

Chapter 4

Promoting comfort through radiotherapy, chemotherapy and surgery

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INTRODUCTION

This chapter focuses on supporting patients while they are receiving palliative treatments. The management and possible side-effects experienced by patients undergoing palliative radiotherapy and chemotherapy are discussed. The indications for the use of palliative surgery and radiological interventions including use of stents are also explored. Case examples are used to illustrate the value of the latest stenting techniques where traditional palliative surgery may be difficult or impossible.

It is often difficult to imagine radiotherapy or chemotherapy being used in palliative care, especially if we have experience of caring for patients who have undergone these treatments when used with curative intent. These patients may experience side-effects that are often severe but tolerated because of the overall aim of treatment. When considering the use of chemotherapy and radiotherapy with palliative intent, thorough assessment must take place before and throughout treatment. Nurses are often in the best position to identify symptoms and aid diagnosis, as well as assess the overall effects of treatment, in conjunction with the patient and family.

Downing (2001, p 449) mentions that there are 'many individuals living with advanced cancer and many symptoms of advanced disease can be controlled, enhancing their quality of life'. Palliative treatment should be delivered with the intention of achieving control of local symptoms in a setting where cure is no longer possible, utilising treatment that should give minimal disturbance to the lifestyle of the patient (Hoskin 1994).

WHAT IS RADIOTHERAPY?

Radiotherapy is the use of ionising radiation to interfere with the replication of cancer cells within the body. Radiotherapy cannot differentiate between normal cells and cancer cells, so normal cells will be affected within the path of the radiation beam, causing the patient to experience side-effects (Green & Kinghorn 1995, Holmes 1996a, Hoskin & Makin 2003a, Kirkbride 1995, Munro 2003, Robinson & Coleman 1996).

The principles and practice of radiotherapy have changed very little in the last few decades. The main advances have come from the development of improved technology and a greater understanding of the effect radiotherapy has on tissue – radiobiology – and detailed descriptions of this have been given by Adamson (2003) and Faithfull (2001). If we are able to understand how the treatment works and why side-effects develop then we are better placed to support our patients undergoing these treatments.

Most radiotherapy departments use machines called linear accelerators, which generate radiation using electricity; this treatment is sometimes referred to as teletherapy. Radiotherapy can be given using linear accelerators or by placing radioactive material into the tissue or into a cavity close to the site of the cancer; this treatment is known as brachytherapy. Radioactive isotopes can be administered by either mouth or intravenous injection to carry out investigations or to treat certain cancers. All of these techniques can be used to treat cancer curatively or palliatively. As Kirkbride (1995) pointed out, despite the different applications the effects of the treatment will be the same.

SIDE-EFFECTS OF RADIOTHERAPY

The nursing care of patients with cancer is not focused solely on the disease but also on identifying and treating the side-effects that patients might experience as a result of their treatment (Oliver 1988). The side-effects produced by radiotherapy occur because of the damage caused to normal cells within the path of the radiation beam. It is always helpful to find out about any previous experience or ideas the patient may have about radiotherapy as misconceptions can easily occur, resulting in unnecessary worry. Accurate honest information has been shown to help patients cope with the potential side-effects and to give them a sense of control. Webb (1987) discusses the importance of patient teaching and how it can help the patient to be more involved with self-care. It could be argued that information-giving is the role

of the medical staff, but nurses and other healthcare professionals are well equipped and should be able to support the patient by giving information about treatment effects, side-effects and coping strategies. Patients need to understand the potential for side-effects and, together with nurses, be alert for early detection. Prompt treatment of side-effects by the caring team is essential (Whale 1991).

Normal cells are more able to repair damage, whereas cancer cells are more limited in their ability to repair (Blows 2005, Faithfull 2001, Holmes 1996b, Kirkbride 1995); through radiobiological understanding we have been able to identify normal tissues that are more sensitive to radiotherapy. In some tissues, such as the skin, bone marrow and the lining of the gastrointestinal tract, the cells have a rapid rate of replication (Holmes 1996b, Needham 1997, Souhami & Tobias 2003). Side-effects in these tissues may occur early on in treatment and are sometimes referred to as acute effects. Cells that divide at a slower rate will be affected by radiotherapy, but this may not become evident for some time after treatment when the cells start to replicate. These side-effects are classed as late or chronic effects (Alison & Sarraf 1997, Rice 1997). Some of these late effects are irreversible, and patients should be made aware of them. Prompt recognition and treatment can prevent serious complications (Faithfull 2001, Holmes 1996b).

Palliative radiotherapy

The decision to treat curatively or palliatively is well thought out by the consultant clinical oncologist, usually together with the multidisciplinary team, which will include a surgeon or physician, taking into account the extent of the disease, the physical and personal circumstances of patients and their wishes.

Sometimes, at diagnosis, it may be evident that the disease is so extensive that cure may not be possible. It may seem strange to be considering radiotherapy as a palliative treatment because of side-effects, but it has been shown to be useful in managing patients who experience distressing symptoms and for whom cure is no longer possible. It has been estimated that approximately 45% of patients with cancer will receive radiotherapy at some time during their illness (Robinson & Coleman 1996) and that approximately half of radiotherapy treatments are given with palliative intent (Blyth 2001 in Colyer 2003, Hoskin & Makin 2003a, Kirkbride 1995).

The overall doses of radiotherapy used for palliative treatments are lower than those given with curative intent, but the daily dose may be higher; because

of this the side-effects from treatment may initially be more intense. The delivery can range from a single exposure to several fractions spread over a period of up to 2 weeks. The aim of palliative treatment is to maintain or enhance quality of life.

Continuous monitoring of the effects of the treatment on the patient and their carers is important.

Nursing staff within hospital, community and nursing homes are relied upon to report any adverse effects to medical staff directly involved with the patient or to the radiographers within the department who can relay information to the appropriate staff.

Symptoms that may be alleviated by radiotherapy, side-effects and their management

Brain metastases

Brain metastases account for one-third of all brain tumours (Souhami & Tobias 2003). Breast cancer, small-cell lung cancer, melanoma and renal cancer commonly metastasise to the brain, as well as AIDS-related cerebral lymphoma. In these cases palliative radiotherapy produces a reasonable response (Neal & Hoskin 1997). Presenting symptoms of brain metastases may include headache, blurred vision, ataxia and possible seizures (Waller & Caroline 1996).

Patients initially start high doses of corticosteroids to reduce intracranial pressure and relieve cerebral oedema (Souhami & Tobias 2003) and other symptoms such as headache (Hoskin & Makin 2003b). Radiotherapy is a useful mode of treatment in patients with brain metastases and the response to treatment relates to the radiosensitivity of the primary cancer and to the response to corticosteroids.

Radiotherapy can be given to the whole brain if multiple deposits are present, or treatment can be directed towards a single deposit. Where there is a solitary metastasis, surgical excision may be an option (Hoskin & Makin 2003b). Choice of dosage and fractionation of radiotherapy remains contentious (Souhami & Tobias 2003).

Possible side-effects of radiotherapy to the brain

If the brain is being irradiated, the patient may experience side-effects, including headaches and nausea due to raised intracranial pressure as a result of cerebral oedema caused by the tumour and the inflammatory response of the brain tissue to the radiation.

Patients are generally given corticosteroids to reduce this response. Steroid-related complications can occur such as oral candida, oedema, diabetes, dyspepsia and insomnia (Kaye 2003, Regnard & Hockley 2004). These complications generally respond to a dose reduction. Analgesics and antiemetics may be administered to enhance patient comfort.

Hair loss will be a problem for the patient receiving radiotherapy to the brain; unfortunately, there is nothing that can be done to prevent this, so the patient will need support. If the treatment is targeted towards a specific area to treat a solitary metastasis then only the hair in that area may be affected, but if the whole brain is being irradiated then hair loss will be total. Wigs and hairpieces may help and have a positive influence on body image, but they serve as a constant reminder of the illness. Patients should be advised that their hair will grow back after treatment (Kaye 2003).

Chemotherapy may also produce a response in metastases where the primary cancer is chemosensitive, such as small-cell lung cancer or lymphoma (Hoskin & Makin 2003b, Kaye 2003).

Bone metastases

The development of bone metastases is common in cancers such as breast, prostate, thyroid and lung (O'Brien 1993). Waller & Caroline (1996) state that there is a 30–70% incidence of bone metastasis in all patients with cancer. Faull & Barton (1998) and Downing (2001) give a concise description of the pathophysiology behind bone metastasis.

Assessment and prompt identification are important as the patient can experience severe bone pain and, untreated, there is an increased risk of pathological fracture. Common presenting signs of bone metastases are pain, hypercalcaemia and pathological fracture (Blows 2005).

Bone metastases and associated pain are generally very responsive to radiotherapy (O'Brien 1993, Wells 2003), although the rate and duration of response can vary. Radiotherapy can be given as a single exposure. The dose is fairly high and any side-effects may be intense for a short period of time. Alternatively the radiotherapy may be given over 5–10 days. There may be a flare-up of pain following radiotherapy (Hoskin & Makin 2003c, Wells 2003). Patients should be informed of this and appropriate analgesia prescribed to help manage the pain.

