

World Journal of *Clinical Cases*

World J Clin Cases 2022 May 26; 10(15): 4713-5123



Contents

Thrice Monthly Volume 10 Number 15 May 26, 2022

EDITORIAL

- 4713 Diet and intestinal bacterial overgrowth: Is there evidence?

Souza C, Rocha R, Cotrim HP

MINIREVIEWS

- 4717 Definition and classification of acute-on-chronic liver diseases

Zhang YY, Meng ZJ

- 4726 Management of neurosurgical patients during coronavirus disease 2019 pandemics: The Ljubljana, Slovenia experience

Velmar T, Bosnjak R

ORIGINAL ARTICLE

Clinical and Translational Research

- 4737 Glycolytic and fatty acid oxidation genes affect the treatment and prognosis of liver cancer

Zou JY, Huang YJ, He J, Tang ZX, Qin L

- 4761 Detection of a novel panel of 24 genes with high frequencies of mutation in gastric cancer based on next-generation sequencing

Zeng HH, Yang Z, Qiu YB, Bashir S, Li Y, Xu M

Case Control Study

- 4776 Outcomes of cervical degenerative disc disease treated by anterior cervical discectomy and fusion with self-locking fusion cage

Zhang B, Jiang YZ, Song QP, An Y

- 4785 Impact of COVID-19 pandemic on clinicopathological features of transplant recipients with hepatocellular carcinoma: A case-control study

Akbulut S, Sahin TT, Ince V, Yilmaz S

Retrospective Study

- 4799 Risk factors and optimal predictive scoring system of mortality for children with acute paraquat poisoning

Song Y, Wang H, Tao YH

- 4810 Application effect of thoracoscopic tricuspid valvuloplasty in geriatric patients with tricuspid valve disease

Jiang W, Long XM, Wei KQ, Li SC, Zhang Z, He BF, Li H

- 4818 Endoscopic ultrasonography in the evaluation of condition and prognosis of ulcerative colitis

Jin RF, Chen YM, Chen RP, Ye HJ

- 4827** Dynamic interaction nursing intervention on functional rehabilitation and self-care ability of patients after aneurysm surgery

Xie YE, Huang WC, Li YP, Deng JH, Huang JT

Clinical Trials Study

- 4836** Validations of new cut-offs for surgical drains management and use of computerized tomography scan after pancreatoduodenectomy: The DALCUT trial

Caputo D, Coppola A, La Vaccara V, Passa R, Carbone L, Ciccozzi M, Angeletti S, Coppola R

Observational Study

- 4843** Psychosocial adaptation and influencing factors among patients with chemotherapy-induced peripheral neuropathy

Zhou X, Wang DY, Ding CY, Liu H, Sun ZQ

META-ANALYSIS

- 4856** Outcome of the efficacy of Chinese herbal medicine for functional constipation: A systematic review and meta-analysis

Lyu Z, Fan Y, Bai Y, Liu T, Zhong LL, Liang HF

CASE REPORT

- 4878** Familial gastrointestinal stromal tumors with *KIT* germline mutation in a Chinese family: A case report

Yuan W, Huang W, Ren L, Xu C, Luan LJ, Huang J, Xue AW, Fang Y, Gao XD, Shen KT, Lv JH, Hou YY

- 4886** Nonfunctional pancreatic neuroendocrine tumours misdiagnosed as autoimmune pancreatitis: A case report and review of literature

Lin ZQ, Li X, Yang Y, Wang Y, Zhang XY, Zhang XX, Guo J

- 4895** Sudden deafness as a prodrome of cerebellar artery infarction: Three case reports

Li BL, Xu JY, Lin S

- 4904** Importance of abdominal X-ray to confirm the position of levonorgestrel-releasing intrauterine system: A case report

Maebayashi A, Kato K, Hayashi N, Nagaishi M, Kawana K

- 4911** Bedside ultrasonic localization of the nasogastric tube in a patient with severe COVID-19: A case report

Zhu XJ, Liu SX, Li QT, Jiang YJ

- 4917** Paradoxical herniation after decompressive craniectomy provoked by mannitol: A case report

Du C, Tang HJ, Fan SM

- 4923** Targeted next-generation sequencing identifies a novel nonsense mutation in ANK1 for hereditary spherocytosis: A case report

