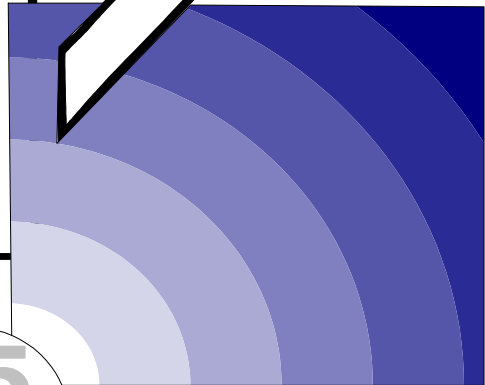
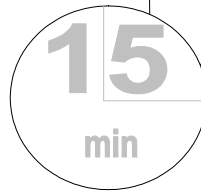


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15 minute Worksheet



Procedures in Palliative Care

4: Spinal analgesia: problems with the line

Advanced level

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Aim of this worksheet

To recognise and manage the problems of spinal lines.

How to use this worksheet

- You can work through this worksheet by yourself, or with a tutor.
- Read the case study below, then work on the questions overleaf.
- The work page is on the right side, the information page is on the left.
- Work any way you want: you can try answering from your own knowledge (in which case fold over the information page), you can use the information page (this is not cheating- you learn as you find the information), or you can use other sources of information
- It should take you about 15 minutes. If anything is unclear, discuss it with a colleague.
- If you think any information is wrong or out of date let us know
- Take this learning into your workplace using the activity on the back page.

Case study

Mary is a 28 year old woman, married with two small children. Six months ago, she was found to have an advanced cancer of the cervix and was treated with pelvic radiotherapy and started chemotherapy. Despite this, the tumour has persisted and she is now troubled with a bearing down feeling in her perineum, and a burning pain in both legs. Her pains have been diagnosed as tenesmus and a neuropathic pain. The pain has been severe for the past few weeks and has not responded to increasing doses of morphine, anticonvulsants, antidepressants or ketamine. She has had an intrathecal line inserted which worked initially, but now the pain has returned.

The pain worsens whilst on the intrathecal spinal line

Such a situation seems difficult at first because spinal analgesia is more complex than most analgesia and sorting out this problem seems daunting.

In fact there are only a few possibilities. Start at the end of the line furthest away from the patient:

- **Pump:**
If this is working then has the syringe become dislodged?
If the pump has stopped then check the battery. Occasionally the pump stops because the line is blocked- remember this for later.
- **Filters**
Is there air in the filters? This can slow the flow: remove the filter and fill with the spinal drug.
Is the screw fitting cracked? Filter connections crack very easily and then leak: replace.
- **Connecting line**
Is the line kinked? Straighten.
Is a connector leaking? Replace the leaking joint.
- **Spinal hub**
 This joins the very narrow spinal line to the much bigger connecting line. The connection is made by a screw fitting which tightens onto, and grips, the spinal line. Occasionally this loosens and results in leakage. Overtightening will block the line.
- **Spinal line**
Is the line displaced? Occasionally the line comes out of the intrathecal space and the efficacy of the analgesics drops either because they are now entering the epidural space or, more likely, they are going into subcutaneous tissues. This can be checked by trying to withdraw CSF. Disconnect the connecting line, leaving one bacterial filter and draw on the syringe- with modest suction you can withdraw 1ml (discard this), then withdraw a further 1.5mls. To check this is CSF, check it for sugar content with a urine test stick (CSF has a little sugar, whilst spinal line contents do not). Epidural catheters can only be tested by putting in a bolus of local anaesthetic under close observation.
Is the line blocked? This is unusual, but the commonest cause is that the line has become kinked in the subcutaneous tissues. This sometimes happens in more mobile or active patients. Ask the person who inserted the line to review the patient.
- **Other possibilities:**
 There may be a new pain which is outside the area being affected by the spinal line. Alternatively tolerance may have occurred to bupivacaine, but this usually is seen when bupivacaine is used on its own.
 In epidural lines, other possibilities are that the line tip is in a vein or is blocked by local fibrosis.