Because of the increased risk of pathological fracture in long bones an orthopaedic consultation may be sought with a view to internal fixation. The patient will benefit from pain relief as a result of the internal

fixation, and mobility will be maintained or regained. Postoperative radiotherapy can be given after pinning to aid healing and prevent tumour progression (Hoskin & Makin 2003c, Smith 1993). Some patients may present with widespread bone metastases; if this occurs, they can be treated with hemi-body radiation, as a single exposure (Copp 1991, Hoskin & Makin 2003c, Wells 2003). Again, the effects will depend on which half of the body has been treated. A premedication of an antiemetic and a corticosteroid is usually given. Once a patient has completed a course of radiotherapy to manage pain, the analgesic regimen should be reviewed to ensure that the patient is not taking more analgesia than is needed. This review may be carried out by either the hospital-based team or the primary healthcare team (PHCT) in the community.

Radioisotopes can also be used to treat bone metastases. Strontium-89 is a β -emitting isotope that works by following the biochemical pathways of calcium. Given by injection, it targets bony deposits and delivers radiotherapy locally, causing little damage to surrounding normal tissue (Day 1998, Needham 1997, Wells 2003).

With both hemi-body irradiation and strontium, bone marrow suppression can be a problem. Patient and carer education is important, with particular reference to control of infection.

Spinal cord compression (SCC)

Spinal cord compression is considered an oncological emergency. Downing (2001) stated it can be the most devastating complication of cancer metastases for cancer patients and their carers to experience. Rapid diagnosis, assessment and treatment are essential if neurological damage is not to become permanent (Coleman 1996, Faull & Barton 1998). Metastatic spread from breast cancer, cancer of the bronchus, lymphoma, prostate cancer, melanoma and unknown primary to the spinal cord is common (Souhami & Tobias 2003, Waller & Caroline 1996). SCC can be caused by bone metastases eroding the vertebral prominences or by tumour development in the spinal cord itself. Presenting symptoms include altered sensation, pain and muscular weakness. Loss of sphincter control is a late symptom (Downing 2001, Faull & Barton 1998). SCC may be treated by radiotherapy alone or surgical decompression followed by radiotherapy (Souhami & Tobias 2003).

As with other metastatic disease, response to radiotherapy may be determined by the radiosensitivity of the primary tumour. It is also dependent on the progression of the cord compression at the time

of diagnosis. The earlier treatment can be initiated, the better the chance of the patient retaining mobility. The side-effects caused by the radiotherapy will depend on the area being treated. If the thoracic spine is being treated then side-effects such as dysphagia or oesophagitis may occur and should be treated in the same way as if the chest were being irradiated, as discussed later in this chapter. In addition, nausea and vomiting may occur; the management of this is also discussed below.

If the lumbar or sacral spine is being treated, diarrhoea could be a problem. Patients need to be made aware of this. Increased fluid intake should be encouraged to prevent dehydration. Chemotherapy may be of benefit but only if the primary tumour is known to be responsive to chemotherapy.

Superior vena cava obstruction

Another oncological emergency is superior vena cava obstruction (SVCO), which results from pressure on the vessels from a tumour in the chest or mediastinum, or secondary to thrombosis. Carcinoma of the bronchus is the commonest primary cancer causing SVCO; some 75% of cases of SVCO are associated with lung cancer (Hoskin & Makin 2003d). Lymphomas are also implicated, and metastases from breast cancer (Downing 2001). The presenting signs are swelling of the face, neck and arms, engorgement of the jugular vein and dilatation of superficial skin veins, breathlessness, headaches and blurred vision (Coleman 1996, Hoskin & Makin 2003d, Neal & Hoskin 1997, Souhami & Tobias 2003).

Treatment usually consists of radiotherapy combined with high-dose corticosteroids that are aimed at preventing an inflammatory reaction to the radiotherapy, as this will exacerbate the symptoms. The high-dose corticosteroids need to be reduced carefully and quickly to prevent complications. The radiotherapy may be given as a short course, depending on the primary diagnosis (Souhami & Tobias 2003). Chemotherapy may be considered if the primary tumour is chemosensitive, such as lymphoma or small-cell lung cancer (Hoskin & Makin 2003d).

Radiological stenting of the superior vena cava vessels has become possible and offers a valuable alternative to radiotherapy. It is a useful option if the problem recurs (Neal & Hoskin 1997).

Side-effects of radiotherapy to the chest

Oesophagitis, which can be troublesome for patients having treatment to the chest, occurs because of the

rapid replication rate of the gastrointestinal mucosa. Pain can be a particular problem following intraluminal brachytherapy, because the radioactive source is close to the oesophagus. High fluid intake and an oral local anaesthetic with an alkaline or aspirin suspension will relieve pain by acting locally on the oesophageal mucosa. In severe cases morphine, together with sucralfate suspension, may offer relief from pain.

Pneumonitis may occur after radiotherapy to the chest if the lungs are in the treatment field. It has an acute phase, beginning from 6 weeks to 3 months after radiotherapy. Mild cases resolve but more serious cases require antibiotic treatment and steroids (Neal & Hoskin 1997). Pulmonary fibrosis and permanent respiratory compromise may result.

Oesophageal stricture

This is caused by a cancerous growth obstructing the oesophagus and can be treated palliatively in a number of ways. Surgical bypass may be an option, or the placement of a tube or a stent to allow the patient to maintain some oral intake of fluids (Souhami & Tobias 2003). Stenting is covered in more depth later in the chapter. Laser therapy can be used in conjunction with radiotherapy, although long-term evaluation is still awaited (Souhami & Tobias 2003).

Modest doses of radiotherapy can produce worthwhile results. The radiotherapy can be given externally over 1–2 weeks or it can be given as brachytherapy. Some patients may experience oesophagitis; the management of this was discussed above.

Fungating tumours

A fungating cancer is a primary or secondary malignant growth in the skin that has ulcerated, resulting in pain, exudate, bleeding, infection and malodour (Twycross 1997, Walding 1998). These tumours are common in patients with breast, vulval or penile cancers, and some head and neck cancers. The wound may have the appearance of a raised nodule or an ulcerated crater with a distinct margin (Moody & Grocott 1993). Because of the extent of the growth, treatment will be only palliative, but surgery may be considered, depending upon the site involved. Often a combined approach using a topical antibiotic agent such as metronidazole gel and radiotherapy is used. Metronidazole helps to reduce malodour and treats infection caused by anaerobic bacteria. Radiotherapy reduces tumour bulk and the amount of exudate produced.

Sucralfate gel can also be used in the management of both fungating tumours and surface bleeding (Regnard & Hockley 2004, Twycross 1997, Waller & Caroline 1996).

Haemorrhage

Non-acute bleeding can occur with some cancers as the growth erodes through smaller blood vessels. This can be seen as haemoptysis, vaginal bleeding, haematuria and rectal bleeding (Kaye 2003). Hoy (1993) describes radiotherapy as the most useful oncological treatment for tumour-related haemorrhage.

Radiotherapy can be given externally or by using brachytherapy techniques. Brachytherapy techniques can also be used to treat vaginal bleeding from gynaecological cancer. Whale (1991) believes that radiotherapy has an important role in palliating symptoms such as vaginal bleeding and pain. An applicator is placed into the vagina and uterus, into which radioactive sources are placed – brachytherapy. This is often an effective way of delivering radiotherapy treatment, but because of the close proximity of the bladder and bowel to the radioactive sources the patient may experience some short-term side-effects.

Diathermy or laser therapy may be of some use in the management of haemoptysis or haematuria (Neal & Hoskin 1997). Sucralfate can be given orally or used topically to treat superficial bleeding (Hoy 1993, Regnard & Hockley 2004, Waller & Caroline 1996). Some side-effects are common to radiotherapy and chemotherapy, and are discussed at the end of the section relating to side-effects from chemotherapy.

Care of site-specific side-effects

Skin care

Because the epithelial cells replicate rapidly they are more sensitive to damage caused by radiation (Campbell & Lane 1996, Holmes 1996b). In their paper on developing a skin care protocol, Campbell & Lane (1996) suggested that the use of research-based skin care would remove some of the outdated practices in use. One controversial area is whether patients can wash the area being treated or not. A study conducted by Campbell & Illingworth (1992) demonstrated that there was little difference in the incidence of skin reactions between patients who washed and those who did not. Webb (1979) pointed out that not washing can be distressing for patients and may be socially unacceptable.

Patients receiving chemotherapy and radiotherapy may be more prone to developing reactions, because chemotherapy can make the skin more prone to radiation damage. If a reaction does develop, the area may become reddened, like mild sunburn. This can progress from dry to moist desquamation (Campbell & Lane 1996). The skin will not repair until the treatment is complete, but prompt identification can prevent the reaction from progressing.

In patients receiving palliative radiotherapy, one would not expect to see anything more than a mild reaction, except in those having treatment over a 4-week period, in some head and neck cancers.

Oral care

Oral care is especially important for patients receiving radiotherapy to the head and neck area because the oral mucosa is prone to damage. Palliative radiotherapy may be considered in this group of patients to relieve obstructive symptoms (Neal & Hoskin 1997). The problems related to treatment in this area include mucositis, pain, dry mouth, infection, anorexia, altered taste and psychological problems (Feber 1995). These problems often develop early in treatment due to the fast replication rate of cells in this area (Faithfull 2001). Good oral hygiene should include using a soft toothbrush and regular mouthwashes (Turner 1996). Some over-the-counter mouthwashes contain alcohol, which can dry the oral mucosa, making it more susceptible to damage. Saliva substitutes can be used to lubricate the mucous membranes (Heals 1993). The use of bio-adherent gels may also help promote comfort, and should be considered as a dry mouth can have a detrimental impact on quality of life. Mouth dryness following radiotherapy can persist for some weeks after treatment is complete. High fluid intake will help to maintain lubrication. Good pain management is essential, and the prompt detection and treatment of oral infections will increase comfort.