Fu P, Jiao YY, Chen K, Shao JB, Liao XL, Yang JW, Jiang SY

- 4929** Nonfunctional bladder paraganglioma misdiagnosed as hemangioma: A case report

Chen J, Yang HF

- 4935** Special type of Wernekink syndrome in midbrain infarction: Four case reports
Yang YZ, Hu WX, Zhai HJ
- 4942** Primary extraskeletal Ewing's sarcoma of the lumbar nerve root: A case report
Lei LH, Li F, Wu T
- 4949** Yellow nail syndrome accompanied by minimal-change nephrotic syndrome: A case report
Zhang YN, Wang MH, Yu WC, Cheng W, Cong JP, Huang XP, Wang FF
- 4957** Total femur replacement with 18 years of follow-up: A case report
Yang YH, Chen JX, Chen QY, Wang Y, Zhou YB, Wang HW, Yuan T, Sun HP, Xie L, Yao ZH, Yang ZZ
- 4964** Male metaplastic breast cancer with poor prognosis: A case report
Kim HY, Lee S, Kim DI, Jung CS, Kim JY, Nam KJ, Choo KS, Jung YJ
- 4971** CD8-positive indolent T-Cell lymphoproliferative disorder of the gastrointestinal tract: A case report and review of literature
Weng CY, Ye C, Fan YH, Lv B, Zhang CL, Li M
- 4985** Bone flare after initiation of novel hormonal therapy in patients with metastatic hormone-sensitive prostate cancer: A case report
Li KH, Du YC, Yang DY, Yu XY, Zhang XP, Li YX, Qiao L
- 4991** Postoperative infection of the skull base surgical site due to suppurative parotitis: A case report
Zhao Y, Zhao Y, Zhang LQ, Feng GD
- 4998** Blunt aortic injury-traumatic aortic isthmus pseudoaneurysm with right iliac artery dissection aneurysm: A case report
Fang XX, Wu XH, Chen XF
- 5005** Extensive complex thoracoabdominal aortic aneurysm salvaged by surgical graft providing landing zone for endovascular graft: A case report
Jang AY, Oh PC, Kang JM, Park CH, Kang WC
- 5012** Gastric heterotopia of colon found cancer workup in liver abscess: A case report
Park JG, Suh JI, Kim YU
- 5018** Clinical manifestations and gene analysis of Hutchinson-Gilford progeria syndrome: A case report
Zhang SL, Lin SZ, Zhou YQ, Wang WQ, Li JY, Wang C, Pang QM
- 5025** Neurocutaneous melanosis with an intracranial cystic-solid meningeal melanoma in an adult: A case report and review of literature
Liu BC, Wang YB, Liu Z, Jiao Y, Zhang XF
- 5036** Metastasis of liver cancer to the thyroid after surgery: A case report
Zhong HC, Sun ZW, Cao GH, Zhao W, Ma K, Zhang BY, Feng YJ

- 5042** Spontaneous liver rupture following SARS-CoV-2 infection in late pregnancy: A case report
Ambrož R, Stašek M, Molnár J, Špička P, Klos D, Hambálek J, Skanderová D
- 5051** Carotid blowout syndrome caused by chronic infection: A case report
Xie TH, Zhao WJ, Li XL, Hou Y, Wang X, Zhang J, An XH, Liu LT
- 5057** Is repeat wide excision plus radiotherapy of localized rectal melanoma another choice before abdominoperineal resection? A case report
Chiu HT, Pu TW, Yen H, Liu T, Wen CC
- 5064** Metaplastic breast cancer with chondrosarcomatous differentiation combined with concurrent bilateral breast cancer: A case report
Yang SY, Li Y, Nie JY, Yang ST, Yang XJ, Wang MH, Zhang J
- 5072** Rare solitary splenic metastasis from a thymic carcinoma detected on fluorodeoxyglucose-positron emission tomography: A case report
Tsai YH, Lin KH, Huang TW
- 5077** Type A aortic dissection following heart transplantation: A case report
Zeng Z, Yang LJ, Zhang C, Xu F
- 5082** Catheter-related infections caused by *Mycobacterium abscessus* in a patient with motor neurone disease: A case report
Pan SF, Zhang YY, Wang XZ, Sun JJ, Song SL, Tang YR, Wang JL
- 5088** Clear aligner treatment for a four-year-old patient with anterior cross-bite and facial asymmetry: A case report
Zou YR, Gan ZQ, Zhao LX
- 5097** Knot impingement after arthroscopic rotator cuff repair mimicking infection: A case report
Kim DH, Jeon JH, Choi BC, Cho CH
- 5103** Solitary primary pulmonary synovial sarcoma: A case report
He WW, Huang ZX, Wang WJ, Li YL, Xia QY, Qiu YB, Shi Y, Sun HM
- 5111** Anesthetic management for intraoperative acute pulmonary embolism during inferior vena cava tumor thrombus surgery: A case report
Hsu PY, Wu EB
- 5119** Delayed diagnosis of arytenoid cartilage dislocation after tracheal intubation in the intensive care unit: A case report
Yan WQ, Li C, Chen Z

