A Rare Complication of Retrograde Ejaculation after Lumbar Sympathetic Block and its Spontaneous Recovery : A Case Report

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Bilateral block of the lumbar sympathetic nerve may lead to ejaculation disorders, but few cases have been reported. A 40-year-old man developed TAO (thromboangiitis obliterans) in his left lower extremity 18 years ago. He underwent left lumbar sympathectomy (L2-L4) for the ulcer and pain in the left extremity 2 years later. He then developed an ulcer in his right extremity and received a chemical right lumbar sympathetic block at the L3-L4 level. After the procedure, the ulcer healed and the pain disappeared, but the patient developed retrograde ejaculation, which continued for 18 months. Seven months after recovery from the retrograde ejaculation, the pain in his right extremity recurred. We recognized that a patient with left lumbar sympathectomy (L2-L4) was at risk for retrograde ejaculation when the right lumbar sympathetic nerve block was added. Thus, we blocked the right lumbar sympathetic ganglia at the L3-L4 level to ameliorate the pain and ulcer in his toes while preserving the ganglion at L2. In this case, the retrograde ejaculation lasted for 18 months. The patient's pain in the right extremity recurred 7 months after recovery from the retrograde ejaculation. We assume that regeneration of his right lumbar sympathetic nerve contributed to the spontaneous recovery from the retrograde ejaculation, and subsequently the recurrence of the pain in the right extremity. *Shinshu Med J 69 : 53—56, 2021*

(Received for publication June 1, 2020 ; accepted in revised form September 8, 2020)

Key words : chemical lumbar sympathetic block, lumbar sympathectomy, retrograde ejaculation

I Introduction

The chemical lumbar sympathetic block is a technique that relieves limb pain caused by ischemic ulcers in patients with advanced peripheral arterial disease[1]. Bilateral block of the lumbar sympathetic nerve has been known to cause ejaculation disorders[2] although few cases were reported previously. Also, there is little information about the prognosis of ejaculation disorders caused by chemical lumbar sympathetic block. We report a case with thromboangiitis obliterans (TAO) who developed retrograde ejaculation caused by chemical lumbar sympathetic block and recovered 18 months later.

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II Case report

A 40-year-old man who was a chain smoker without a previous medical history developed TAO in his left lower extremity 18 years ago. Oral administration of cilostazol and smoking cessation therapy were given but the symptoms gradually worsened probably because of his smoking. He underwent left lumbar surgical sympathectomy (L2-L4) for the ulcer and pain in the left extremity in the department of vascular surgery of our hospital 2 years later. It has not recurred in his left lower extremity to date. Six years after that, he developed an ulcer in the second toe on the right foot and underwent popliteal-plantar artery bypass surgery in the right extremity.

Six years after the bypass surgery, he developed an ulcer in the first and third toes on the right foot due to the graft occlusion but did not undergo bypass surgery because of his nicotine dependency. Then he visited our outpatient clinic for nerve block treatment in his right lower extremity. He had four children and did not want future reproductive activities. He understood the risk of sexual dysfunctions caused by the bilateral lumbar sympathetic blockade and written informed consent was obtained. The procedure of the right lumbar sympathetic block was performed as follows.

Under fluoroscopic guidance, a 23-gauge 140-mm spinal needle was advanced to the right anterolateral border of the L3 and L4 vertebral bodies. The needle position was confirmed by fluoroscopic imaging. Injection of 3.0 mL iohexol with 3.0 mL of 2 % lidocaine was performed at each vertebral level (L3, L4), and smooth spread of the contrast media along the psoas fascia was confirmed. The skin temperature of the right first toe increased by 0.7° C (34.2° to 34.9°). We confirmed the absence of changes in the sensory and motor functions of his left extremity 15 min after the injection. Absolute ethanol (3 mL) was injected at each vertebral level, and no complications were observed.

After this procedure, the ulcer healed and the pain disappeared, but the patient developed retrograde ejaculation just after the bilateral lumbar sympathetic blockade, which continued for 18 months. He has no other sexual dysfunctions such as erectile dysfunction except for the retrograde ejaculation. The pain and ulcer in his right great toe occurred seven months after the recovery from retrograde ejaculation. He underwent smoking cessation therapy in hospitalization and amputation of his right great toe in the department of vascular surgery. It has not recurred in his right extremity to date.