Adequate nutritional intake is important to provide the body with sufficient protein to enable cellular repair. This can be compromised if the patient is experiencing altered taste, anorexia or dysphagia. Effective nursing and early involvement of a dietitian can help with the management of these problems. Some patients may require enteral feeding during treatment, via a percutaneous endoscopic gastrostomy (PEG) tube, which can be managed by the patient or carer at home. This ensures adequate nutritional and fluid intake, thereby helping the body to cope with the effect of treatment, and can also have a positive impact on the recovery process.

Case Study 4.1

Mr Wright, a 74-year-old man, was diagnosed with lung cancer. His disease was locally advanced and he was not well enough to tolerate chemotherapy. He had a course of palliative radiotherapy to his chest. He had severe dyspnoea before treatment and found this worsened after his treatment. He was bed-bound, being frightened to move as any exertion worsened his breathlessness. He developed oesophagitis, had no appetite and was losing weight. He was not sleeping well and had a troublesome cough, which was worse at night. He had lost interest in his family and in things around him, and was feeling fairly hopeless. The treatment had made him feel worse than he did before he had it.

Mr Wright was prescribed a 2-week course of steroids to reduce the possible inflammatory response within the lung tissue, and it was hoped that they might also increase his appetite. He was prescribed oral morphine solution to take as required for his troublesome cough. He was referred to a community Macmillan physiotherapist in relation to managing his breathlessness. A stair-lift was provided to encourage him to go downstairs during the day, and a Zimmer frame to provide support when he was walking. The steroids had the desired effect and, despite taking a number of months, Mr Wright is now able to get out and about, and has regained a quality of life that he thought was no longer possible. He does not use the oral morphine now and is contemplating driving again. He is followed up by the chest physician and his disease is stable at present.

WHAT IS CHEMOTHERAPY?

Chemotherapy is the use of chemical agents that are toxic to cells (cytotoxic), aimed at eradicating or reducing the overall population of cancer cells. Unfortunately, as with radiotherapy, the drugs presently available do not act on cancer cells alone. Normal cells are also affected, causing the patient to experience side-effects. Cells that replicate rapidly are more readily affected by cytotoxic drugs (Blows 2005, Burton 1988, Dougherty & Bailey 2001, Holmes 1997). This applies to both malignant and normal cells.

There are currently 40 to 50 cytotoxic drugs licensed to treat cancer. Combinations of drugs may be used to increase the number of cancer cells damaged, but hopefully without producing more side-effects (Hoskin & Makin 2003e). Pharmacology and drug administration are not covered in this chapter, but have been discussed in depth by Dougherty & Bailey (2001), Holmes (1997), Luken & Middleton (1995) and Neal & Hoskin (1997).

Chemotherapy has proved successful in managing some childhood cancers, testicular teratoma,

some lymphomas and leukaemias. There has been an increase in the use of chemotherapy as an adjuvant treatment together with surgery and/or radiotherapy, particularly in patients with breast cancer, colorectal cancer, and some head and neck cancers. Studies have shown this can improve disease-free survival time in some patients (Curt & Chabner 1987 in Holmes 1997).

Palliative chemotherapy

Chemotherapy is able to destroy both the primary tumour and distant metastases (Holmes 1996c). Kaye & Levy (1997, p 39) state: 'Palliative chemotherapy may be given to patients with locally advanced or metastatic disease in order to prolong life, control symptoms or improve quality of life'. They see palliative chemotherapy as a partnership between the patient and the professionals, and not focused just on the cancer. The aim of the treatment is to relieve symptoms while causing minimal side-effects. Oliver et al (1997) agree with this, stating: 'It is therefore essential to involve the patient and family in a therapeutic relationship. It is not sufficient merely to make information available: health professionals must be certain that the information is understood'. Hoskin & Makin (2003e) set out a list of indications for palliative chemotherapy.

Archer et al (1999) concluded that the evidence for palliative chemotherapy was growing because of the positive effect chemotherapy can have on quality of life. They examined a number of studies in a range of diseases.

Souhami & Tobias (2003) offer a salutary note that the potential benefits of palliative chemotherapy must be weighed carefully against unwanted effects. Many drugs developed to treat advanced cancer are given on a day case basis or as an oral preparation, if available, aiming to keep the patient at home while maintaining quality of life.

Kaye & Levy (1997) list the cancers commonly treated with palliative chemotherapy. Secondary deposits may respond to chemotherapy if the primary disease did initially. Palliative chemotherapy is frequently given to patients for whom there is little chance of response to other treatments and no chance of cure (Calvert & McElwain 1988). Patient information and education about the disease and treatment are vital as the patient must be able to have a sense of control and make informed choices.

Development of new drugs

Ling (1997) suggests that research in palliative care can meet with resistance, yet this is valuable work.

Calvert & McElwain (1988, p 300) point out: 'there are a large number of cancer patients for whom the chemotherapy drugs presently available have little or nothing to offer. Whether the research is studying new cytotoxic drugs, biological products, antibody-targeted drugs or non-cytotoxic anticancer agents they still need to be tested so that their role may be established'. Even though this was written over 10 years ago, it is still applicable today. Since 1988 we have seen the introduction and licensing of the taxanes, raltitrexed, epirubicin and carboplatin, to name but a few.

There is no way of knowing how effective the treatment will be, as Calvert & McElwain (1988, p 300) have stated: 'drugs which show remarkable and curative activity when given to animals may be completely inactive in humans'.

Some of the drugs developed are analogues of drugs previously available, the new drugs being developed in order to reduce the toxicity profile. Drugs are also developed to manage the side-effects caused by treatment such as antiemetics and colony-stimulating factors. All of these drugs go through a similar research development programme. To satisfy strict ethical guidelines, new anticancer drugs have to be tested in patients who have no prospect of benefiting from other treatment (Kaye & Levy 1997).

It is more relevant in palliative care to consider what happens to the patient not what happens to the tumour (Oliver et al 1997). Quality of life is an important issue within oncology and palliative care, and more often today clinical trials conducted with new drugs examine the clinical effectiveness of the drugs and the effects on the patient's quality of life. There is no value in developing a drug that leaves the patient debilitated. Conversely, some drugs/regimens have been shown to improve patients' quality of life while not having a dramatic clinical impact (Hardy et al 1989 in Oliver et al 1997).

Neal & Hoskin (1997) point out: 'measurement of quality of life has become an increasingly sophisticated exercise'. There are tools available such as the Rotterdam Symptom Checklist or the Hospital Anxiety and Depression scale. Clinical trials often incorporate the European Organisation for the Research and Treatment of Cancer (EORTC) questionnaire QLQ-C 30. This has supplements specific to certain cancer sites, for example breast cancer.

Clinical trials are strictly governed, requiring approval from multi-regional ethical committees (MRECs) and local ethical committees (LECs) before proceeding. Documentation has to be thorough, as data collection is usually overseen by the drug company or the group coordinating the research.

There are four stages or phases of clinical trials relating to the stage of use of the drug. At all phases the patient has to give written informed consent, having been given a full verbal and written explanation about the trial (Ling 1997). The patient has the right to withdraw from the trial at any time without giving a reason and without compromising future treatment and support (Oliver et al 1997).

In phase I studies the drugs are being given to humans for the first time. It is not known what clinical benefit will be seen, if any, at this stage (Holmes 1997). The aim of these studies is to identify a safe maximum dose to study at phase II, and to identify the drug's toxicity profile. Phase I studies are offered to patients for whom there is no recognised treatment (Neal & Hoskin 1997); they may have widespread disease, and be resistant to a variety of chemotherapy drugs (Souhami & Tobias 2003).

In phase II studies the drug is given to groups of patients with a specific cancer, in whom a response is expected. Patients in these studies may have had conventional treatment but have subsequently relapsed.

Phase III studies are often called randomised controlled trials (RCTs), where the new drug or regimen will be compared against the existing 'gold standard' treatment. One difficulty with phase III studies is that patients have to be given information about both treatments, and often hope that they will receive the new treatment, sometimes equating 'new' with 'best'.

Phase IV studies are post-marketing studies, usually with the new drug funded by the drug company (Coleman & Hancock 1996, Neal & Hoskin 1997).

Hoskin & Makin (2003f) point out that only a small number of patients who are eligible for clinical trials will be entered into them. In an attempt to improve this situation, a clinical trials network has been established to run alongside the already established Cancer Networks to try to ensure that those patients who are eligible are considered and offered the opportunity to take part in a clinical trial.

