

# Severe neuropathic pain

Neurolytic blockade resulted in good pain relief but with functional impairment, as **Dr Ans Vielvoye-Kerkmeer** describes

## Background

Chordomas are rare bone cancers that arise from the remnants of the notochord, a strip of mesodermal tissue that develops along the dorsal surface of the early embryo. Chordomas typically develop at the base of the skull or spine.<sup>1</sup> In the following case, the severe pain caused by the advanced tumour resulted in the patient being offered a neurolytic blockade of the cauda equina.

## Case assessment

Mr P was aged 45 years when he visited our outpatient pain clinic. Five years previously, in another part of the country, he had been diagnosed with a chordoma in the sacrococcygeal region.

Chordomas are known to continue to grow, but very slowly. They are also well known for their propensity to reach enormous proportions, especially in the sacrum.

While chordomas are known to be locally invasive, systemic metastases are regarded as relatively uncommon. Chordomas in the coccygeal area may affect bone only minimally, and present as soft tissue masses below or alongside the sacrococcygeal region.<sup>1</sup>

By the time of Mr P's first visit to a neurologist, surgery and radiotherapy were not options.

For a few years, the pain was able to be managed with paracetamol and NSAIDs. Later on, opioids became necessary, and for several months he was satisfied with this therapy.

Then the tumour grew and the pain increased, especially in the sacral region. He visited a pain clinician and he was offered a neurolytic blockade: using an intrathecal injection of a neurolytic agent, with the intention to block the cauda equina, it is possible to relieve severe pain for weeks, months or even for a year or more.<sup>2</sup> The procedure is relatively simple to carry out.

Mr P was experiencing extensive bilateral pain and agreed to the procedure. A dose of 5ml of hyperbaric phenol in glycerin (6%) was injected. The result was good in terms of relief of pain: no pain was left. However, muscle weakness in the limbs and involvement of the rectal and vesicular sphincters were serious problems. In spite of these adverse effects, he was satisfied with the pain relief. Opioids were not necessary.

One year later, the chordoma and the pain spread beyond the anaesthetised region. In addition, a different kind of pain was experienced: a burning and lancinating pain. The patient became very depressed, experiencing functional loss and he was still in a considerable amount of pain.

## Referral to our clinic

Mr P visited the pain clinic again. Owing to the large anaesthetised region and the functional complications resulting from the earlier procedure, a repeat intervention was not indicated. Mr P did not know what to do, and finally his GP referred him to our outpatient pain clinic. Of course, we saw no indication for an invasive procedure. Our



CT scan of a chordoma (orange): the pain caused is classed as neuropathic

multidisciplinary team offered him a combined regimen. He was admitted to our hospital for some days, just to relax, to sleep and to have his pain evaluated. The psychiatrist, social worker and other members of our team were involved in his treatment.

Gabapentin appeared to be the drug of choice, along with a low dosage of methadone. Consequently, gabapentin was started at a dosage of 300mg three times daily, titrating up to 900mg three times daily. Methadone was also started at 5mg twice daily, titrating up to 15mg twice daily.

Nevertheless, the patient complained about a burning pain wearing underwear and trousers, even in the anaesthetised region. Oral ketamine was then added, initially at a dosage of 0.5mg three times daily, then increased to 1mg three times daily.

The patient left the hospital after one week, satisfied with the oral medication and less depressed, but, of course, continuing to experience the functional impairments. His GP continued the medication and the psychological and psychosocial support.

## Learning points

What are the learning points of this case?

- A chordoma continues to grow, but very slowly. This means that treatment and support may be necessary for several years.
- The indication for neurolytic treatment should be discussed in the multidisciplinary team.
- The width of the sacral intrathecal space varies between patients, as does the rostral spread of the neurolytic agent. The possible results, complications and volume of agent to be administered should be discussed; especially in the case of Mr P.
- After a local treatment the tumour may spread beyond the anaesthetised region. The pain will thus reoccur and possibly change in character.
- The pain is characterised as neuropathic and this calls for a specific drug regimen.
- Gabapentin, methadone and ketamine can be used in neuropathic pain.
- *Dr Ans Vielvoye-Kerkmeer is a pain consultant and anaesthesiologist, Leiden, The Netherlands*

## References

1. Neoplasms of the vertebral column. Chordomas. In: Epstein BS. *The spine. A radiological text and atlas*. Philadelphia, Lea & Febiger, 1976.
2. Bonica JJ. Neurolytic blockade. In: Bonica JJ, editor. *The management of pain*. Philadelphia, Lea & Febiger, 1990. p1999-2000.

