



Contents lists available at ScienceDirect

## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

# A rare case report of recurrent metastatic breast cancer mimicking primary pancreatic cancer

Prajwala S Prakash\*, James Wai Kit Lee, Siau Wei Tang, Philip Tsau Choong Iau

Division of Breast Surgery, University Surgical Cluster, National University Health System (NUHS), 5 Lower Kent Ridge Road, Singapore, 119074, Singapore

## ARTICLE INFO

### Article history:

Received 13 September 2020

Received in revised form 18 October 2020

Accepted 18 October 2020

Available online 22 October 2020

### Keywords:

Breast cancer

Breast carcinoma

Metastatic breast cancer

Pancreatic metastases

Secondary pancreatic cancer

Case report

## ABSTRACT

**INTRODUCTION:** Secondary pancreatic tumors are rare, of which a breast cancer primary is extremely uncommon. To our knowledge, we present the 14th case reported worldwide and first from Singapore of lobular breast cancer metastasizing to the pancreas.

**PRESENTATION OF CASE:** A 53-year-old woman presented with painless obstructive jaundice, weight loss over 1.5 months and a 2 cm right breast mass. She had left breast Invasive Lobular Carcinoma (ILC) treated 5 years prior with wide local excision, adjuvant radiotherapy and hormonal therapy. She had elevated bilirubin, liver enzymes and Cancer Antigen (CA) 19–9. Imaging found 3 right breast nodules, left axillary lymphadenopathy, biliary dilatation with an ampullary mass, and bone metastases. Breast nodule biopsies confirmed ILC but ampullary mass cytopathology was inconclusive. Frozen section of the mass during exploratory laparotomy showed metastatic ILC; a triple bypass surgery was done and chemo-endocrine therapy commenced.

**DISCUSSION:** ILC is the commonest type of breast carcinoma in cases with pancreatic metastases, usually recurring after long disease-free intervals, and widely metastatic at presentation. Imaging characteristics help differentiate secondary from primary pancreatic tumors. Radiological features and history of an extra-pancreatic cancer suffice in suspecting pancreatic metastases. Despite limited surgical experience, it is well accepted that pancreatic metastasectomy offers reasonably good long-term survival rates, quality of life and can even be curative in highly selected cases.

**CONCLUSION:** This case is an interesting case because it highlights the diagnostic dilemma involved in the rare entity of breast cancer metastatic to the pancreas, and summarizes its diagnosis and management.

© 2020 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Over the last decade, the increasing utilization of imaging methods has increased the detection of unusual pancreatic tumors [1]. Secondary tumors of the pancreas should be considered in the differential diagnosis of pancreatic lesions especially with a history of previous malignancy [2], even though their rarity may lead to diagnostic challenges [3]. In fact, metastatic disease to the pancreas constitutes only for 2% of pancreatic malignancies [4], of which a breast primary is extremely rare, accounting for under 5% of metastatic pancreatic masses [5].

We report a case of recurrent metastatic invasive lobular breast carcinoma, interestingly, with a clinical presentation mimicking primary pancreatic cancer. As per our literature review, our case is only the 14th reported case worldwide of lobular breast cancer metastasizing to the pancreas, and the first such case from Singapore.

## 2. Presentation of case

A 53-year-old lady presented with progressively worsening painless, obstructive jaundice and 7 kg weight loss over 1.5 months. She felt an abdominal mass, but denied abdominal pain.

She had a history of wide local excision 5 years prior for left breast Invasive Lobular Carcinoma (ILC), stage pT2N0M0, and Estrogen Receptor (ER)/Progesterone Receptor (PR) positive, Human Epidermal Growth Factor Receptor 2 (HER2) negative. She had received adjuvant radiotherapy and was on hormonal therapy (Tamoxifen for 2 years, then Letrozole for 3 years). Her mother and maternal aunt had breast cancer at 48 and 75 years of age respectively; her mother suffered recurrence at 77. Our patient's bilateral mammogram 8 months prior was unremarkable. She had neither breast nor nipple symptoms now.

On examination, she was overtly jaundiced, had hepatomegaly 2 fingerbreadths below the costal margin, and a 2 cm right breast mass was palpated at the 11 o'clock location. There were no skin or nipple changes, axillary lymphadenopathy, pleural effusion or bony tenderness.