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Jing Yang, MD, Associate Professor, Department of the First General Surgery, Gansu Provincial Hospital, Lanzhou 730000, Gansu Province, China. 21634604@qq.com

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The WJCC is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for WJCC as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The WJCC's CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Ying-Yi Yuan; Production Department Director: Xiang Li; Editorial Office Director: Jin-Lei Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

May 26, 2022

COPYRIGHT

© 2022 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>



Male metaplastic breast cancer with poor prognosis: A case report

Hyun Yul Kim, Seungju Lee, Dong-il Kim, Chang Shin Jung, Jee Yeon Kim, Kyung Jin Nam, Ki Seok Choo, Youn Joo Jung

Specialty type: Oncology

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): A

Grade B (Very good): 0

Grade C (Good): C

Grade D (Fair): 0

Grade E (Poor): 0

P-Reviewer: Deng DT, China; Seeman MV, Canada

Received: November 1, 2021

Peer-review started: November 1, 2021

First decision: December 2, 2021

Revised: December 15, 2021

Accepted: March 27, 2022

Article in press: March 27, 2022

Published online: May 26, 2022



Hyun Yul Kim, Seungju Lee, Dong-il Kim, Chang Shin Jung, Youn Joo Jung, Department of Surgery, Pusan National University Yangsan Hospital, Pusan National University School of Medicine, Gyeongnam 50612, South Korea

Jee Yeon Kim, Department of Pathology, Pusan National University Yangsan Hospital, Pusan National University School of Medicine, Gyeongnam 50612, South Korea

Kyung Jin Nam, Ki Seok Choo, Department of Radiology, Pusan National University Yangsan Hospital, Pusan National University School of Medicine, Gyeongnam 50612, South Korea

Corresponding author: Youn Joo Jung, MD, Assistant Professor, Department of Surgery, Pusan National University Yangsan Hospital, Geumoro 20, Mulgeumeup, Yangsan, Gyeongnam 50612, South Korea. gsjyj@hanmail.net

Abstract

BACKGROUND

Metaplastic breast cancer (MBC) is a rare subtype of breast cancer. They constitute less than 1% of breast cancer cases and are much rarer in males. There are few reports of MBC because of its rarity. MBC, an aggressive type of cancer, is refractory to common treatment modalities of breast cancer and has a poor prognosis.

CASE SUMMARY

We report a case of MBC in a 78-year-old man. He visited our clinic with a palpable mass on the left breast with no masses in the axillary areas. He had previously undergone robot-assisted laparoscopic radical prostatectomy for prostate cancer, but there was no family history of malignancy. The breast mass was visible on ultrasonography, mammography, and magnetic resonance imaging, and chest computed tomography revealed a lung mass in the posterior basal segment of the right lower lobe. The patient was diagnosed with metaplastic carcinoma on core needle biopsy with lung metastasis. Total mastectomy with sentinel lymph node biopsy and video-assisted segmentectomy of the right lung was performed. However, multiple metastases appeared 3 mo after surgery in the brain, chest, and abdomen, and the patient died 5 mo after the initial diagnosis.

CONCLUSION

MBC is an aggressive and extremely rare breast cancer type. Further case reports are needed to determine the optimal treatment.