Liver metastases

Hoskin & Makin (2003g) point out that up to a half of patients dying with cancer will have liver metastases, the most common primary cancers being those of breast, lung and colon, with the cancer spreading to the liver via the bloodstream. The presentation may initially be vague but the patient may present with jaundice and an itch, due to bile salts being excreted on to the skin. Depending on the fitness of

the patient and the extent of the disease, surgical resection may be an option if a solitary deposit is present. If jaundice has developed because of tumour obstructing the bile duct then insertion of a stent may give some relief. In colorectal cancer, 25% of relapses are confined to metastases in the liver (Hoskin & Makin 2003g). Chemotherapy may be offered depending on the overall clinical picture, often using drugs specific to the primary tumour type; a response is seen in 50–60% of patients with chemoresponsive primary tumours, such as breast or small-cell lung cancer (Souhami & Tobias 2003). In some cases this can produce a good response with resolution of symptoms occurring quickly. Unfortunately, symptoms often recur within a few months of completing chemotherapy (Hoskin & Makin 2003g).

Hypercalcaemia

Hypercalcaemia is a common problem occurring in approximately 10% of all cancer patients (Hoskin & Makin 2003h). It is associated with lung cancer, breast and prostate cancer, oesophageal cancer, and head and neck cancers. Presenting symptoms can be constipation, nausea, confusion and dehydration of varying degrees. Patients with the aforementioned cancers who present with these symptoms should have blood taken to check calcium levels.

Downing (2001) describes the physiology of hypercalcaemia as well as the treatment of this often distressing symptom. Intravenous fluids are often the initial treatment followed by the use of bisphosphonates which may be prescribed in the management of malignant hypercalcaemia (Fleisch 1995). Hoskin & Makin (2003c) identified that bisphosphonates are being used increasingly in the management of bone metastases in both breast cancer and myeloma. Bisphosphonates can be given intravenously or orally. They work by inhibiting bone resorption (Needham 1997, Souhami & Tobias 2003) and can also reduce pain, the risk of fractures and the need for analgesia, while enhancing quality of life (O'Brien 1993). There is an increase in the use of oral bisphosphonates; from a quality of life perspective, it reduces the frequency of hospital attendances.

Malignant effusions

Malignant effusions can develop within the pleural cavity, pericardial cavity and the peritoneal cavity. Pleural and pericardial effusion are most commonly associated with cancer of the lung or breast. Peritoneal effusion, or ascites, is associated with ovarian

cancer or secondary liver disease from colorectal cancer.

These effusions can be drained, giving instant relief to the patient. However, as mentioned by Hoskin & Makin (2003d), repeated paracentesis or pleural aspiration can result in loculation of the fluid, which can reduce the efficacy of subsequent attempts to aspirate the fluid. However, if the effusions recur then, after drainage of the pleural effusion, pleurodesis can be performed. This involves instilling sterile talcum powder, and in some cases chemotherapeutic drugs or a radioactive isotope, into the pleural cavity. The aim of this is to encourage the development of adhesions between the pleural linings, thereby preventing recurrent build-up of pleural fluid (Hoskin & Makin 2003d, Kaye 2004). Similarly, after drainage of ascitic fluid, cytotoxic agents or a radioactive isotope can be instilled in an attempt to slow down the recurrent build-up of ascitic fluid. The careful use of diuretics can also be considered as a non-invasive way to manage ascites (Regnard & Hockley 2004).

SIDE-EFFECTS OF PALLIATIVE CHEMOTHERAPY

This section focuses on side-effects related to the administration of palliative chemotherapy. There are other side-effects, which are covered in depth in texts such as Dougherty & Bailey (2001), Holmes (1997), Luken & Middleton (1995) and Stein (1996).

Hair loss

Hair loss is a concern to all patients who need chemotherapy. It is therefore important to find out for the patient whether the drugs they are to receive will cause hair loss. Drugs that commonly cause hair loss are anthracyclines, vinca alkaloids, and other drugs such as ifosfamide, docetaxel, paclitaxel and etoposide.

Hair loss is a psychologically distressing side-effect of chemotherapy. It offers a constant reminder to the patient of the situation they are in. Patients and their carers may find it difficult to address the issue of their hair loss with their children or grandchildren. Whenerly-Tedder (1997) talks of the social and psychological impact of chemotherapy-induced hair loss because of the patient's altered body image.

Reassurance should be given that hair will return after completion of the chemotherapy, but that its texture and colour might be different because of the effects of the drug on hair follicles. A hairpiece should be provided before hair loss occurs. Turbans and head scarves are a popular alternative.

Scalp cooling is a technique used to prevent hair loss by reducing the amount of drugs reaching the scalp (Dougherty 1996, Holmes 1997, Hoskin & Makin 2003e).

Peripheral neuropathy

This side-effect has been seen with cisplatin and the vinca alkaloids. Although it is a late effect, presenting months after completion of treatment, it is irreversible.

Since the introduction of the taxanes, patients have been known to develop mild to moderate neuropathy with early onset. The extent of the neuropathy ranges from pins and needles to reduced mobility. This effect does appear to improve on completion of the treatment, and patients should be made aware of its possibility before treatment. Aston (1997) suggests that patients need to be told how to cope with this distressing symptom.

Altered bowel habits

Diarrhoea or constipation may be experienced by patients receiving chemotherapy; they are equally distressing, often causing abdominal pain and discomfort. Diarrhoea often results from the effect that chemotherapy drugs have on the gastrointestinal mucosa (Dougherty & Bailey 2001).

The patient may be given antidiarrhoeal medication and dietary advice, such as to have a bland low-fibre diet and high fluid intake – up to 3 litres of fluid a day to prevent dehydration and electrolyte imbalance.

Constipation may be a problem, particularly in patients treated with vinca alkaloids, as these drugs reduce gut motility (Dougherty & Bailey 2001, Holmes 1997). There may be other factors that can compound the problem, such as the use of opioid analgesics, lack of exercise and alteration in diet. Prophylactic aperients can be prescribed, together with a high-fibre diet (Holmes 1997).

Giving information to the patient at an early stage will ease some distress and anxiety caused by lack of information. It also aids early recognition of problems and enables prompt treatment, although it may cause some patients concern.

SIDE-EFFECTS COMMON TO RADIOTHERAPY AND CHEMOTHERAPY

Nausea and vomiting

Nausea and vomiting are two distressing side-effects related to radiotherapy and chemotherapy. With radiotherapy they may be related to the area or the

Case Study 4.2

Freda, a 68-year-old woman, was diagnosed with cancer of the ovary. She also suffered from arthritis and had had two knee replacements and one hip replaced. Freda's main problem was hip pain. She saw an orthopaedic surgeon for consideration of another hip replacement. After diagnosis she received treatment with curative intent. Freda had surgery followed by eight cycles of chemotherapy, which she tolerated well. She was now on 3-monthly follow-up by the oncologist. Freda had her hip replacement and in the intervening time was referred to the physiotherapist as her mobility was worsening and she was developing back pain.

Freda was prescribed morphine to help control the pain she was experiencing in her hip and back. She had a bone scan prior to her hip replacement and made a good recovery in the immediate postoperative period. At follow-up it was identified that the levels of tumour markers were raised, and 18 months after her initial diagnosis she was found to have disease progression.

Freda had a different combination of chemotherapy drugs this time. She was aware of the possible side-effects. With her first course of chemotherapy, she had difficulty with her blood count but knew the signs to look out for. Freda had some nausea after her first cycle of chemotherapy so was prescribed metoclopramide 10 mg three times daily, but this was changed to domperidone as she started to feel agitated and restless. Freda was not sure whether this was due to the steroid that she was taking as part of her antiemetic regimen. Her hair fell out before the second cycle of chemotherapy; she had good support from her hairdresser and family. Freda had an anaphylactic

reaction when she was having her second cycle of chemotherapy; although this was very frightening for her, she was still keen to continue chemotherapy, so the carboplatin was changed to cisplatin which she received as an inpatient. After three cycles of chemotherapy a computed tomographic (CT) scan showed good response so Freda continued on chemotherapy and had six cycles in total. A CT scan after chemotherapy showed a good response, and Freda, despite knowing that she could not be cured, hoped to have a similar length of time, disease free, before needing more treatment. In the meantime Freda attended the day hospice to ensure that she did not become socially isolated as a result of her illness and treatment.

Freda recovered well after chemotherapy and it was possible to discontinue the morphine. Six months later disease progression was identified again as the levels of tumour markers were rising; a CT scan confirmed what was happening. Freda was keen to accept chemotherapy, if it was offered, her hope being to live a little longer. During this round of chemotherapy Freda lost her hair, had one or two treatments postponed because of a low neutrophil count, and had problems with nausea and vomiting. Peripheral neuropathy was also problematic; Freda loved to crochet and knit but found she was unable to do these activities because of the neuropathy; Fatigue proved to be frustrating for Freda as she liked to be as active as possible.

Freda has now completed her third course of chemotherapy and is well at the moment.

duration of treatment. The byproducts of cell breakdown, urea and creatinine, are normally toxic in large amounts. Large numbers of cells are being broken down as a result of treatment. The toxins produced will be detected in the blood by the chemoreceptor trigger zone and a response initiated. These mechanisms have been discussed more fully by Williams (1994) and Holmes (1997).

