Surgical resection of a liver metastasis from breast cancer

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ABSTRACT

We report a case of a solitary liver metastasis from breast cancer in a 65-year-old woman. The patient underwent a mastectomy and axillary lymph node clearance for right breast cancer in 1990. A solitary metastasis was found in the left lobe of the liver by ultrasonography, 20 years after the initial mastectomy. A left lateral segmentectomy was performed in January 2011 and adjuvant hormonal therapy was also initiated. At present, she remains disease free.

This case demonstrates the implementation of liver resection to provide an effective treatment for metachronous metastatic breast cancer. We encourage surgeons to offer suitable patients this surgical treatment option, which is shown to provide a survival benefit.

KEYWORDS

Breast cancer – Liver metastases – Liver resection

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Breast cancer is the most common cancer in females. A fifth of breast cancer patients have metastatic disease and in more than half of these patients, the liver is involved.¹ Metastatic disease is associated with a shorter median survival time and, currently, the mainstay of treatment is medical, in the form of hormonal treatment and chemotherapy. However, recent studies worldwide have shown that in highly selected patients, surgical resection of liver metastases can have a significant survival benefit.

Case History

A 65-year-old woman was found to have mildly deranged liver function tests (alanine transaminase 145iu/l, gamma-glutamyltransferase 69iu/l) on a routine health check-up. She had a history of right-sided breast cancer, which had been treated with a mastectomy, axillary lymph node clearance and adjuvant hormonal therapy 20 years earlier. Following this, she had multiple reconstructive surgeries to both breasts, resulting in a deep inferior epigastric tissue reconstruction of the right breast and an implant reconstruction of the left breast.

There was no history of weight loss, abdominal pain or distension, loss of appetite or any sinister symptoms. Physical examination was unremarkable with no discernible anaemia, jaundice or lymphadenopathy.

Ultrasonography of the abdomen revealed a solitary 1.5cm heterogeneous lesion in the left lobe of the liver with no other demonstrable pathology. Further imaging with computed tomography of thorax, abdomen and pelvis (Fig 1)

confirmed the lesion was localised to segment 2 of the liver, and there was no extrahepatic disease.

Initially, careful surveillance of the lesion was undertaken with repeat ultrasonography (Fig 2) and magnetic resonance imaging (MRI) after two months. Repeat imaging demonstrated enlargement of the lesion to 1.8cm.

At this stage, the patient was referred to a regional hepatobiliary surgical unit. After satisfactory anaesthetic assessment, she underwent a left lateral segmentectomy to resect this solitary liver lesion. Histology confirmed that this was a breast metastasis and that the resection was successful (R0), achieving disease free clearance margins. Adjuvant treatment was with an aromatase inhibitor (letrozole) owing to positive oestrogen receptor status. At the time of writing, the patient is fit, well and disease free following this curative intent resection.

Discussion

Breast cancer is the most common type of cancer in women. Despite considerable advances in diagnosis and treatment of this disease, advanced stage cancer has a poor prognosis. Overall, the five-year survival rate of patients with stage IV breast cancer is currently 23%² and it is worse for patients with liver metastases (8.5%).

In the majority of cases, liver metastases occur only as one part of an extensive tumour distribution. Often multiple organ systems are affected, with only 5% of liver metastases presenting as isolated lesions.⁵ Additionally, multiple metastases to both liver lobes can render complete surgical

Figure 1 Axial computed tomography section showing 1.5cm lesion in segment 2 of the liver

Figure 2 Surveillance ultrasonography showing increase in size of liver lesion to 1.8cm

resection technically unfeasible, even in those patients with disease isolated to the liver. These factors significantly reduce the number of patients who are potential candidates for surgical therapy. As a result, the patients eligible for surgery are often a self-selecting group. Nevertheless, even in these patients who are eligible and physically fit for surgical resection, some physicians are reluctant to offer this as a treatment option despite the survival benefit indicated in the published literature.

The majority of published studies are retrospective and single-armed, with data collected over a prolonged time period (ten years or more). This is primarily due to the limited number of eligible patients, leading to an average caseload of 2–3 per year.²

For those patients undergoing surgery, the median five-year survival rate reported in the review of Chua *et al* was 40% (range: 21–80%).² This is similar to the most recently published case-matched control study of Mariani *et al*, which demonstrated a five-year survival rate of 50.1% for the surgical group.⁴ Surgical resection was also identified as a positive prognostic factor in their study population.

Percutaneous radiofrequency ablation has been suggested as a less invasive alternative to surgery, showing similar good long-term outcomes. However, radiofrequency ablation should not be used for large metastatic lesions as the area of induced necrosis is typically <3cm.⁵

Conclusions

Surgical resection of liver metastases from breast cancer remains an infrequently performed procedure. Reasons for this are that isolated liver metastases are uncommon in the context of breast cancer and this site of metastases is regarded as a sign of poor prognosis compared with other sites. Furthermore, with advances in medical therapy, surgical treatment of breast cancer liver metastases may be perceived as excessively invasive. Nevertheless, in a highly selected yet significant subset of patients with metastatic breast cancer, surgical resection offers complete remission and prolonged survival.

Local percutaneous radiofrequency ablation can offer a similar survival benefit for those patients with small metastatic liver lesions. Careful patient selection with appropriate assessment of fitness for surgery is key to achieving the improved survival times demonstrated in the current literature.

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