Infection and spinal lines

1. T It has activity against a range of bacteria and fungi.
2. F Since you are using bacterial filters and bupivacaine is antimicrobial, the injected solution is the least likely route of entry for infection. Because spinal analgesia involves infusing drugs close to, or into the intrathecal space, there is an understandable fear of meningitis with intrathecal, and epidural abscess with epidural lines. With intrathecal lines the infection rate is less than 5% and deaths from meningitis are rare.
3. F The exit site is much more of a risk as the bacteria can travel along the spinal line tract. Since the line is inert it should produce no skin reaction- therefore any redness is an indication of local infection and would be an indication for antibiotics in the presence of pyrexia. The exit site should be checked regularly (at least weekly) and sprayed with povidone iodine powder.
4. F Serious intraspinal infection is unusual, even when the patient has an existing source of infection. There is a higher risk in severely immunocompromised such as AIDS patients in whom a spinal line would pose a higher risk.
5. T The filters are guaranteed by the manufacturers for only a few days, but research has shown they are still active after a month. Since the bupivacaine is antimicrobial and regular line disconnections increase the risk of infection, the distal filters are changed weekly and the filter nearest to the exit site is changed monthly.
6. T Pyrexia in a patient with a spinal line is usually caused by sources such as chest or urine (so a urine test would be useful). With intrathecal lines, a CSF sample would be withdrawn (without a filter) for culture.

Mary has been doing well at home for several weeks with her intrathecal spinal line. Her husband telephones you one evening to tell you that the pain has been getting worse since tea time and now is nearly as bad as before her spinal line was put in.

Write

What could have happened and how can you check?

What could have happened?	How can you check that this is the cause?
The pump	
Connection line and filters	
Spinal line	
Other	

Her line is running well again, but next time you visit she seems unwell and sleepy. As you touch her hand she seems pyrexial and a quick axillary temperature check shows a temperature of 38.5°C.

MCQ

What should you check? Could the line be the cause? Not sure? Well, try this multiple choice instead!

- | | |
|--|------------|
| 1. Bupivacaine is an antimicrobial (ie. it kills bacteria and fungi) | False True |
| 2. The likeliest source of infection is from the injected analgesic mixture | False True |
| 3. The exit site of the spinal line should be uncovered only on rare occasions | False True |
| 4. You should never use a spinal line in the presence of existing infection | False True |
| 5. Bacterial filters can be left in use for up to one month | False True |
| 6. A urine test would be helpful in this situation | False True |

FURTHER ACTIVITY: Problems with the line

What observations would you make to ensure that the spinal line was working properly.

FURTHER READING: Problems with two drugs

Journal articles

- Anderson P. Intrathecal narcotics for the relief of pain from head and neck cancer *Archives of Otolaryngological Head Neck Surgeons* 1991; **117**: 1277-1280.
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Resource books

Oxford Textbook of Palliative Medicine 3rd ed. Doyle D, Hanks G, Cherny NI, Calman K eds. Oxford : Oxford University Press, 2003.

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Current Learning In Palliative care
An accessible learning programme for health care professionals

Fifty seven 15 minute worksheets are available on:

- An introduction to palliative care (3 worksheets)
- Helping the patient with pain (9 worksheets)
- Helping the patient with symptoms other than pain (11 worksheets)
- Moving the ill patient (2 worksheets)
- Psychological needs (8 worksheets)
- Helping patients with reduced hydration and nutrition (8 worksheets)
- Procedures in palliative care (4 worksheets)
- Understanding and helping the person with alternative communication (learning disabilities) (5 worksheets)
- The last hours and days (4 worksheets)
- Bereavement (3 worksheets)

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Helping the Patient with Advanced Disease: a Workbook. Regnard C. ed.

Oxford: Radcliffe Medical Press www.radcliffe-oxford.com