Quinton (1998) says that 'maintaining adequate control of nausea and vomiting can preserve the quality of an individual's life and enable patients and their families to endure what can be a demanding course of chemotherapy'. There is a number of factors that can induce nausea and vomiting (Williams 1994), and others that can predispose a person to be more likely to develop nausea and vomiting, such as motion sickness (Adams 1993). Good patient assessment will help to ensure the appropriate prescribing of antiemetic drugs and reduce the incidence of this

side-effect. It is helpful to understand the mechanisms involved in producing this response, as this will aid in more appropriate prescribing of antiemetics (Williams 1994). Williams (1994) states: 'Psychologically, uncontrolled nausea and vomiting may well cause anxiety and distress to patients, their relatives and friends'. Patients who have had chemotherapy previously, possibly intense or aggressive regimens, may experience anticipatory nausea and vomiting, which is difficult to manage because it is psychologically driven. An anxiolytic such as lorazepam can be useful because it helps patients forget the experience of vomiting.

Hypnotherapy can be used to help in the management of anticipatory nausea and vomiting by offering the patient a sense of control (Stein 1996). Other complementary measures such as pressure bands are described by Stannard (1989). Distraction and acupuncture have also been used with some success.

Bone marrow depression

This can present as anaemia, leucopenia and thrombocytopenia. Myelosuppression can be caused by both radiotherapy and chemotherapy; the presenting signs and care of the patient are similar, regardless of the cause. If patients have had a number of courses of chemotherapy, they may be at greater risk of developing myelosuppression.

With radiotherapy the development and extent of myelosuppression depends on the extent of bone marrow in the treatment field (Holmes 1996a). The structure of the bone marrow may be permanently altered, leaving the patient compromised (Holmes 1996a).

Dougherty & Bailey (2001), Luken & Middleton (1995) and Stein (1996) have pointed out that the myelosuppression caused by chemotherapy is the most common dose-limiting toxicity and is potentially fatal. A degree of myelosuppression is produced by all chemotherapeutic drugs, and the effect may increase if a combination of drugs is given or if the patient is receiving concurrent radiotherapy and chemotherapy.

The blood count is monitored before each pulse or cycle of chemotherapy. Treating a patient with a low neutrophil count can result in the patient becoming neutropenic, leading to an increased risk of developing septicaemia. The patient needs to be taught the signs and symptoms of all of these effects, and advised about home management and when to contact the hospital for further advice. Holmes (1997) noted that chemotherapy does not affect mature blood cells but damages the stem cells responsible for the replacement of depleted blood cells. Red blood cells are stored within the body; white blood cells and platelets are not stored but produced as needed. Anaemia is easily corrected by blood transfusion. Thrombocytopenia can be treated with a platelet transfusion.

Leucopenia is a significant problem in patients receiving chemotherapy, and is often the dose-limiting factor. A low neutrophil count leaves the patient susceptible to infection or septicaemia. Studies have shown that 85% of infections in neutropenic patients are caused by their own natural flora (Holmes 1997).

Leucopenia may present as a fever, rigor, redness and pus at a central catheter access site. Patients who do have a low white cell count and are without symptoms may be sent home to wait for the count to recover before the next cycle of chemotherapy. They may receive a course of prophylactic antibiotics. Patients who present with symptoms as well as a low white cell

count may be admitted and receive intravenous antibiotics. They may require nursing in protective isolation until the bone marrow starts to recover.

The development and use of haematopoietic growth factors has had an impact on the management of chemotherapy-induced neutropenia, reducing the duration of neutropenia and reducing antibiotic use (Dougherty & Bailey 2001). These factors are not used routinely for all patients, but are often used to support patients having high-dose chemotherapy or those whose bone marrow is compromised as a result of previous treatment.

Fatigue

Fatigue can be experienced by patients having radiotherapy or chemotherapy. Fatigue is often associated with anaemia, especially that caused by chemotherapy. With radiotherapy the fatigue may be made worse by travelling to and from the treatment department. Patients often report that fatigue is a serious side-effect that has a detrimental effect on their quality of life. They are affected to varying degrees, both physically and psychologically (Snape & Robinson 1996), ranging from feeling tired, lethargic and anorexic to loss of social function and loss of libido. Fatigue can have a dramatic impact on a person's ability to carry out activities of daily living and can lead to a sense of frustration, emotional distress and low mood; often a lack of understanding can lead to problems between patients and their carers. Faithfull (2003) gives a detailed description of the aetiology of fatigue and reviews articles on the subject of fatigue and radiotherapy. The recommendations for clinical practice made by Faithfull (2003) can be applied equally well to patients being treated with chemotherapy.

A number of factors are thought to contribute to the development of fatigue: an increase in metabolic rate caused by the cancer; an increased demand on the body's resources to repair normal cells damaged by treatment; and an increase in cell breakdown and excretion of toxic byproducts (Snape & Robinson 1996). Fatigue may not develop immediately and can persist for months after treatment. It is valuable to find out what fatigue means to patients, as they may believe the symptoms to be caused by disease progression rather than fatigue or anaemia (Holmes 1996a). Patients should be informed of this possible effect of treatment and given support and advice about how to minimise its impact. Planning the day, resting before becoming tired and eating well can help. Two very useful reviews about fatigue in cancer patients have been written by Richardson (1995) and Stone et al (1998).

Stomatitis

A sore mouth can be caused by some chemotherapeutic drugs or radiotherapy to the head and neck. There is a dramatic shift towards administering oral chemotherapy drugs. This can range from general soreness, loss of taste and loss of papillae from the tongue, to severe painful ulceration. Stomatitis is produced because the oral mucosa replicates rapidly, making it more susceptible to the effects of chemotherapy.

Patient education about oral hygiene is important, as discussed earlier in the chapter. An oral hygiene regimen using a soft toothbrush and regular mouthwashes can help to keep the mouth moist and clean. In addition, mouthwashes containing a topical analgesic can reduce pain. Oral assessment tools can be beneficial. Patients receiving chemotherapy may be prone to oral infections, and the mouth can be an ideal entry point for bacteria. Corticosteroids may increase the susceptibility of the patient to the development of oral *Candida*, which can be treated with an antifungal or antibacterial preparation.

Taste alteration may occur and some patients develop an aversion to certain drinks or food. Some patients also experience a metallic taste in their mouth during administration of some drugs; sucking mints or sweets may help. This can be constant or intermittent and is often distressing, so mentioning the possibility of this sensation developing can ease some of the distress experienced. The taste generally reverts to normal when chemotherapy is completed (Speechley 1989).

Hormone therapy

The development of some cancers depends in part on certain hormones (Holmes 1997, Hoskin & Makin 2003e). Hormone manipulation is known to be of value in the management of some cancers, such as breast, prostate and endometrium (Hancock et al 1996, Kaye & Levy 1997, Moore 1995, Neal & Hoskin 1997). Hormones will not cure a patient but they can help to slow down the rate of growth (Hancock et al 1996). The aim of this treatment is either to block the action of hormones, modify the release of certain hormones or alter the hormonal environment (Hoskin & Makin 2003e). Most hormones can be taken orally which proves beneficial especially when using drugs in the palliative arena. Oestrogens, antioestrogens, androgens, progestogens and aromatase inhibitors are used. These drugs produce side-effects, which have been discussed by Fenlon (2001), Hancock et al (1996), Holmes (1997) and Moore (1995).

Case Study 4.3

Jen, a 51-year-old woman, completed a lengthy process of diagnosis which ended with her being diagnosed with mediastinal metastases from an unknown primary. It was initially thought that the metastases might be from a lung primary, but because Jen had a family history of breast cancer it was decided to treat Jen with a regimen of breast cancer chemotherapy.

Initially Jen had palliative radiotherapy to her chest to reduce the size of the metastases. Jen's partner was having radiotherapy for cancer of the prostate at the same time as Jen was receiving her treatment.

WHAT SIDE-EFFECTS MIGHT SHE HAVE EXPERIENCED FROM RADIOTHERAPY?

Jen completed her radiotherapy with few problems but 1 week after completion she developed oesophagitis, which was treated with sucralfate. She commenced chemotherapy a few weeks after completing radiotherapy, receiving six cycles of chemotherapy at 3-week intervals.

WHAT SIDE-EFFECTS MIGHT SHE HAVE EXPERIENCED FROM CHEMOTHERAPY?

Jen had a very pragmatic approach to the situation, but was also determined to fight as hard as possible. She tolerated the chemotherapy very well. The nausea and vomiting were treated with standard antiemetic medication.

When chemotherapy was completed, Jen's mood became quite low; she found not having treatment difficult to deal with psychologically. Jen does still have a degree of dyspnoea, possibly due to the development of pulmonary fibrosis in the areas of her lungs that were in the radiotherapy treatment field. She is waiting for a bone scan and CT at present as she has developed a new back pain.

