric rating scale(NRS) score 8/10, with tingling sense after 1 month from his leg surgery.

Physical exam showed significant tenderness, hyperesthesia with tingling sense in surgery area, decreased range of motion at left knee and ankle. And left lower extremity was about 0.5°C warmer than the right lower extremity. Electromyography and nerve conduction study was done, it appears left tibial and peroneal neuropathy. Since then, we prescribed gabapentin, hydromorphone, fentanyl patch to control his pain, but its effect was minimal. We did sciatic nerve block and lumbar epidural steroid injection. But its effect lasts for only days to weeks.

A differential diagnosis of peripheral neuropathy versus CRPS was given and the patient was scheduled for left lumbar sympathetic block. We did lumbar sympathetic block for once a year for 3years and its effect last 2~3months. For the procedure, the patient was lie down in prone position with EKG, oxygen saturation, blood pressure monitoring without any sedation.

Last time of pre-procedure lower extremity temperature measured 26.64°C on the left foot and 25.98°C on the right foot. We placed the tip of the needle at the left anterolateral aspect

of the L2, L3 vertebral body. 3mL of iohexol was injected and appropriate contrast spread was demonstrated [fig. 1].

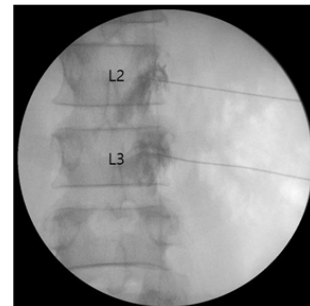


Figure 1: Lumbar sympathetic block

5mL of 2% lidocaine was injected in each L2, L3 levels without significant changes in vital sign or other signs of complications. After 10 minutes, left foot temperature was noted to be 30.14°C, approximately 5°C change, while the right foot temperature remained at 25.68°C. Right after, we injected 2mL of 95% alcohol at each level to generate neurolysis.

After 7 days, we followed up patient in the outpatient treatment and left lower extremity pain and tingling sense was decreased, NRS score 2/10, compare to pre procedure, NRS score 8/10. But newly onset of tingling sense in left anterior thigh with severe pain in left groin and scrotal was occurred after 1 week after LSB. In his left anterior thigh, tingling sense was persisted for all day with hypoesthesia and the groin pain continuous and dull with a heavy nature. He described his pain as NRS score 7/10 which lead to discomfort with physical activity and sensory numbness.

We assess patient's pain as genitofemoral neuralgia with lateral femoral cutaneous nerve injury and decided to perform ultrasound-guided psoas compartment block for diagnostic and therapeutic injection [fig. 2].

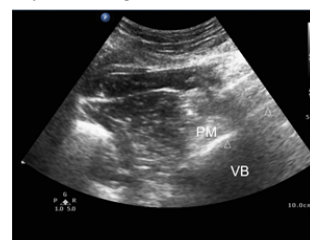


Figure 2: Psoas compartment block

PM; Psoas muscle, VB; Vertebral body, Arrowhead; needle

The patient was placed in the lateral decubitus position with the side with left side facing up. A low frequency curved linear ultrasound transducer (Logiq V2; GE healthcare, IL, USA) was placed transversally in the abdominal flank, immediately cranial to the iliac crest to visualize L4 vertebral body, transverse process, psoas, quadratus lumborum muscles. After local anesthetic skin infiltration with 1% lidocaine 3mL, 22-gauge 100mm insulated needle was inserted parallel to the probe, using in-plane technique. The needle was advanced in the psoas compartment area and confirmed with ultrasound image and loss of resistance. Then, local anesthetic mixture of 0.5% mepivacaine 10mL was injected incrementally with frequent aspiration to detect any possible intravascular puncture.

After 2 weeks, intensity of pain came down to NRS score 2/10, and the frequency of pain was also decreased. We did second psoas compartment block subsequently. And after 2 weeks, patient's groin pain and tingling sense in lateral thigh was relieved. His pain relief has continued over 4 months.

DISCUSSION

In treatment of sympathetically maintained pain syndrome after CRPS or peripheral arterial occlusive disease, approximately 60% of symptomatic ischemic injury in the lower limbs and 44% of sympathetically maintained pain syndrome patients are benefit from LSB and chemical sympathectomies. But there were several reports genitofemoral neuralgia and lateral femoral cutaneous nerve injury followed after lumbar sympathetic block[2][4][5][6].

The genitofemoral nerve leaves the spine through anterior division of the first lumbar nerve(L1), and makes its way through the psoas muscle. And lateral femoral cutaneous nerve leaves the spine through posterior division of second and third lumbar nerve(L2-3). They both emerge from the border of the psoas major muscle and divides into branches which are distributed to the groins, inguinal area, thigh.

Treatment in genitofemoral neuralgia and lateral femoral cutaneous nerve injury is differ from case to cases in order to get the best relief of pain with the fewest side effects. Treatment options may include medications, such as anticonvulsants, nerve blocks, steroid injections, even surgical intervention can be considered to relief the pain.[8] In treatment of lateral femoral cutaneous nerve injuries after LSB, There were report of implanting spinal cord stimulation (SCS) system which led to significant pain decreasing, reduction of the area with allodynia and its intensity [3].

Genitofemoral nerve injuries can also occur after surgical procedures or pharmacologic interventions. CT-guided transpsoas genitofemoral nerve block and ablation is a viable option for safely and selectively blocking the genitofemoral nerve for diagnostic of therapeutic purposes. [9].

In our case report, patient complained of symptoms which correlation with both genitofemoral neuralgia and lateral femoral cutaneous nerve injury. Therefore, we should have considered treatments includes effects to both symptoms.

The psoas compartment block as a regional anesthetic technique is often performed at the level of L4-5 to reach the lumbar plexus, which is located in the posterior part of the psoas muscle. The major branches of the lumbar plexus are the genitofemoral nerve, lateral cutaneous femoral nerve of the thigh, femoral, and obturator nerve. [10].

With doing psoas compartment block instead of individual nerve blocks, may be less effective in pain relief than separate

nerve block for each symptom, but "upper level" nerve block can be done in single procedure that both effects to lateral femoral cutaneous nerve and genitofemoral nerve.

The efficiency of Ultrasound guided psoas compartment block is already proved. [11] and recently it is widely used in clinical fields with easily access. In a limited case similar to our patient, psoas compartment block may be a therapeutic alternative choice.

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