Key Words: Breast neoplasm; Male; Triple-negative breast cancer; Metaplastic breast cancer; Adjuvant treatment; Case report

©The Author(s) 2022. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: Metaplastic breast cancer is a rare and aggressive form of breast cancer and is even rarer in males. Here, we present a case of a 78-year-old man with metaplastic breast cancer and lung metastasis. While he was treated with mastectomy and video-assisted segmentectomy, multiple metastases throughout the body appeared months later. More cases need to be accumulated to determine the most appropriate method of treatment.

Citation: Kim HY, Lee S, Kim DI, Jung CS, Kim JY, Nam KJ, Choo KS, Jung YJ. Male metaplastic breast cancer with poor prognosis: A case report. *World J Clin Cases* 2022; 10(15): 4964-4970

URL: <https://www.wjgnet.com/2307-8960/full/v10/i15/4964.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v10.i15.4964>

INTRODUCTION

Metaplastic breast cancer (MBC) is a special subtype of breast cancer. MBC represents less than 1% of breast cancer cases, and male MBC is extremely rare. MBC shows aggressive clinical features. It often presents with a larger mass and rarely with axillary nodal metastasis, and it tends to recur locoregionally and distantly. MBC is not sensitive to common therapies for breast cancer, and there are limited options for the treatment of MBC, especially due to its triple-negative status. There are only a few reports of male MBC. We report a case of MBC in a male patient with pulmonary metastasis at the time of diagnosis.

CASE PRESENTATION

Chief complaints

A 78-year-old man presented to our breast center with a palpable mass on his left breast diagnosed as malignant by core needle biopsy.

History of present illness

This patient recognized a palpable mass on his left breast 10 d earlier when he visited the local clinic. He had no complaints other than the lump.

History of past illness

He previously had a robot-assisted laparoscopic radical prostatectomy for prostate cancer in May 2016. He received routine follow-up in the urology department. He had also been followed-up for coronary artery obstructive disease in the cardiology department. He was taking dual antiplatelet therapy.

Personal and family history

The patient did not abuse alcohol and was a non-smoker. There was no specific family history of malignancy.

Physical examination

There was a fixed mass on his left breast, with no visible signs like redness, skin ulcer, or edema. There were no palpable masses in the axillary areas.

Laboratory examinations

Carcinoembryonic antigen, cancer antigen 15-3, and prostate-specific antigen were checked according to his history and were within the normal range (3.9 ng/mL, 7.73 U/mL, and 0.01 ng/mL, respectively). Except for mild anemia, his blood test results were normal. Genetic testing for BRCAness or next generation sequencing was not performed.

Imaging examinations

Ultrasonography showed an ill-defined, lobulated, heterogeneous hypoechoic mass 2 cm in size on the left breast (Figure 1). Mammography identified a 3.2-cm sized oval, indistinct, hyperdense mass on his left mid inner breast (Figure 2A). On magnetic resonance imaging (MRI), there was a 2.9 cm × 2.9 cm × 3 cm sized irregular, rim-enhancing mass with an adjacent satellite-enhancing focus on the left breast. The mass showed diffusion restriction. There were two round enhancing lymph nodes on level I, which were suspicious for metastasis. For the metastasis workup, a bone scan and Computed tomography (CT) of the chest, abdomen, and pelvis were performed. There were no metastatic findings in the bones or abdomen. Examination of chest CT revealed a 5.1 cm × 3.0 cm sized lobulated lung mass in the posterior basal segment of the right lower lobe with multiple enlarged sub-centimeter-sized lymph nodes in the subaortic area (Figure 2B).

Diagnostic procedure and histologic examination

We reviewed the breast biopsy specimen. A percutaneous needle biopsy was also performed on the lung mass to differentiate between metastasis and primary lung cancer. The percutaneous needle biopsy revealed poorly differentiated carcinoma with spindle cell differentiation, suggesting metastatic metaplastic carcinoma. GATA3, pancytokeratin, and p53 were positive. Alpha-Methylacyl-CoA Racemase (AMACR) and TTF-1 were negative. These findings helped us rule out primary lung cancer.

FINAL DIAGNOSIS

The final diagnosis of the presented case was metaplastic carcinoma of the breast with metastatic carcinoma of the lung.

TREATMENT

The patient did not wish to undergo chemotherapy. Subsequently, a multidisciplinary discussion was conducted, following which the surgical treatment option was chosen.