RADIOLOGICAL INTERVENTION IN PALLIATIVE CARE

Silicone or metal stents are used widely in the palliation of cancer. Advantages have to be carefully balanced against the disadvantages and discomfort the patient may experience. Biliary and bronchial stents (Fig. 4.1) can alleviate symptoms from cholangiocarcinoma and lung cancer respectively, and compressed or compromised blood vessels such as the superior and inferior vena cavae can be managed by stenting. Stents can also be used in the management of oesophageal and renal obstruction (Watkinson & Adam 1996). The use of rectal stents is now accepted in some centres for advanced carcinoma of the rectum (Fig. 4.2). Usually these patients are not fit for surgical procedures owing to advanced disease, but require immediate symptom relief from rectal

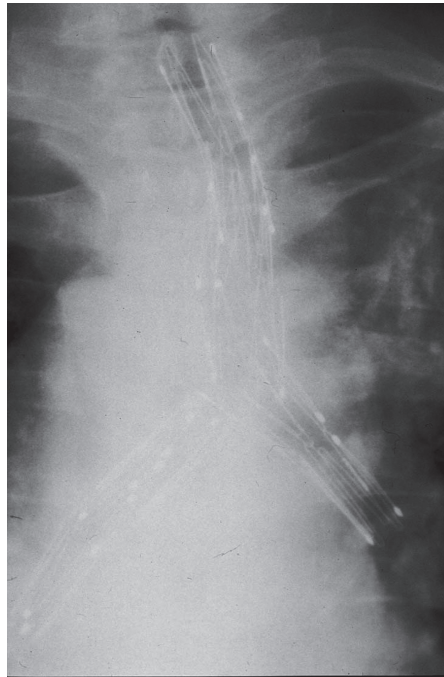
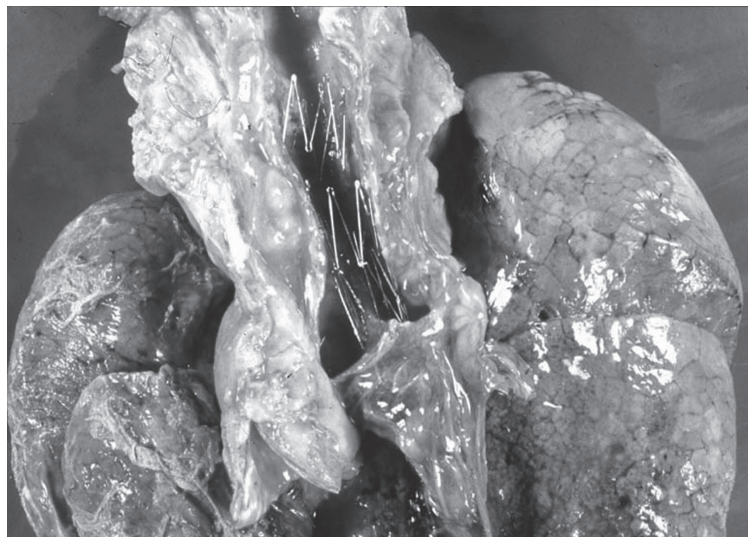
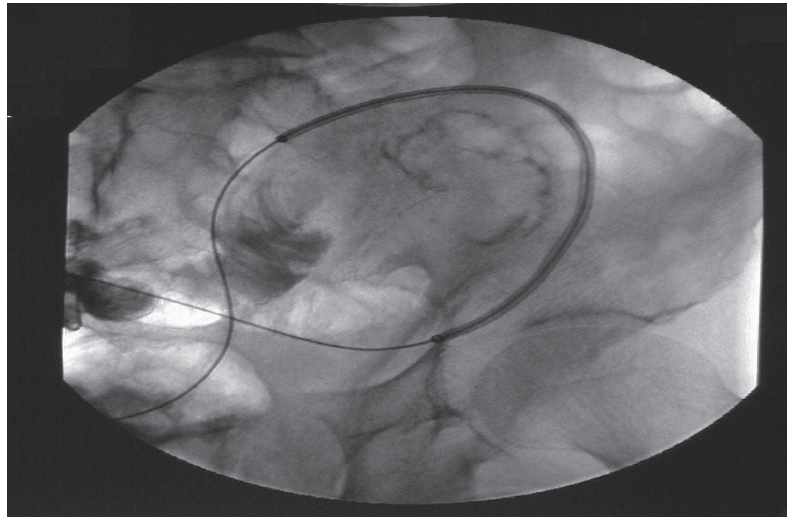
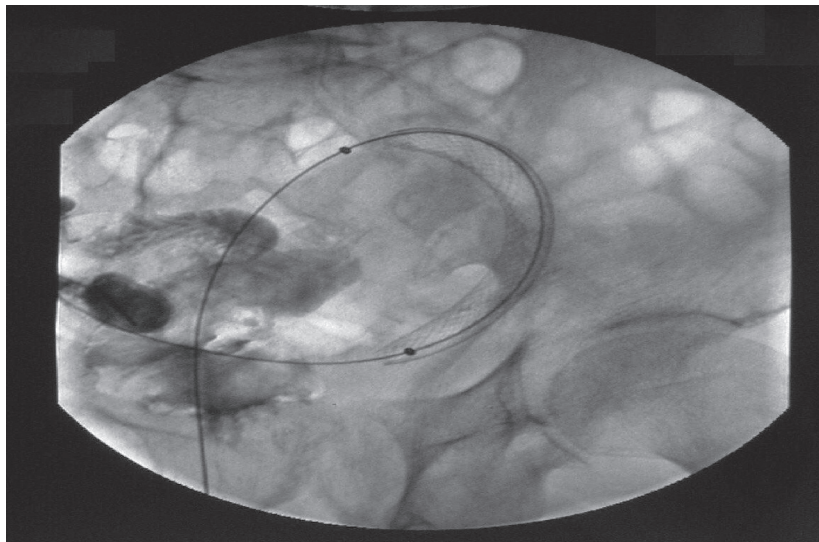
**a****b**

Figure 4.1 (a) Radiograph showing bronchial stents in position to maintain patient's airway which is severely compressed externally by tumour. (b) Position of the stents after autopsy. Note surrounding tumour compressing the bronchus. (By kind permission of South Tyneside NHS Foundation Trust.)



a



b

Figure 4.2 Radiographs showing a rectal stent (a) in position prior to deployment for rectal carcinoma and (b) fully deployed and open inside the rectum and maintaining a full lumen. (By kind permission of South Tyneside NHS Foundation Trust.)

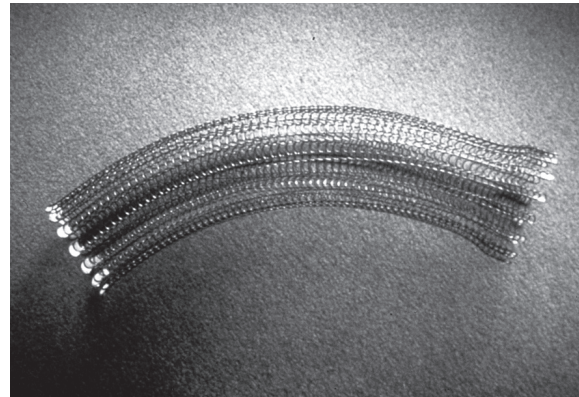
obstruction by radiological interventions. Other reasons may include anaesthetic risk due to a poor health performance status, for example chronic obstructive airway disease, chronic heart failure or other cardiac-associated morbidities. Newer, covered oesophageal stents have an antireflux valve incorporated inside the stent body, including an ‘antimigration’ design – the Hanarostent or do stents, as they are referred to by some centres (Fig. 4.3).

The design prevents migration of the stent and, more importantly, the difficult symptoms that

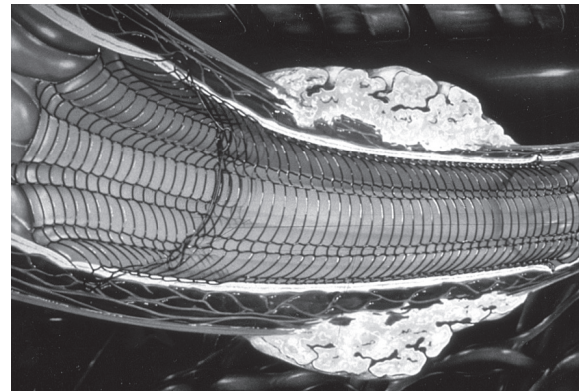
may follow oesophageal stent insertion, especially acid reflux, which is often distressing and painful for these patients. The main purpose of the stents is to maintain the natural lumen of the organ or vessel compromised (Fig. 4.4). Stents are usually made from an expensive material called nitinol. The expense of the stents must be considered in the light of the improvement in quality of life that they facilitate. A case study featuring a patient with recurrent oesophageal and pyloric carcinoma illustrates the benefits of stents. The patient’s name is fictitious.



Figure 4.3 Covered oesophageal antireflux and antimigratory stent (Hanarostent or do stent). (By kind permission of M.I. Tech, c/o Diagmed, Thirsk, UK.)



a



b

Figure 4.4 (a) The Boston Scientific Microvase Ultraflex Stent; (b) stent *in situ*. (By kind permission of Boston Scientific, St Albans, UK.)

Case Study 4.4

INTRODUCTION

Palliative care is a programme of active, compassionate care that is directed primarily towards improving the quality of life. It is a discipline with its own growing research and knowledge base, and a specific set of skills aimed at symptom control and psychological support. Palliative care allows explicit goals for therapy and informed choices for patients. All of the family is affected by the chronic illness of one member and so palliative care services involve the whole family as the unit of care. Holistic care for both patient and family is delivered by an interdisciplinary team (Hanson & Cullihall 1996). This case study is unusual because of the palliative measures taken to alleviate difficult symptoms of oesophageal and secondary pyloric carcinoma, using modern invasive techniques. The team faced many difficulties, supporting the patient and his family through many disappointments. This time was also emotionally and physically demanding for those who cared for the patient. The study will make clear

why modern techniques to prolong and sustain life in the terminally ill should be used despite negative attitudes expressed by others. A combination of team effort and minimally invasive techniques brought comfort and dignity to the patient and his family.

