

CASE REPORT

Contralateral limb weakness after intrathecal chemical neurolysis for cancer pain

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ABSTRACT:

The treatment of cancer pain encompasses both pharmacological and interventional techniques. In certain situations, patients may have intractable pain despite use of optimal doses of oral or parenteral analgesics. Interventional procedures, like intrathecal chemical neurolysis (ICN), play an important role in the management of such intractable cancer pains. The goal is to achieve segmental block that is purely sensory, without causing any motor weakness in the patient. Potential problems related to ICN include inadequate pain control with the progression of tumour size, short duration of effect, lower limb weakness on the ipsilateral side and rectal or bladder sphincter dysfunction. We present a case report in which the patient developed unexpected weakness of contralateral limb after ICN for management of cancer pain.

Key words: Chronic pain; Malignant pain; Pain management; Neurolytic block; Neurolysis.

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INTRODUCTION

Pain is one of the most common symptoms experienced by the cancer patients.¹ Its prevalence can range from 40%² to as high as 90% with advanced disease.³ Pain can be well managed with conventional analgesics and adjuvants in 80% to 90% of cancer patients according to the principles of the World Health Organization (WHO) analgesic ladder for cancer pain relief.^{4,5} However, in 10% to 20% of patients, it remains difficult to manage and these patients are the candidates of some form of interventional technique.⁶ One of such interventions is ICN which plays an important role in the management of cancer pain.⁷ But this intervention is associated with many potential problems.⁸ We present a case report in which our patient developed weakness of the contralateral limb after ICN for management of cancer pain.

CASE REPORT

A 39 years old female with metastatic breast carcinoma presented with complaints of intractable pain in her right hip and thigh involving L1-2 dermatomal and sclerotomal distribution. Since her initial diagnosis of cancer five years

earlier, she had undergone surgeries for tumor resection and received several courses of chemotherapy and radiotherapy. Bone metastases of disease occurred and bone scan showed multiple focal areas of increased tracer uptake in sternum, left 3rd and 4th ribs posteriorly, in the region of T2-T8 and right hemipelvis. Involvement of her right hemipelvis with metastases explained the cause of her recent pain. Pain was episodic and was severe in intensity with VAS of 9-10. Oral analgesics like morphine, codeine, celecoxib were prescribed which initially provided some pain relief; however with the passage of time, the pain intensity increased and she became unable to walk and perform daily activities even with maximum doses of oral analgesics.

To relieve her intractable pain, ICN of right L1- L2 dorsal nerve root was planned. After moving her to the operating room, basic monitors were applied and IV access was secured. She was first placed in the lateral spinal position with the painful right side up. After aseptic measures 25 gauge spinal needle was introduced at T11-T12 vertebral level for neurolysis of L1- L2 dorsal nerve roots, till subarachnoid space was reached. After confirming free

flow of CSF, she was rolled over by about 45 degree anteriorly to place the dorsal root the upper most. She was then propped up with pillows and stabilized with straps, so that she could remain in this position for a significant period of time. Now a tuberculin syringe containing absolute alcohol was attached to spinal needle and absolute alcohol was injected in 0.1ml increments. First increment filled the dead space of needle. When 2nd incremental

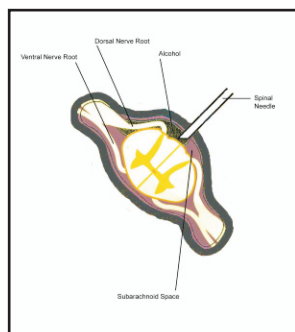


Figure-1: Anatomical relations of spinal nerve roots in vertebral canal during ICN with alcohol.



Figure-2: MRI showing compression fracture of T11 vertebrae causing retropulsion of cortex into vertebral canal.

dose of 0.1ml absolute alcohol was injected, she felt burning pain in L1- L2 dermatomal distribution which confirmed the position of the spinal needle at dorsal nerve roots. 3rd and 4th increments of 0.1ml absolute alcohol were injected. With 4th increment she complained of burning pain in other dependent leg which was rather unusual, so further drug administration was abandoned.