Total mastectomy, sentinel lymph node biopsy, and video-assisted segmentectomy of the right lung were performed. There were no tumor cells in the sentinel lymph nodes. The final pathologic report of the breast confirmed poorly differentiated metaplastic carcinoma (Figure 3). It revealed triple-negative breast cancer with a Ki67 index of up to 90%. p53 and pancytokeratin were positive. Pathology of the lung also revealed metastatic carcinoma from the metaplastic carcinoma of the breast (Figure 4). Finally, the patient was staged as stage IV, pT2pN0pM1. Adjuvant chemotherapy was also omitted considering his age and medical condition.

OUTCOME AND FOLLOW-UP

After 3 mo, the patient visited the emergency department due to headache, degradation of cognitive function, and general weakness. CT of the brain revealed multiple isodense masses with peritumoral edema at the bilateral cerebral hemisphere, which were suspicious of metastasis. Further MRI evaluation showed multiple rim-enhancing masses or enhancing foci at both cerebral hemispheres. The largest mass of 1.5 cm in the right temporal lobe was reported as a metastasis. The patient was administered palliative radiotherapy to the whole brain (30 Gy in 10 fractions) to relieve the severe headache.

Follow-up CT of the chest and abdomen revealed multiple metastatic findings, including an enlarged left supradiaphragmatic lymph node and multiple metastases of the liver, adrenal gland, omentum, muscles of the thigh, and the subcutaneous fat layer of the abdominal wall and buttock. The patient died 5 mo after the initial diagnosis.

DISCUSSION

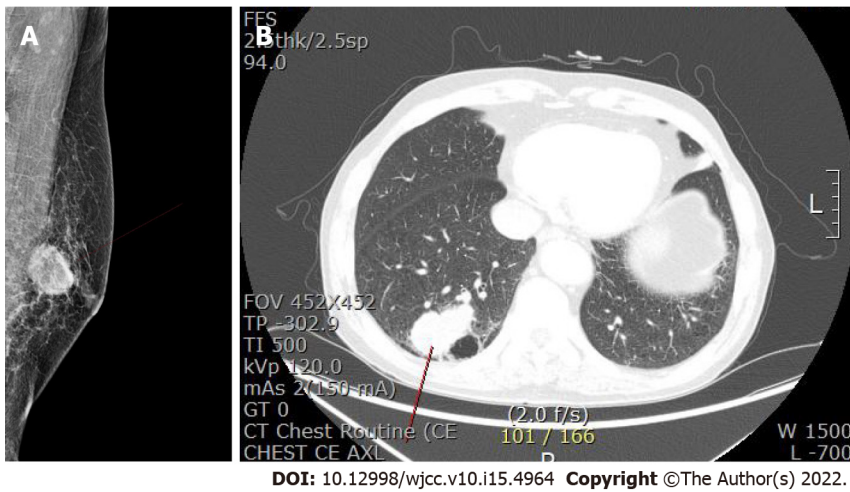
Although breast cancer is one of the most frequently diagnosed cancers, MBC is a rare clinical entity among breast cancer cases. MBC accounts for less than 1% of breast cancer diagnoses and is extremely rare in males. We found only 5 cases of male MBC reported in the literature[1-5].

MBC was first described by Huvos *et al*[6] in 1973. MBC is a heterogeneous group of neoplasms. Wargotz *et al*[7] classified MBC into 5 types: matrix-producing carcinoma, squamous cell carcinoma, spindle cell carcinoma, carcinosarcoma, and metaplastic carcinoma with osteoclastic giant cells. However, in 2012, the World Health Organization[8] suggested 7 types of metaplastic carcinomas,