PATIENT HISTORY

Dave, a 56-year-old man, was diagnosed with oesophageal carcinoma. He lived with his loving wife, Sylvia. His only daughter was married but remained close to her father. Seven months previously an oesophagectomy had been performed. The stomach had been pulled into the right thoracic cavity and the upper part of the oesophagus joined to the immobilised stomach and duodenum. A node dissection was performed at surgery. Dave received a course of radiotherapy soon after his surgical recovery. He was readmitted 4 months later because of epigastric pain and occasional nausea and vomiting. An oesophagogastrroduodenostomy (OGD) examination 2

Case Study 4.4 – cont'd

days later revealed recurrent cancer obstructing the gastric pylorus. Abdominal ultrasonography showed liver metastases, and chest radiography demonstrated chest abnormalities.

On admission Dave was told about the possible recurrence and advancement of his disease and that the cancer was incurable. Dave and Sylvia were extremely anxious. Dave had not retired and they had made many plans, thinking the initial surgery had been successful. Their first grandchild was soon to be born.

Primary nursing was used to ensure continuity in nursing care throughout Dave's stay. His nursing care was organised using the Roper et al (1980) model of nursing. The surgical and palliative care teams worked together to care for Dave and his family. The primary nurse ensured that Sylvia was an integral part of Dave's care. Care was planned around a usual daily routine, while Dave was in hospital. Most of his subsequent care took place in a hospice, which helped ease the family's distress. Dave's initial aim was to 'get over this setback'. He wanted to live at home within the surroundings he and Sylvia had worked hard for over the years. Dave had never suffered from ill-health until he complained of difficulty in swallowing 4 months before his operation. Sadly, his disease had now spread, and Dave and Sylvia knew that time together was the only valuable thing during this difficult journey towards death.

OESOPHAGEAL CANCER

Oesophageal cancer is commoner in males, with a male:female ratio of about 2:1, and usually occurs in individuals over 50 years of age (Belcher 1992). In the UK, it has become more prevalent in the past 10 years. There is much evidence to indicate that oesophageal cancer is related to excessive alcohol and tobacco smoking, as well as to nutritional deficiencies and environmental carcinogens (Souhami & Tobias 1995).

Dysphagia is the commonest symptom and is almost always accompanied by weight loss, often amounting to 10% or more of body-weight. Recent evidence strongly supports the view that the incidence of adenocarcinoma of the oesophagus is increasing (Powel & McConkey 1990). Excision is the treatment of choice in patients who are generally fit and have no evidence of distant metastases. It is important to determine the extent of the lesion before definitive surgery. There is no evidence that preoperative radiotherapy influences recovery from the resection, operative mortality or overall survival (Earlam & Cunha-Melo 1980).

Dave's operation employed a technique using mobilised stomach above the diaphragm (Fig. 4.5) as a means of reconstruction. This is an extensive operation associated with a high risk of death. Surgical complications such as oesophageal stricture and anastomotic leak – resulting in mediastinitis, pneumonitis and septicaemia – can be fatal (Souhami & Tobias 1995).

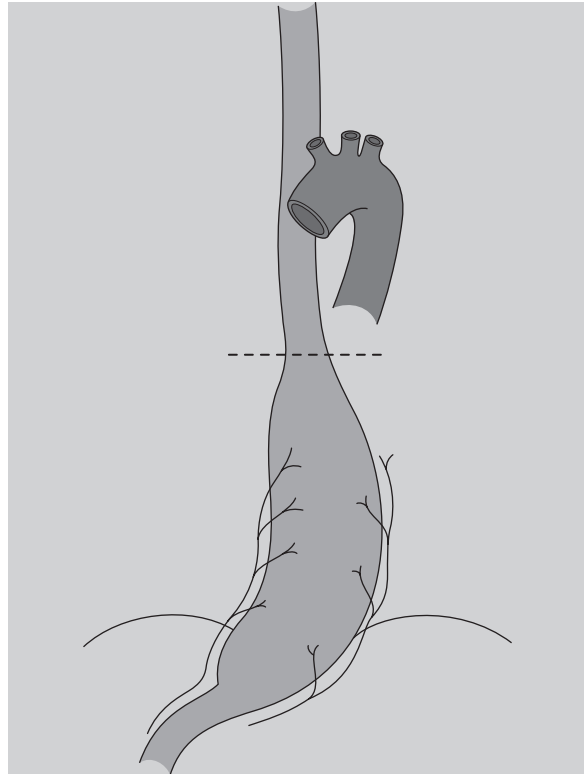


Figure 4.5 Surgery for oesophageal cancer, showing gastric mobilisation and pull-through for carcinoma of the lower third. (Reprinted with kind permission of Blackwell Science Ltd.)

With intensive nursing, Dave's surgery and recovery were successful, with no complications. He was discharged home until his present readmission with new symptoms and pain.

ISSUES REQUIRING CARE

Pain

Dave was experiencing epigastric pain, which became worse with episodes of nausea. It was difficult to know whether it was tumour pain or discomfort caused by the nausea. For most patients, physical pain is one of the greatest fears associated with cancer. Dave was afraid of morphine because of his experience when recovering from surgery. He had experienced hallucinations and was reluctant to take any medication. Although this is understandable, especially in responding as a nurse to a particular pain problem, the temptation may be to focus on that symptom alone. The patient must be allowed to identify his problems, and interventions should honour the value of the patient's perceptions (Davies & Oberle 1990).

Case Study 4.4 — cont'd

Pain assessment

Dave was allowed to talk about his fears about pain and to tell his story as a means of assessment. He looked pale and anxious. He talked about his original diagnosis and of his own and his family's hopes following the surgery. The pain seemed to indicate to Dave and his wife that the cancer had returned and they were frightened. They felt the possibility of metastatic spread had not been made clear to them at the time of the first operation. They both had ambivalent feelings towards medical staff and healthcare professionals. These feelings faded with careful handling, honesty and truth. Although Dave's general practitioner had asked for an urgent referral to the consultant, Dave had had to wait 4 weeks for admission. Despite the informality of the information gathering, the responses were sorted into pain concepts, so that appropriate resources could be utilised. Dave loved life and was looking forward to having grandchildren. He now felt he would never work again or drive a car and that, ultimately, this was the end.

It was decided to discuss Dave's fears of morphine with medical staff before choosing an appropriate analgesic. At this point a pain and symptom chart was introduced, using a new chart piloted by the ward, combining pain and associated symptoms on one chart. This was used to record when Dave admitted to having pain or was observed and assessed as having pain, and when analgesics were administered. There is a need for simple, efficient and valid assessment tools that can provide rapid evaluation in clinical settings of the major aspects of pain experienced by cancer patients (Foley 1982).

In view of Dave's nausea and the unsuitability of oral analgesics, it was decided to use 150 mg tramadol administered subcutaneously via a 24-hour syringe driver. Tramadol is a safe and effective agent introduced in the late 1970s to alleviate cancer pain. Its efficacy appears to be equivalent to that of morphine but is dose-dependent. It causes less constipation or respiratory depression. It causes weak activation of both central pain and inhibitory mechanisms in the opioid receptors, as well as the descending monoaminergic system (Budd 1995). Initially, tramadol did not control Dave's pain, so the dose was increased.

Dave experienced anxiety and depression as a result of his illness and altered body image. Both of these emotions are likely to exacerbate pain symptoms. Saunders (1990) described somatic and psychological experience of pain as 'total pain'. It is also directly related to the pain gate theory (Melzack & Wall 1965), and the role of the limbic system in which anxiety and depression serve to open the gate to varying degrees, thus heightening pain perception. It was important for the nurses to provide a supportive environment for Dave and his family.

Nausea

Dave was experiencing nausea on admission which was problematic; a gastroscopy revealed the recurrence of cancer at the pylorus of the immobilised stomach. The lumen from the pylorus had a stricture into the

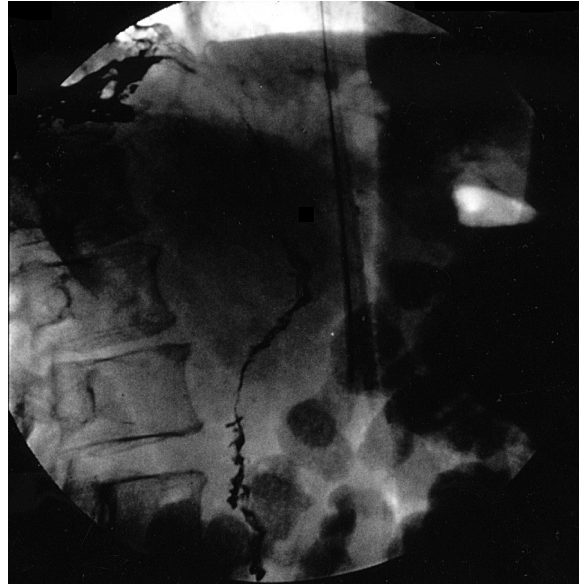


Figure 4.6 Radiograph showing the stricture of pylorus. (By kind permission of South Tyneside District Hospital.)

duodenum caused by the tumour, thus preventing the passage of food or fluids (Fig. 4.6).

A nasogastric tube had been inserted. It was allowed to drain freely and aspirated every 2 hours to keep the stomach empty. Intravenous therapy was started to establish and maintain a fluid intake of 3 litres over 24 hours.

