



## Case studies in mental health in general practice: depression and malignancy

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### Abstract

We reported a case of a 58-year-old single mother, who was diagnosed with a grade 3 invasive ductal carcinoma with a total Nottingham score of eight. The patient is struggling with overwhelming thoughts about death, but denies suicidal ideation. There are many emotional difficulties a person must face on receiving a diagnosis of cancer. To provide appropriate medical treatment, it is crucial to differentiate these normal feelings from a mood disorder (major depression). Depression is more commonly associated with certain cancers, particularly oropharyngeal, pancreatic, breast, and lung cancers. Depression in individuals with cancer is linked to prolonged hospital stays, worse clinical outcomes, and a reduction in the quality of life. Strong evidence surrounds the benefits of psychotherapy in treating depression in patients with cancer. Pharmacologic therapy is indicated for individuals with moderate or severe depression.

**Keywords:** Depression, Malignancy, Mental health, General practice

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### Introduction

Depression is one of the leading causes of morbidity worldwide, with a lifetime rate of one in six people [1]. Cancer is a risk factor for the development of depression, with an incidence 3–5 times greater than in the general population [2]. Despite the abundance of literature, the prevalence of depression in this subgroup varies widely. According to Couper et al. [3], the prevalence of major depressive disorder in people with cancer is estimated to be 10–25%. International cancer services are united in recognizing that depression often goes undiagnosed and undertreated in patients with cancer.

### History

The patient, a single mother of two, was 58 years old when she was diagnosed with breast cancer. Two months previously, while the patient was taking a shower, she felt a lump in her left breast. After presenting to your practice, she was sent for a mammogram, then an ultrasound, and finally a biopsy. You referred her to a breast surgeon to discuss the diagnosis.

She has presented to your practice today to discuss the recommendations made to her by the surgeon. The diagnosis was a grade 3 invasive ductal carcinoma with a total Nottingham score of eight. The mass was two centimeters in diameter and was positive



for estrogen and progesterone receptors. She saw a breast surgeon yesterday who recommended a mastectomy, lymphadenectomy, and 5 years of tamoxifen treatment, in addition to a consultation with an oncologist for likely adjuvant chemotherapy and radiotherapy. She was informed that if she wanted breast reconstruction surgery, it would be possible for it to be performed at the same time as the mastectomy.

On discussion with the patient, you discover that her affect is markedly different from her last presentation. Upon further questioning about how she is coping, she becomes tearful and describes a persistently low mood. She has noticed a recent reluctance to see any of her close friends. Her mother has been trying to support her emotionally and to have a serious discussion about what she is going through, but the patient finds this frustrating and avoids the discussion. The patient is struggling with overwhelming thoughts about death, but denies suicidal ideation. She has noticed a reduction in her appetite and has consequently lost 3 kg since she first noticed the breast lump.

### Examination

On mental status examination, she is neatly dressed in loose-fitting clothes. Her hair is long and not particularly tidy. She maintains poor eye contact, has minimal spontaneous speech, and is softly spoken. Her affect is depressed. No formal thought disorder is evident and she denies any delusional thinking or hallucinations. She is oriented to time, place, and person. She displays a good degree of insight into her recent change in mood.

Her physical examination reveals a normal, thin woman. Her vital signs are normal and she has no signs of hypothyroidism. All that is remarkable throughout the rest of the physical examination is a small, firm, non-tender breast mass in the lower outer quadrant of the left breast. There is no palpable lymphadenopathy.

### Questions

1. What are the common day-to-day hardships that someone with cancer has to deal with?
2. What are the key differential diagnoses to consider and what difficulties are faced when delineating the correct diagnosis?

3. Is there a causal link between depression and malignancy?

4. Why is it important to recognize and treat depression in patients with cancer?

5. What are the options available for treating depression in patients with a malignancy?

### Answers

1. There are many emotional difficulties a person must face on receiving a diagnosis of cancer. It is natural to respond by asking oneself irrational and unhelpful questions, such as ‘Why me?’ and ‘Is this my fault?’. Patients may also find difficulty in coming to terms with the uncertainty of the illness and having to face the possibility of death. This causes an anxiousness surrounding one’s health and required treatments. Of relevance to the current case, approximately 40% of patients with breast cancer suffer from depression and anxiety symptoms [4]. A common area of stress is communicating the news to friends and family. Many feel uncomfortable with receiving sympathy, support, and assistance, seeing it as a burden on other people.

Similarly, many practical issues have to be dealt with during the course of an illness such as cancer. An interruption to life plans is inevitable. It is hard to continue coordinating family and work commitments around regular treatment. Patients are likely to face an inability to fulfill their social and family responsibilities because of associated periods of being ill or suffering from debilitating treatment side effects. This can also require a change in other people’s roles within the family, at work, and in society at large.

In addition to coping with these emotional and practical issues, cancer patients might also be suffering from physical ailments associated with their illness and its treatment.

2. Feelings of sadness and fear are normal responses to receiving a cancer diagnosis, so an essential consideration is to determine whether or not the patient is experiencing what can be regarded as a normal response to stress. To provide appropriate medical treatment, it is crucial to differentiate these normal feelings from a mood disorder (major depression).