She was pain free after procedure, but developed weakness of her left lower limb. MRI of the spine was done to find out the cause of this unusual finding. The study demonstrated vertebral metastatic disease involving multiple levels throughout spine. There were also multiple compression fractures at C6 and T11 levels, which caused retropulsion of the posterior cortex, causing mild indentation on the cord at these levels. She was followed up for limb weakness for next couple of weeks. Radiotherapy was started for spine. Limb weakness gradually improved with the passage of time.

DISCUSSION

Interventional techniques of pain control not only

improve quality of pain relief but also improve quality of life and survival in cancer patients.⁹ One of such interventions is ICN, whose efficacy of reducing cancer pain has been well-documented.^{7,10} It involves the administration of neurolytic agents into the subarachnoid space. The goal is to achieve segmental block that is purely sensory, without causing any motor weakness in the patient.¹¹ When peripheral nerves are exposed to neurolytic agents, two main degenerative lesions are seen, axonal degeneration and segmental demyelination. Chemical axonal degeneration of sensory fibres prevents the transmission of noxious stimuli.¹² ICN can be achieved by the injection of hypobaric alcohol (50-100%) or hyperbaric phenol (7-12%).¹³

When hypobaric absolute alcohol is to be utilized, the patient is first placed in the lateral spinal position with the painful side up, and he or she is then rolled anteriorly about 45 degree. This will allow alcohol to settle near the dorsal root ganglia and produce a sensory blockade when it is injected into the intrathecal space using a spinal needle (Figure-1). The first 0.1ml of absolute alcohol injected, serves as a test dose. It causes a localized burning in the dermatomal distribution of nerve and confirms the correct placement of the needle. This test dose of alcohol usually does not cause a significant degeneration of nerve. After confirming the correct dermatomal level, a total of 0.7ml of absolute alcohol is injected in 0.1ml increments causing neurolysis.¹⁴

One of the potential problems related to ICN is weakness of the extremities, that has been attributed to spread of the neurolytic agent to the anterior roots.¹⁵ Motor weakness of same side of block occurs as hypobaric alcohol ascends and spreads to involve the anterior nerve roots of that side. But in our case, the patient developed weakness of contralateral dependent side, which was an unusual finding. MRI of spine showed compression fracture at T11 level, which was causing retropulsion of the posterior cortex, causing mild indentation on the cord at the level where ICN was being performed. This explained that a distortion in the anatomy of the vertebral canal at this level may have lead to improper spread of hypobaric alcohol and caused damage to contralateral spinal nerve roots.

CONCLUSION

ICN is a very effective intervention for control of cancer pain but it can have unpredictable effects. As this interventional technique is based on anatomy of nerve roots, even mild alterations in the anatomy of the vertebral canal can lead to undesirable results..

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'My most memorable patient'

I always fancied myself to be a vigilant, dedicated and brilliant doctor during my early residency days. I was convinced of my extraordinary abilities and unmatched zeal. I always carried an atmosphere of diehard confidence around me.

I was on emergency duty on that day, when in the evening, I received a distress call from a junior ICU staff. A patient had had cardiac arrest and they needed an anaesthetist to help with CPR. Now, that was the test to prove my efficiency. I rushed through the corridor and literally stormed into the ICU announcing myself. I knew that people at there were suitably impressed.

I ran to the bed near which I could see the nervous ICU nurse holding on Ambu bag. My God! The patient looked so still. The monitor exhibiting previous reading and oh my goodness! 'NO ECG TRACE'. I didn't waste a single second and gave my patient the first life saving thump and there I enthusiastically started chest compressions--one---two---three; but goodness God, this motionless patient opened his eyes with a horrifying look on face and strongly holding my wrists shoved me off his chest and yelled, 'Hey! get off my chest you idiot! Leave me alone for God's sake. I am alive'.

It was now my time to have an arrest!!!

Dr. Samina Ismail