In the hospice, fluids were given subcutaneously (hypodermoclysis). Hypodermoclysis is defined as the infusion of a solution into the subcutaneous tissue to supply the patient with a continuous and sufficient amount of fluid, electrolytes or nutrients (Urdang 1983). This is an easy and effective way to administer fluids.

Dave was kept informed about his treatment and told the findings of the gastroscopy by the surgeon. Surgical treatment to restore the continuity of the lumen could not be considered and other palliative treatments such as radiotherapy and chemotherapy were not an option at this stage. This meant that Dave would continue like this and die soon. Percutaneous gastroscopy (also known as venting gastroscopy) is often a last resort. The stomach drains continuously via a tube placed through the abdomen into the stomach. This allows the patient to drink without vomiting, as the fluids drain into a collecting bag (Ashby et al 1991). For Dave, the option of percutaneous gastroscopy was also impossible as his stomach was in his chest.

To control Dave's nausea, it was decided to give 150 mg cyclizine concurrently with tramadol, via the subcutaneous route. Cyclizine is an antihistamine with added anticholinergic activity. This drug was chosen as symptoms of bowel obstruction may be mediated partly by vagal afferent fibres (Mosby Drug Reference 1994).

Case Study 4.4 – cont'd

Once the nausea and pain were relieved, Dave slept for long periods over night. Sylvia was feeling guilty because he was in hospital and wanted to be at home with his family. Dave reconciled himself that he was in an environment where additional support was available 24 hours a day, should his symptoms return. Sylvia was always in a guilt dilemma and often needed reassurance from nursing staff that Dave was in the best place. Sylvia's own sleep pattern varied and as time moved on she began to look tired and thin.

The next day, after careful consideration and discussion with a radiologist, the team decided that the only option was to try an expansile metal stent implanted in the pyloric stricture to open up the lumen of the bowel. This would alleviate Dave's nausea and he would be able to manage oral medications and a modified liquid diet. He would not need intravenous fluids or nasogastric aspiration. This procedure is not without risks. Incorrect dilatation of the lumen during stent insertion carries the risk of bowel perforation. The recent use of expansile metallic stents had demonstrated an improved survival rate in patients like Dave. He felt at ease with this solution, and agreed to the procedure. The stent arrived within 2 days. During this time Dave's pain and symptoms were controlled. Preliminary radiographs were taken using a contrast opaque solution, instilled via the nasogastric tube. The radiographs enabled the length of the stricture to be measured, and allowed assessment of the extent of the stenosis and a decision on the position of the stent.

Metallic stent insertion

Normally an oesophageal expansile stent is not used in the pylorus and duodenum, because the peristaltic movement in this part of the bowel may dislodge the stent. Dave consented for the procedure, which took place in the radiology department using an image intensifier. When he was positioned (supine) on the table, an electrocardiographic (ECG) monitor was attached and oximetry attached by an ear probe to measure oxygen saturation (normal value greater than 92–94%). Oxygen was given via a nasal cannula throughout the procedure, and his blood pressure was measured before and after sedation with midazolam (increments of 2 mg given every 3 minutes if required). A nurse monitored his airway and vital signs throughout the procedure.

Insertion technique

1. A contrast solution was instilled via the nasogastric tube into the pylorus and stomach; at that time the head end of the table was raised.
2. No contrast solution was seen to enter the duodenum, so a guidewire was passed into the stomach and pushed with some force through the stricture.
3. Dilators were threaded one at a time over the guidewire, to dilate the stricture. At one point, contrast was seen to trickle into the duodenum, indicating a passage could be made.
4. After dilatation to the satisfaction of the radiologist, a special inflatable balloon dilator was threaded over

the guidewire. The balloon could be inflated only to a pre-set pressure so as not to rupture the duodenum or pylorus. Only if a final dilatation was successful and satisfactory to the radiologist would the stent be considered.

5. The stent was now threaded over the guidewire encased within its gelatine covering. It proved very difficult to place, taking almost 2 hours, needing removal and re-insertion, and encountering many problems. The procedure was almost abandoned because of the difficulties. Another attempt was made, with extra pressure pushing the stent into the pylorus and duodenum; it was painful for Dave so he was given 50 mg pethidine intravenously with 2 mg midazolam. Finally, the stent was in position; the cover was removed, allowing the holding gel to dissolve and the stent to expand to its maximum size.
6. The stent was expanded internally by the insertion of the balloon dilator, to dilate the internal diameter to 12 mm. This would ensure that the whole stent would remain open.
7. More contrast solution was instilled, via the nasogastric tube. This showed that there was free flow through the stent and demonstrated a complete and successful procedure (Fig. 4.7).



Figure 4.7 Radiograph showing the stent insertion and free-flowing contrast solution through the completely opened stent. (By kind permission of South Tyneside District Hospital.)

Case Study 4.4 – cont'd

Dave returned to the ward for observation; he awoke from sedation to hear the news of a successful positioning of the stent with good function.

The position and function of the stent was rechecked the next day and free clear oral fluids were commenced. It was checked again 5 days later; the extent of expansion was confirmed by radiography (Fig. 4.8).

Nutrition

The stent did not interfere with peristalsis but the pylorus could cope only with fluids. Dave's whole dietary intake was monitored and controlled by the dietician, who provided a high-protein, high-calorie diet. Medication was given in syrup form until his condition deteriorated, after which a syringe driver was used to administer analgesia continuously.

Pain revisited

As Dave's pain increased there was no alternative but to give morphine, as morphine slow-release sachets (MST) in liquid form. The doctor prescribed MST, 30 mg 12 hourly, and 10 mg oral morphine solution for breakthrough pain. Dave was also prescribed a laxative daily, to prevent constipation, and haloperidol subcutaneously at night, to alleviate nausea associated with the morphine. Dave never experienced hallucinations and his pain was well controlled.

The analgesic protocol enabled the registered nurse to respond promptly to Dave's pain without delay or needing to refer to a doctor each time Dave was in pain. Specifically, opioids were given by the clock (Latham 1991).

As Dave weakened, his medications were altered. Diamorphine replaced the MST and methotrimeprazine (30 mg over 24 hours) was given via a syringe-driver to relieve nausea. He responded well as methotrimeprazine (Nozinan) is an antipsychotic drug with anxiolytic and antiemetic properties, and is also a sedative (Joshua & King 1994). The dosage can be increased to 250 mg in 24 hours, and methotrimeprazine can potentiate the action of diamorphine, causing further sedation. Dave continued to weaken and gradually became unconscious. He died later that night surrounded by his family, 4 months after stent placement.

Palliative treatments allowed greater freedom, a relatively pain-free existence and the vomiting never

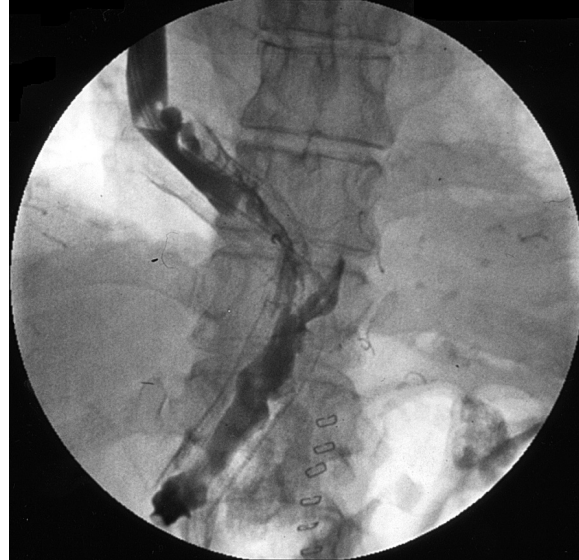


Figure 4.8 Check radiograph 5 days after insertion of the stent. (By kind permission of South Tyneside District Hospital.)

returned. Dave was able to go home occasionally at weekends to be with his family before his condition deteriorated. At Christmas, everyone felt guilty tucking into Christmas dinner, while Dave had a strained soup and Fresubin, a supplementary feed. He did manage some alcohol – he loved Guinness. Open communication with Dave and his family helped throughout the few months that he had left. They were allowed to make informed choices regarding his care. The metallic stent was a great aid to his palliation, allowing Dave to die with dignity, in control and with no vomiting, pain or discomfort.

Without the stent, Dave's life would have been shorter and possibly unbearable. The nursing staff played a valuable role as part of the palliative care team helping to alleviate Dave's anxiety and restlessness and to control his pain and nausea. This allowed him to have quality time to spend with his family.

CONCLUSION

Unfortunately some patients may experience a number of symptomatic problems that could require treatment. Some cancers are becoming more chronic in nature, with patients developing metastatic disease in a number of different sites such as the liver, bone and brain. This presents a great challenge to the patient who has to cope with progressing disease and its impact on their life; it also presents a challenge to the healthcare professionals who support patients through this. As suggested by

Faithfull & Wells (2003), supportive care for patients receiving radiotherapy should not be an optional extra, but something that deserves greater attention.

As Copp (1991) noted, these treatments may prove a stressful and fearful experience for many patients. There are many myths and misconceptions that still surround chemotherapy and radiotherapy. Nurses and healthcare professionals, both in hospital and in the community, are in a unique position to ensure that patients have clear information which they understand.

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