It can be difficult to be clear about the diagnosis of a depressive disorder in patients with physical illnesses, such as cancer. First, symptoms of depression can be misattributed



to cancer because of the difficulty in differentiating between somatic symptoms of depression and the direct physiologic symptoms associated with cancer. Some of these commonly include fatigue, loss of weight and appetite, sleep disturbance, and decreased energy. Cognitive symptoms, such as loss of interest, poor concentration, memory disturbance, irritability, and difficulty making decisions are generally more useful in making a diagnosis and monitoring treatment [3].

Additionally, somatic depressive symptoms, such as fatigue, can be caused by treatments (chemotherapy and radiotherapy), rather than being the results of untreated depression. Conversely, a number of depressive symptoms can be mislabeled as treatment-related side effects leading to the risk of under-recognition of a depressive disorder. It is also necessary to note the multiple factors that are likely to contribute to a patient's mood in the setting of malignancy, including pain, immobility, debilitation, and fear of death.

Finally, particularly in the later stages of treatment, many patients with cancer express the thought that they would rather be dead. It is important to be clear whether or not such thinking is part of a depressive illness, and so may be changed by treatment with potentially significant benefits for the person's quality of life, or whether this is a thought expressed in the absence of a depressive disorder. Of note, a diagnosis of cancer is a well-known risk factor for suicide.

3. While the prevalence of depressive disorders in patients with cancer varies according to the literature, the estimated ranges are sufficiently high to warrant the search for a link between the two. First, a small number of cancers may have direct biological effects on mood. For example, intracranial lesions can have a direct mass effect in the brain, causing mood alterations. There is also increasing evidence to suggest that some cancers influence the hypothalamic-pituitary-adrenal axis, resulting in mood alterations caused by changes in systemic cortisol secretion [5]. Some cancers, such as pancreatic cancer and small cell lung cancer, are thought to cause depression by a yet-to-be clarified hormonal effect. Additionally, many oncologic therapeutic agents, such as corticosteroids and chemotherapies (vinblastine, cyclophosphamide, and interferon) [3], are known to cause mood disturbances. Other agents and some surgical interventions, such as oophorectomy or androgen

ablation, can result in hormone imbalance, which in turn may affect mood.

For women with breast cancer, the use of tamoxifen, which is an estrogen receptor antagonist, often induces menopausal symptoms. Vasomotor symptoms (hot flashes and night sweats) occur in approximately two-thirds of women treated with tamoxifen. These symptoms are often associated with anxiety, sleep disturbance, and poorer social and occupational functioning, and may exacerbate depressive symptoms.

Some demographic variables have been associated with a higher prevalence of depression, including younger age at diagnosis, female gender, location of the cancer, metastases, and prior surgery. Other variables are also likely to influence the development of depression, such as economic status, personality traits, social support, and ethnic and cultural background. Similarly, depression is more commonly associated with certain cancers, particularly oropharyngeal, pancreatic, breast, and lung cancers.

4. Research has demonstrated that depression in individuals with cancer is linked to prolonged hospital stays, worse clinical outcomes, and a reduction in the quality of life. Additionally, depression can lead to an exacerbation of side effects, such as pain intensity and fatigue [4]. Depressive symptoms can contribute to non-compliance with treatment; this may be secondary to a lack of motivation or impaired concentration. Thus, it is important to be clear that, while mild and fluctuating depressive symptoms can be normal in patients with cancer, sustained low mood accompanied by cognitive and somatic symptoms (i.e., a depressive disorder) is not normal. Failure to recognize this is one of the most common causes of patients being undiagnosed and untreated.

5. There is strong evidence to support the benefits of psychotherapy in treating depression in patients with cancer. Psychoeducation, cognitive behavioral therapy (CBT), and interpersonal therapy have all been shown to improve mood disturbances and self-esteem. Several group interventions particularly shown to be effective include CBT, supportive-expressive therapy, and mindfulness-based stress reduction, as well as informal support groups [4].

Pharmacologic therapy is indicated for individuals with moderate or severe depression. Selective serotonin reuptake inhibitors (SSRIs) are used as first-line pharmacologic intervention. Fluoxetine, paroxetine, and sertraline all have



supporting evidence from randomized, controlled trials. In some patients, SSRIs may cause nausea, or exacerbate nausea due to chemotherapeutic agents. Venlafaxine, a serotonin-norepinephrine reuptake inhibitor (SNRI) is also used, and may have some additional analgesic benefit. Tricyclic antidepressants (TCAs) have demonstrated effectiveness; however, use is limited because of side effects and the danger of toxicity in overdose.

It is important to be aware of some interactions between antidepressant medications and chemotherapeutic agents. The most frequent interaction is associated with metabolism via the CYP450 isoenzyme system. This common metabolic pathway for antidepressants and anti-cancer drugs can disturb the plasma concentration of these medications. Of note, antidepressants, particularly some SSRIs, interact with tamoxifen. Paroxetine, and to a lesser extent some other SSRIs, inhibit the CYP 450 isoenzyme, 2D6. Thus, if using a SSRI, choose an agent with minimal effects on 2D6 metabolism, such as citalopram [4]. Furthermore, anthracycline-based chemotherapies, which are frequently used in breast cancer patients, can interact with TCAs, and lead to QT prolongation on echocardiograms, predisposing the patient to the development of torsades de pointes, a particular type of tachycardia [4]. As in all clinical encounters, it is important to choose the appropriate treatments based on the specific clinical issues in

the individual patient, and to ensure that treatment includes consideration of broader psychological issues, and family and social factors, which may act as both resilience and risk factors for the patient's mood disturbance.

### Conflict of interest

The authors declare no conflict of interests.

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