Ⅲ Discussion

The lumbar sympathetic ganglia are anatomic structures located anterolateral to the vertebral bodies, where the psoas muscle attaches. Dissection of cadaveric specimens demonstrates marked variabilities in the anatomy of the ganglion structure. The number of ganglia reported is generally 3, but may be as many as 5, which are separated or fused in a chain[3)4)]. The lumbar sympathetic ganglia are commonly blocked at the L2-L4 levels for pain relief[2)].

Retrograde ejaculation is most commonly due to the use of medications or surgical procedures that relax the bladder neck, but can also result from retroperitoneal lymph node dissection, spinal cord injury, neurologic disorders, diabetes mellitus and bilateral lumbar sympathetic blockade[2)5)].

Ejaculation is a complex process controlled by the interaction of peripheral, cerebral, and spinal sensory and motor neuron pathways. Normal ejaculation comprises a sequential series of events : emission transport of seminal fluid and sperm into the prostatic urethra, closure of the bladder neck, and ejaculation of seminal fluid in an antegrade direction. Sympathetic nerves arising from the Th10-L2 spinal level mediate contraction of the prostate and seminal vesicles to deposit seminal fluid into the posterior urethra (emission), with simultaneous closure of the bladder neck to prevent retrograde flow of the semen. On the right, the postganglionic sympathetic fibers arise from the right sympathetic trunk, which is located posterior to the vena cava. These fibers travel anteriorly along the posterior surface of the inferior vena cava to the interaortocaval space and course over the anterior aorta. On the left, the sympathetic fibers arise from the left sympathetic trunk posterior to the aorta and travel anteriorly along the surface of the aorta. The left and right postganglionic fibers coalesce in the hypogastric plexus at the level of the inferior mesenteric artery, where they organize into the hypogastric nerves, which again coalesce in the pelvic plexus in the presacral region and travel by way of the pelvic nerves to their target organs including the bladder neck[6)]. Closure of the bladder neck is bilaterally controlled by the lumbar sympathetic nerve through the hypogastric plexus and lumbosacral trunk which compensate each other. A study showed that bilateral hypogastric nerve transection caused the disability of bladder neck closure and retrograde ejaculation[7)8)]. From the

past study, it can be supposed that bilateral lumbar sympathetic blockade induces retrograde ejaculation.

Some studies reported that high sympathetic degeneration at the L2–L3, the presacral plexus, and the hypogastric plexus resulted in retrograde ejaculation[9)10)]. Thus, we recognized that the patient who had undergone left lumbar sympathectomy (L2–L4) was at risk for retrograde ejaculation following the right lumbar sympathetic nerve block. We blocked the right lumbar sympathetic ganglia at the L3–L4 level without compromising the ganglion at L2, after obtaining the patient's informed consent regarding the risk. We now think that we should have first performed the contralateral blockade of the ganglion only at the L4, and added a block of the ganglion at the L3 after confirming the absence of complications such as retrograde ejaculation.

Chemical lumbar sympathetic block for chronic lower limb ischemia provides significant pain relief for at least 6 months[11)]. In the present case, retrograde ejaculation lasted for 18 months, and the patient's left extremity pain recurred 7 months after recovery from the retrograde ejaculation. We assume that regeneration of his right lumbar sympathetic nerve contributed to the spontaneous recovery from the retrograde ejaculation and the recurrence of the pain in the right extremity subsequently.

Treatment for retrograde ejaculation is further advanced by using assisted reproductive technologies, but not for retrograde ejaculation resulting from sympathetic neurolysis[4)]. There are few case reports regarding the prognosis of retrograde ejaculation caused by chemical lumbar sympathetic block. This case report provides valuable information on retrograde ejaculation as a rare complication after chemical lumbar sympathetic block and possible spontaneous recovery from it.

Ⅳ Conclusion

We experienced rare complication of retrograde ejaculation after lumbar sympathetic block and its spontaneous recovery. We assume that regeneration of the patient's right lumbar sympathetic nerve contributed to the spontaneous recovery from the retrograde ejaculation, and subsequently the recurrence of the pain in the right extremity.

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(2020. 6. 1 received ; 2020. 9. 8 accepted)