\* Corresponding author.

E-mail address: [prajwala.sprakash@mohh.com.sg](mailto:prajwala.sprakash@mohh.com.sg) (P. S Prakash).



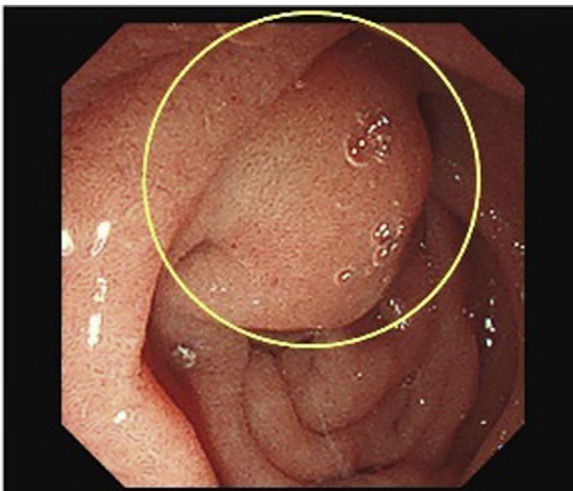
**Fig. 1.** Computed Tomography scan of the abdomen demonstrating dilated common bile duct and pancreatic duct.

Her leukocyte count and hemoglobin were normal. She had conjugated hyperbilirubinemia (Total Bilirubin 87  $\mu\text{mol/L}$ , Conjugated Bilirubin 41  $\mu\text{mol/L}$ ), markedly elevated liver enzymes and high Cancer Antigen (CA) 19–9 of 95.6 U/mL.

Computed Tomography (CT) scan showed gross intra- and extra-hepatic biliary dilatation (common bile duct 18 mm, pancreatic duct 5 mm) without an identifiable cause (Fig. 1), enhancement over the right breast lower outer quadrant, a 4 mm left axillary lymph node, and widespread, predominantly sclerotic bone metastases.

Endoscopic Ultrasound (EUS) revealed a 14 mm hypochoic sub-epithelial ampullary mass (Fig. 2), but fine needle aspiration (FNA) was non-diagnostic. On dedicated CT pancreatic imaging, the mass was hyper-enhancing in the arterial phase (Fig. 3), and remained so in the portal venous phase (Fig. 4). Four attempts using endoscopy and interventional radiology failed to provide cytological or histological evidence of malignancy. The biliary system was decompressed with Percutaneous Transhepatic Biliary Drainage.

Concomitantly, four lesions were seen on breast ultrasonography – three right breast nodules up to 12 mm in size at 2, 7 and 12 o'clock and a 5 mm left axillary node (Fig. 5). Ultrasound-guided biopsy returned as Grade 2 ILC, ER positive (> 90%), PR (< 1%) and HER2 negative.



**Fig. 2.** Endoscopic finding of sub-epithelial ampullary mass.

At this juncture, it was yet to be ascertained if the pancreatic mass was a synchronous tumor or a manifestation of metastatic breast cancer.

As per multidisciplinary meeting recommendations, an exploratory laparotomy was undertaken. A hard pancreatic head mass was found invading the first and second parts of the duodenum (D1/D2), extending to the small bowel mesentery root, and encasing the superior mesenteric vein (SMV). Core biopsy of this mass confirmed metastatic ILC on frozen section. Given the widely metastatic, aggressive nature of this breast cancer, treatment intent was therefore palliative. A triple bypass surgery was performed. Post-operatively, the patient was commenced on palliative chemo-endocrine therapy with Palbociclib, a selective inhibitor of Cyclin Dependent Kinase (CDK)4 and CDK6 used in treating ER positive, Her2 negative breast cancer.

### 3. Discussion

Breast cancer metastatic to the pancreas usually develops late in the course of the disease, often with widespread metastases [6,7]. ILC is the commonest histological type of breast carcinoma in cases with pancreatic metastases, and typically occurs after long disease-free intervals [8].

Pancreatic metastases are frequently located within the pancreatic head (40%) or tail (35%) [4,6]. Most patients were asymptomatic at diagnosis [6,7], but can present with abdominal pain, obstructive jaundice, weight loss, gastrointestinal bleeding, and/or pancreatitis [9,10].

