Metastasis to the pancreas: a rare site for secondary malignancy of breast cancer (a case report)

Fadila Kouhen, Meriem Chihabeddine, Mohammed Squali, Mohammed Allaoui, Abderrahmane Al Bouzidi, Nadia Errafiy, Nabil Ismaili

Corresponding author: Fadila Kouhen, Mohammed VI University of Health Sciences (UM6SS), Department of Radiotherapy, International University Hospital Sheikh Khalifa, Casablanca, Morocco. fadila10m@hotmail.com

Received: 27 Jul 2020 - Accepted: 09 Nov 2020 - Published: 23 Nov 2020

Keywords: Breast cancer, pancreatic metastases, prognosis, case report

Copyright: Fadila Kouhen et al. Pan African Medical Journal (ISSN: 1937-8688). This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article: Fadila Kouhen et al. Metastasis to the pancreas: a rare site for secondary malignancy of breast cancer (a case report). Pan African Medical Journal. 2020;37(260). 10.11604/pamj.2020.37.260.25228

Available online at: https://www.panafrican-med-journal.com/content/article/37/260/full

Metastasis to the pancreas: a rare site for secondary malignancy of breast cancer (a case report)

Fadila Kouhen¹, Meriem Chihabeddine¹, Mohammed Squali², Mohammed Allaoui³,⁴ Abderrahmane Al Bouzidi³,⁴ Nadia Errafiy⁵, Nabil Ismaili²

¹Mohammed VI University of Health Sciences (UM6SS), Department of Radiotherapy, International University Hospital Sheikh Khalifa, Casablanca, Morocco, ²Department of Pathology, Military Hospital Mohammed V, Rabat, Morocco, ³Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco, ⁴Department of Pathology, Military Hospital Mohammed V, Rabat, Morocco, ⁵Mohammed VI University of Health Sciences (UM6SS), National Reference Laboratory (LNR), Casablanca, Morocco,

Corresponding author: Fadila Kouhen, Mohammed VI University of Health Sciences (UM6SS), Department of Radiotherapy, International University Hospital Sheikh Khalifa, Casablanca, Morocco.
Abstract

Breast cancer is the most frequent invasive cancer in women and the second cause of death by cancer in women after lung cancer. It causes metastases especially to bones, liver and lungs. Pancreatic metastases from a primary breast neoplasm are rare and unusual, occurring in less than 3% of the cases. There have been only 28 cases described in the literature. This paper adds one more case to the published literature. We present a case of pancreatic metastasis of the breast in a 64-year-old female and a discussion based on a review of the literature.

Introduction

With two million new cases in 2018, breast cancer is the most frequent invasive cancer in women and the second cause of death by cancer in women after lung cancer [1]. The screening and the treatment improvement decreased the breast cancer mortality, however 20 to 30% of patients develop a distant metastasis [1]. The most common breast cancer metastasis sites are the bones, the lungs, the brain, and the liver. Pancreatic metastases from a primary breast cancer are rare, occurring in less than 3% of the cases [2]. There have been only 28 cases described in the literature. This paper adds one more case to the published literature. We present a case of pancreatic metastasis of the breast in a 64-year-old female and a discussion based on a review of the literature.

Patient and observation

A 64-year-old post-menopausal female patient, with no significant past medical or family history was admitted to our hospital with the following medical history. Her history dates back 1 year when she detected a lump in her left breast. Five months after, she reported severe lower back pain with jaundice, nausea and loss of nine kilograms in four months. The physical examination showed a retro-nipple mass of 5 cm in diameter in the left breast with frank cutaneous-mucosal jaundice and the abdomen was painful to deep palpation. Neurologic examination revealed no focal deficits. Mammography analysis revealed a retro-nipple lesion of the left breast classified ACR 5. After fine-needle aspiration, invasive lobular breast carcinoma was detected in pathological examination. Immunohistological staining revealed that hormone receptors were positive, with estrogen receptors (ERs) at: 80% and progesterone receptors (PgRs) at 30%. The HER2 score was 1+ and the Ki67 was at 22%. Abdominal computed tomography demonstrated a hyper vascularized, irregular solid lesion of 4.3 cm x 2.7 cm x 7.0 cm in the head of the pancreas with discreet biliary duct dilation. In addition, Bones scintigraphy showed abnormal increased accumulation of radiopharmaceutical along the right humeral head, L4, and femurs.

