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Obturator nerve block as a clue to the diagnosis of focal spinal metastases of gastric cancer — a case report

Abstract

Compression of the obturator nerve can result in severe, opioid-resistant pain experienced by a patient in the inner part of the thigh. In the case we describe here, compression of the nerve roots by vertebral metastasis resulted in nerve oedema and impingement at the place where the nerves normally pass through the narrow space in the obturator canal close to the pubic bone. Injection at this site with bupivacaine and methylprednisolone resulted in only a few hours of pain relief, which suggested more “central” involvement. An MRI of the spine revealed a focal bony deposit at L2 and radiotherapy was able to control the pain within few days. This case shows how a careful diagnosis of pain may lead to specific pain therapy and allow the decrease of the toxicity of drugs, especially opioids, which may be poorly tolerated by patients with neuropathic pain.

Key words: obturator nerve, obturator syndrome, groin pain, nerve compression, proof block

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Introduction

Cancer patients often suffer pain [1]. However, there is nothing like “cancer pain”, as such, which can be treated in the standard way. Unfortunately, such a suggestion could be extracted from the uniform protocol of pain treatment in cancer patients, the so-called “WHO analgesic ladder” [2–4]. In fact, the best results of treatment are obtained when a precise diagnosis of pain can be made. So, pattern recognition, confirmed by an imaging of the affected structures, can result in less toxic and more specific treatment. However, due to the multiplicity of types of pain [5] in advanced cancer patients, such a diagnosis is not always possible or feasible.

In this article we describe a patient with gastric cancer and pain in her groin and leg. Pain pattern recognition and a trial block supported by an MRI resulted in a specific diagnosis and effective treatment. The case shows the importance of our knowledge of the different pain syndromes which may be too rare to be accepted in clinical practice.

Case presentation

Mrs C was 68 years of age. She was known for 7 months with an adenocarcinoma of the stomach and duodenum. The tumour was inoperable from the outset because of local regional lymphadenopathy but no distant metastases were found initially. She was treated with three courses of epirubicin, cisplatin and

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capecitabine chemotherapy, which resulted in 3 months of objective reduction of tumour volume and good symptomatic improvement. In particular, the pain around her stomach and nausea after meals became much less abundant. Four weeks before admission to the Hospice she started to complain of pain in her right groin and a weakness in her right leg on adduction. She was started on fentanyl patches 25 µg/hour and dexamethasone 8 mg per day. She became severely constipated despite the co-danthramer but her pain did not improve. The dose of fentanyl could not be titrated up because of the severe constipation, increasing nausea and occasional vomiting. On admission she was slightly dehydrated. There was a tumour palpable in the upper abdomen. Her abdomen was generally tender but the bowel sounds were normal. She suffered from severe pain on palpation of the lateral side of the pubis (5 cm from the median line) and the adducing muscles were tender and weak. There was a marked stroke of hyperalgesia on the inner part of the right thigh.

The patient was treated with a trial injection to the painful spot in the right pubis. A 50 mm 22-gauge intramuscular needle was inserted and, after making contact with the pubic bone, the needle was "walked" carefully toward the point of maximal pain before injecting the drugs (15 mg of bupivacaine and 40 mg methylprednisolone).

The dose of fentanyl was reduced to 12 µg/hour and she was treated with a single dose of 8 mg methylbuprenorphine SC, which resulted in abundant bowel motion within 30 minutes.

The next day the patient described how, directly after the injection, the pain was reduced to almost nothing, while at night the right groin/leg started to hurt again. The nausea and vomiting disappeared and she looked quite bright and alert.

The MRI revealed a focal deposit of presumed metastatic disease in the anterolateral part of the L2 vertebral body. The patient was subjected to a single dose of radiotherapy (8 Gy) to L1–3.

The pain in the right groin disappeared within one week but the fentanyl patch of 12 µg/hour was continued because of the discomfort in the upper abdomen. Several weeks later the patient progressed to a total high gastrointestinal obstruction and died peacefully a few days later. She never complained about the pain in her leg again.

Discussion

This patient suffered from severe pain in her right groin and right leg which was intractable

with fentanyl. The pattern of the pain suggested the presence of an impingement of the obturator nerve, the so-called obturator syndrome [6–8]. The result of the trial injection with local anaesthetic and methylprednisolone suggested that the pain responded only to the local anaesthetic but that there was no effect of the methylprednisolone. This in turn suggested that the impingement could be much higher; either at the level of the nerve roots (due to bone deposits or disc protrusion) or in the pelvis (tumour infiltration). The patient was referred for an urgent MRI which, indeed, revealed a single bony deposit at L2 but no tumour infiltration in the pelvis. A single dose of radiotherapy to L2 and the adjacent lumbar vertebrae resulted in excellent pain control.

The obturator nerve usually originates from the L2–L4 roots [9, 10] and bone metastasis in L2 would affect the root that contributes to this nerve. Radiotherapy was extended to the three L1–3 vertebrae which would cover most of the contributing roots.

After nerve root impingement, for example at the level of the L2 vertebrae, the distal nerve may become oedematous [11, 12]. The nerve will thus be vulnerable to compression in the narrow passages through which the nerve passes, for example between the muscles or fasciae, or when its trajectory is close to bone prominences as, in this case, the obturator canal and pubic bone. Particularly small nerves will be vulnerable to this mechanism as they frequently pass narrow sites. Clinically, the patient with nerve impingement will develop a tender point at this site; a spot which is extremely painful to palpation with radiation to the distant area served by this nerve. Thus, the reason for any pain felt may be much higher. This is consistent with the somewhat controversial hypothesis of "double crush" [13–17]. According to this hypothesis, patients with carpal tunnel syndrome have much more frequent compression of the nerves proximally because of the 1st rib [13]. Indeed, injection of local anaesthetic to the painful site will relieve pain only for a period of a few hours, while there would be no effect from methylprednisolone. In the case of peripheral impingement of the same nerve, it could be expected that steroids would be effective for several weeks to months [18–20]. Here, an MRI provided the clue to the diagnosis. However, with a good response to steroids, an MRI could be postponed or completely avoided. Additionally, the existence of symmetric trigger points on both sides may also suggest a central aetiology of pain.

Our patient did not respond to oral dexamethasone and the reason for this is unknown. Perhaps the dose was not high enough. Perhaps she could not tolerate the drug well and the dose was rapidly decreased.

A block of the obturator nerve can best be carried out using ultrasound [9, 21, 22] and this technology is used not only for pain control but also for regional anaesthesia prior to a knee operation [23, 24]. In the Hospice environment, seeing the long waiting lists for the anaesthesiology pain team, we decided to perform the block ourselves. This block is not difficult to perform, there are no hidden dangers or complications and the drugs usually diffuse several centimetres around the site of the injection, which contributes to the overall effect. The results can be assessed within days following the performance of the block.

Conclusion

We suggest that knowledge of specific pain syndromes would certainly help to control otherwise intractable pain. Some pain can be visualised by modern techniques and can be treated specifically. Such an approach, rather than the aspecific tactic of treating every pain with increasing doses of systemic analgesics, may warrant better results. Apart from obturator nerve syndrome, there are many other nerve impingement syndromes which are virtually unknown in oncology and palliative medicine.

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