Imaging studies are more useful than tumor markers for detecting pancreatic metastases. Pancreatic metastases and primary pancreatic tumors usually differ in radiologic characteristics [1] – highly vascular tumors demonstrating arterial phase enhancement and, possibly, rim enhancement are more likely to be metastases compared to hypo-enhancing primary cancers [7,10].

Although EUS-guided FNA is sometimes attempted, a pre-operative cytological distinction between primary and secondary pancreatic cancer is unnecessary because it does not change surgical management in localized disease [6,8]. Radiological features and a history of an extra-pancreatic cancer suffice in suspecting pancreatic metastases [1].

The decision for treatment should require a multi-disciplinary team, including a surgeon and an oncologist, and the treatment should be individualized [11], as was done in our patient's case.

Some authors have suggested that surgical resection may be appropriate for both symptom control and formal diagnosis [2]. Although experience in pancreatic metastasectomy is limited [1]



Fig. 3. Arterial phase Computed Tomography of the pancreas showing a hyper-enhancing lesion.

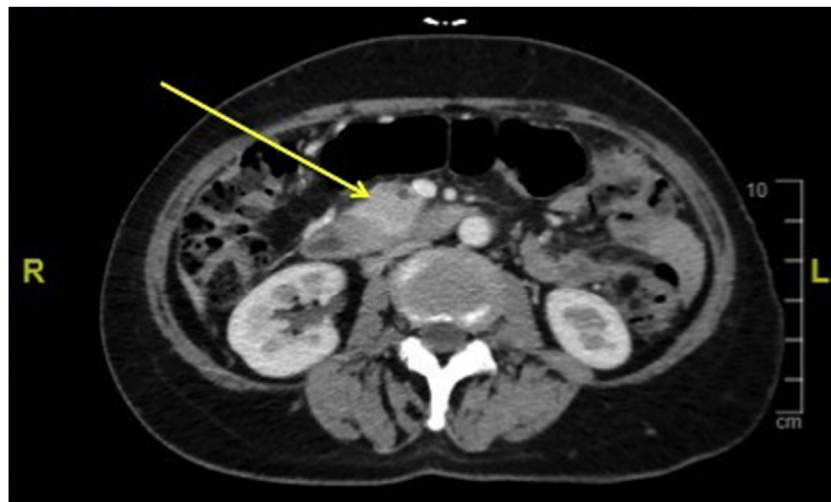


Fig. 4. Delayed phase Computed Tomography of the pancreas showing the same hyper-enhancing lesion.

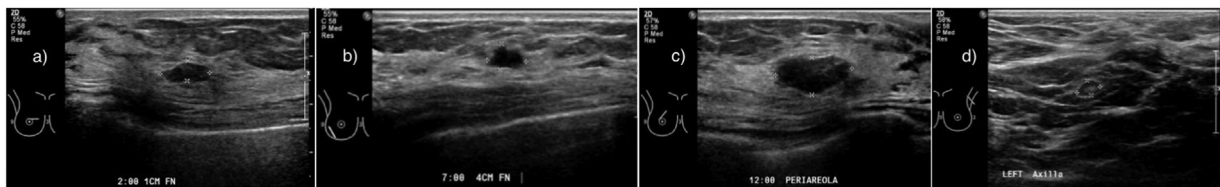


Fig. 5. a) Ultrasonography of right breast lesion at 2 o'clock position, b) Ultrasonography of right breast lesion at 7 o'clock position, c) Ultrasonography of right breast lesion at 12 o'clock position, d) Ultrasonography of left axillary lymph node.

and evidence-based guidelines are lacking [4,10], it is nonetheless well-accepted that surgical resection of pancreatic metastases can produce reasonably good long-term survival rates, quality of life and even be curative in selected cases with favorable patient and tumor factors [1,4,9,12].

These factors include patients with good performance status, primary cancers with good tumor biology, isolated pancreatic metastases, those who can be rendered disease-free with surgical resection and disease amenable to resection [4,6–8]. Resection should be aggressive with the aim of obtaining negative surgical margins and adequate lymphatic dissection, and preferably done in high-volume centers with adequate technical expertise [1].