Lumbar spine MRI evaluation showed a tumor process involving the vertebral body and the posterior arch of L4. Histopathology by pancreatic endoscopic ultrasound-guided fine needle biopsy confirmed metastatic carcinoma with breast origin. The morphological and immunohistochemical features of pancreatic-metastasis were similar to the primary carcinoma breast (Figure 1, Figure 2, Figure 3). Cancer antigen (CA)-19.9, carcinoembryonic antigen (CEA) and CA-15-3 levels were in the normal range. She underwent percutaneous transhepatic biliary drainage and fluoroscopic guided stenting with a metallic-stent (ELLA stent). The liver-functions normalized gradually and patient’s general-condition also improved.

Our Therapeutic management was started firstly by the placement of a biliary prosthesis, then by analgesic and decompressive conventional radiotherapy at L4 with radiation dose of 30 Gy (3 Gy/fraction). A systemic therapy consisting of letrozole 2.5 mg/day combined with palbociclib 25 mg/day (3 weeks ON and one week OFF) and denosumab at a dose of 120 mg/month was prescribed. The treatment was well tolerated except grade 1 anemia and fatigue. The first assessment three months after starting treatment.
showed a partial response according to the response evaluation criteria in solid tumors (RECIST) V1.1 criteria. After 22 months of follow-up, the evolution was marked by lesion stability without local and distant disease progression.

Discussion

Pancreatic metastases from other primary malignancies are uncommon and they don’t exceed 2% of pancreatic cancers [2]. The most common primary cancers with pancreatic metastases are kidney cancer, followed by colorectal cancer, melanoma, breast cancer, lung carcinoma and sarcoma [3]. Breast cancer causes metastases especially to bones, liver and lungs. Pancreatic metastases from a primary breast neoplasm are rare and unusual, occurring in less than 3% of the cases. To our knowledge, 29 cases of pancreatic metastases from breast cancer, including the present case, have been reported at 17 case reports and 6 case series since the first report in 1982 by Azzarelli et al. [4]. Typically, invasive lobular breast carcinoma is the most common type of breast cancer metastasizes to the pancreatic gland [5]. The clinical presentation is similar for both primary and secondary neoplasms. Most patients present with obstructive jaundice caused by compression of the bile duct in the head of the pancreas. The patient can have also epigastric or back pain, and weight loss [6].

In recent years, diagnostic imaging techniques such as Doppler ultrasound (US), helical computed tomography (CT), enhanced magnetic resonance imaging (MRI), and endoscopic US (EUS) have been developed, elevating the ability to diagnose pancreatic tumors, but it is often difficult to distinguish pancreatic metastasis from a primary pancreatic tumor [7,8]. Our patient had undergone an endoscopic ultrasound with fine needle aspiration which had confirmed a diagnosis of pancreatic metastases of breast cancer. Surgical treatment is indicated when the pancreatic lesion is single and for patients fit to perform a pancreatectomy [9,10]. For our patient, surgery was not indicated due to several metastatic sites.

The prognosis for patients with pancreatic metastatic disease is usually better than for patients with primary pancreatic tumors. Masetti et al. analyzed the prognostic factors relating to metastatic tumors to the pancreas, and found at univariate survival analysis a 2-years probability of survival of 57.1% in pancreas metastases from breast cancer and a 5-years probability of survival of 34.3% [11]. Palbociclib, highly selective inhibitors of CDK4 and CDK6, serine-threonine kinases that regulate the cell cycle progression, have been approved in recent years for the treatment of endocrine-resistant MBC in combination with endocrine therapy considering their efficacy in prolonging progression-free survival, increasing clinical benefit rate and response rate in different clinical context and treatment lines [12-14]. Our patient remained without disease progression at the time of her last follow-up examination (22 months after diagnosis).