# from a chordoma

## Sweden



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This case study illustrates the difficulties encountered when treating a patient with a slowly growing advanced cancer that causes severe pain. The balance between pain relief and functional impairment due to adverse effects of treatment should always be considered. As pointed out, this is preferably done within the context of a multidisciplinary team where different aspects of care will be highlighted in addition to the patient's own view. In cases with difficult pain problems and short expected survival, there is often more focus on achieving rapid symptom control, and less attention is paid to potential functional impairment.

In the specific case, one could assume that, given the tumour's location, there were components of neuropathic pain present early in the history. Could amitriptyline and/or gabapentin be the first step to test whether or not the pain was less responsive to paracetamol, NSAIDs and

opioids? Or would the patient prefer functional impairment in the limbs over cognitive and GI side-effects from opioids and other drugs? Could a test injection of local bupivacaine help guide the patient in his decision? These are questions that could be raised within the multidisciplinary team.

The patient had a partial response to the combination of gabapentin and methadone and did not experience satisfying pain relief until ketamine was added orally. This case illustrates that, although both methadone and ketamine are NMDA-receptor antagonists, an insufficient response to one of the drugs does not preclude a successful response to the other.

It is interesting to note the effect on depression after successful treatment, which included ketamine. Intuitively, we think that it is the good pain control that results in less depression, but there are also case reports showing rapid, positive effects of ketamine on depression per se in patients with advanced disease.<sup>1</sup>

### References

1. Irwin SA, Iglewicz A. *Journal of Palliative Medicine* 2010; 13 (7): 903-908.

## Italy



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In the case of Mr P, our first comment concerns the five years that passed apparently without any specific therapy. This prevented the application of surgery or radiation, the most effective and appropriate treatments for chordoma. Oral imatinib could have been used; radiofrequency (RF) palliative ablation of the tumour could have been another useful option.

Patients complain of radicular pain that can progress up to a cauda equina syndrome with saddle anaesthesia, asymmetric paraplegia, muscle atrophy, loss of tendon reflexes and autonomic symptoms, particularly rectal dysfunction or urinary incontinence.

Because of severe pain, a colleague decided to

perform a neurolytic block of Mr P's cauda equina.

According to Bonica,<sup>1</sup> neurolytic block should not be performed in cases like this because the diffusion of the agents in the CSF is unpredictable. The injection of a contrast medium and a diagnostic block with local anaesthetic would allow evaluation of the spread of agents, pain relief and adverse effects. Percutaneous sacral nerve or impar ganglion RF denervation could be useful options. We would not have suggested a neurolytic block. The price the patient paid was too high.

In Mr P's case, an interdisciplinary, biopsychosocial pain relief programme is the right choice. Opioids (methadone or oxycodone) and anticonvulsants (gabapentin or pregabalin), with some adjuvants, are drugs of choice in this case.

After positive testing, an intrathecal continuous infusion of a mixture of opioids and ketamine, by means of a pump, could have been another option.

### References

1. Bonica JJ. Neurolytic blockade. In: Bonica JJ, editor. *The management of pain*. Philadelphia, Lea & Febiger, 1990. p1999-2000.

## Key learning points

- The balance between pain relief and functional impairment due to adverse effects of treatment should always be considered, preferably in the multidisciplinary team.
- In cases where the patient has challenging pain problems and short expected survival, there is often greater emphasis on achieving rapid symptom control than on potential functional impairment.
- Given the tumour location in the case of Mr P, the existence of neuropathic pain components could be presumed and therefore an anti-neuropathic pain drug could have been tried.
- For Mr P, a test injection of local bupivacaine could have guided the patient's treatment preference.
- In the case of Mr P, the apparent lack of treatment for five years after diagnosis meant that surgery or radiotherapy, the most effective treatments for chordoma, were left untried.
- Alternatives to neurolytic block in this case could have been percutaneous sacral nerve or impar ganglion radiofrequency denervation. Neurolytic block should be used with caution because of its risks and irreversibility.
- An intrathecal infusion of a mixture of opioids and ketamine via a pump, after appropriate testing, could have been an option.