In widespread metastatic disease, pancreatic metastasectomy is unlikely to provide benefit and the patient should be assessed for systemic chemo-endocrine therapy, or best supportive therapy [4,7,9].

#### 4. Conclusion

In summary, the pancreas is an uncommon site for metastasis from a primary breast cancer. Despite its rarity, such patients will be encountered due to the centralization of pancreatic surgery into high-volume centers. These patients should be evaluated in the standard manner for a newly diagnosed pancreatic mass.

Long-term survival can be achieved with surgical resection in a highly selected group of patients. However, further accumulation of literature and detailed analysis is still required.

#### Declaration of Competing Interest

None.

#### Funding

None.

#### Ethical approval

Not applicable for case report.

#### Consent

Informed consent has been obtained from the patient, and patient anonymity preserved at all times.

#### Author contribution

Dr. Prajwala S Prakash – Resources, Writing-original draft, Writing-review & editing

Dr. James Wai Kit Lee – Data curation, Writing-review & editing, Supervision

Dr. Siau Wei Tang – Conceptualization, Supervision, Writing-review & editing

Prof. Philip Tsau Choong Iau – Conceptualization, Supervision, Writing-review & editing

#### Registration of research studies

1. Name of the registry: Not applicable
2. Unique identifying number or registration ID: Not applicable
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): Not applicable

#### Guarantor

Dr. Prajwala S Prakash.

#### Provenance and peer review

Not commissioned, externally peer-reviewed.

#### Acknowledgements

None.

#### References

- [1] N. Jarufe, P. McMaster, A.D.D. Mayer, et al., Surgical treatment of metastases to the pancreas, *Surgeon* 3 (2) (2005) 79–83.
- [2] A. Zammit, D. James, P.H. Van Rooyen, Metastatic lobular breast carcinoma to the pancreas: a case report, *J. Surg. Case Rep.* 5 (2018) 1–3.
- [3] N.V. Adsay, A. Andea, O. Basturk, N. Kilinc, H. Nassar, J.D. Cheng, Secondary tumors of the pancreas: an analysis of a surgical and autopsy database and review of the literature, *Virchows Arch.* 444 (2004) 527–535.
- [4] H. Niess, C. Conrad, A. Kleespies, et al., Surgery for metastasis to the pancreas: is it safe and effective? *J. Surg. Oncol.* 107 (2013) 859–864.
- [5] J. Kliiger, M. Gorbaty, Metastasis to the pancreas and stomach from a breast cancer primary: a case report, *J. Community Hosp. Intern. Med. Perspect.* 7 (4) (2017) 234–237.
- [6] A.D. Sweeney, M.-F. Wu, S.G. Hilsenbeck, C. Brunicardi, W.E. Fisher, Value of pancreatic resection for cancer metastatic to the pancreas, *J. Surg. Res.* 156 (2009) 189–198.
- [7] S. Reddy, C.L. Wolfgang, The role of surgery in the management of isolated metastases to the pancreas, *Lancet Oncol.* 10 (2009) 287–293.
- [8] F. Bednar, J.M. Scheiman, B.J. McKenna, D.M. Simeone, Breast cancer metastases to the pancreas, *J. Gastrointest. Surg.* 17 (2013) 1826–1831.
- [9] M.A. Alzahrani, N. Schmulewitz, S. Grewal, et al., Metastases to the pancreas: the experience of a high volume center and a review of the literature, *J. Surg. Oncol.* 105 (2012) 156–161.
- [10] F.S. Dar, S. Mukherjee, S. Bhattacharya, Surgery for secondary tumors of the pancreas, *HPB* 10 (2008) 498–500.
- [11] S.A. Bonapasta, M. Gregori, R. Lanza, et al., Metastasis to the pancreas from breast cancer: difficulties in diagnosis and controversies in treatment, *Breast Care Basel (Basel)* 5 (3) (2010) 170–173.
- [12] C. Molino, C. Mocerino, A. Braucci, et al., Pancreatic solitary and synchronous metastasis from breast cancer: a case report and systematic review of controversies in diagnosis and treatment, *World J. Surg. Oncol.* 12 (2014) 2.

#### Open Access

This article is published Open Access at [sciencedirect.com](https://www.sciencedirect.com). It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.