Conclusion

In summary, this case demonstrates the very rare case of a breast cancer metastasis to the pancreas arising as the first symptom of metastatic breast cancer. Pancreatic metastasis is difficult to diagnose, because its clinical and radiological presentation is similar to that of a primary pancreatic tumor. Thus, the clinician should suspect the possibility of pancreatic metastasis in cases of pancreatic lesions detected in any patient with a prior history of cancer, including breast cancer.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.
Figures

**Figure 1:** infiltration by a tumour composed of nests and foci of cells with hyperchromatic nuclei (HE, Gx40)

**Figure 2:** Ki-67 labelling index is high

**Figure 3:** estrogen receptor expression by the tumour cells

References

1. Ferlay J, Colombet M, Soerjomataram I, Siegel R, Torre L, Jemal A. Global and regional estimates of the incidence and mortality for 38 cancers: GLOBOCAN 2018. Lyon: International Agency for Research on Cancer/World Health Organization; 2018. [Google Scholar]

2. Reddy S, Wolfgang CL. The role of surgery in the management of isolated metastases to the pancreas. Lancet Oncol. 2009;10(3): 287-93. [PubMed] [Google Scholar]

3. Sperti C, Moletta L, Patanè G. Metastatic tumors to the pancreas: the role of surgery. World J Gastrointest Oncol. 2014 October 15;6(10): 381-92. [PubMed] [Google Scholar]

4. Azzarelli A, Clemente C, Quagliuolo V, Baticci F. A case of pancreatoduodenectomy as resolutive treatment for a solitary metastasis of breast cancer. Tumori. 1982 Aug;68(4): 331-5. [PubMed] [Google Scholar]

5. Kliiger J, Gorbaty M. Metastasis to the pancreas and stomach from a breast cancer primary: a case report. J Community Hosp Intern Med Perspect. 2017 Oct;7(4): 234-237. [PubMed] [Google Scholar]

6. Apodaca-Ruedal M, Chaim FHM, Garcia MDS, Almeida de Saito HPD, Gestic MA, Utrini MP et al. Solitary pancreatic metastasis from breast cancer: case report and review of literature. Sao Paulo Med J. 2019;137(2): 201-205. [PubMed] [Google Scholar]

7. Molino C, Micerino C, Braucci A, Riccardi F, Trunfio M, Carrillo G 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. 2014;12: 2. [PubMed] [Google Scholar]

8. Tsitouridis A Diamantopoulou, Michaelides M, Arvanity M, Papaioannou S. Pancreatic metastases: CT and MRI findings. Diagn Interv Radiol. 2010 Mar;16(1): 45-51. [PubMed] [Google Scholar]

9. Sperti C, Moletta L, Patanè G. Metastatic tumors to the pancreas: the role of surgery. World J Gastrointest Oncol. 2014 October 15;6(10): 381-392. [PubMed] [Google Scholar]

10. Lin Y, Wong S, Wang Y, Lam C, Peng X. Periampullary Metastases from Breast cancer: a case report and literature review. Hindawi Case Reports in Oncological Medicine. January. 2019 Jan 9;2019: 3479568. [PubMed] [Google Scholar]

11. Masetti M, Zanini N, Martuzzi F, Fabbri C, Mastrangelo L, Landolfo G et al. Analysis of prognostic factors in metastatic tumors of the pancreas a single-center experience and review of the literature. Pancreas. 2010 Mar;39(2): 135-43. [PubMed] [Google Scholar]

12. Serra F, Lapidari P, Quaquarini E, Tagliaferri B, Sottotetti F, Palumbo R. Palbociclib in metastatic breast cancer: current evidence and real-life data. Drugs Context. 2019 Jul 16;8: 212579. [PubMed] [Google Scholar]

13. Finn RS, Crown JP, Lang I, Boer K, Bondarenko IM, Kulyk SO et al. The cyclin-dependent kinase 4/6 inhibitor palbociclib in combination with letrozole versus letrozole alone as first-line treatment of oestrogen-receptor positive, HER2 negative, advanced breast cancer (PALOMA-1/TRIO18): an randomized phase 2 study. Lancet Oncol. 2015 Jan;16(1): 25-35. [PubMed] [Google Scholar]
14. Rugo HS, Diéras V, Gelmon KA, Finn RS, Slamon DJ, Martin M et al. Impact of palbociclib plus letrozole on patient-reported health-related quality of life: results from the PALOMA-2 trial. Ann Oncol. 2018 Apr;29(4):888-894. PubMed

Figure 1: infiltration by a tumour composed of nests and foci of cells with hyperchromatic nuclei (HE, Gx40)
Figure 2: Ki-67 labelling index is high

Figure 3: Estrogen receptor expression by the tumor cells