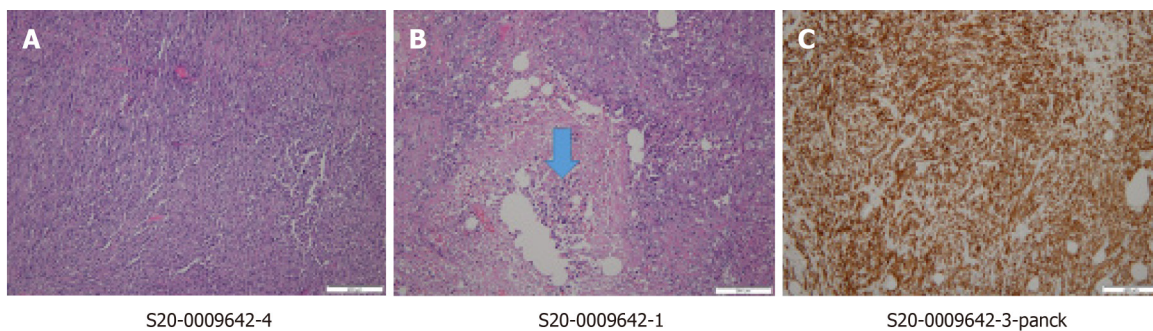
DOI: 10.12998/wjcc.v10.i15.4964 Copyright ©The Author(s) 2022.

Figure 1 Ultrasonography revealed an ill-defined, lobulated, heterogeneous hypoechoic 2-cm mass on the left breast.



DOI: 10.12998/wjcc.v10.i15.4964 Copyright ©The Author(s) 2022.

Figure 2 Computed tomography imaging. A: Left-sided mammogram with a 3.2-cm oval, indistinct, hyperdense mass on the mid breast; B: A 5.1-cm lobulated mass in the posterior basal segment of the right lower lobe on chest computed tomography.



S20-0009642-4

S20-0009642-1

S20-0009642-3-panck

DOI: 10.12998/wjcc.v10.i15.4964 Copyright ©The Author(s) 2022.

Figure 3 Metaplastic carcinoma of the breast. A: The tumor is composed of pleomorphic and spindle cells with no ductal formation (hematoxylin and eosin, $\times 100$); B: A necrotic focus is at the center of the tumor (arrow, hematoxylin and eosin, $\times 200$); C: The spindle cells are positively stained for pancytokeratin (immunohistochemical staining, $\times 200$).

including low-grade adenosquamous carcinoma, fibromatosis-like metaplastic carcinoma, squamous cell carcinoma, spindle cell carcinoma, metaplastic carcinoma with mesenchymal differentiation, mixed metaplastic carcinoma, and myoepithelial carcinoma. These types are also subdivided into low- or high-grade tumors according to their cellular features.

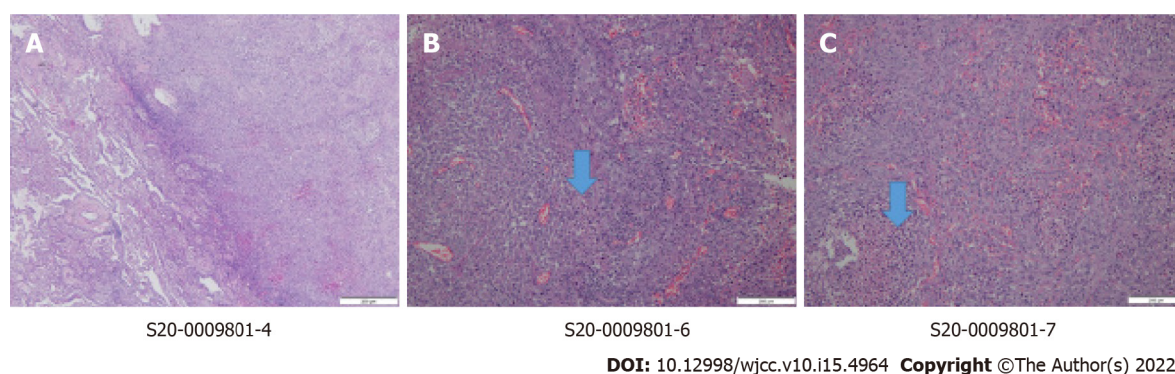


Figure 4 Metastatic metaplastic carcinoma of the lung. A: The metaplastic carcinoma (right side) is present in the lung parenchyma (left side) (hematoxylin and eosin, $\times 100$); B and C: The pleomorphic tumor cells are epithelioid or spindle in shape with necrotic foci (hematoxylin and eosin, $\times 200$).

MBCs are usually seen in women in their 5th and 6th decades of life. The clinical presentation of MBC is similar to common breast cancers; however, MBCs often manifest as a rapidly growing mass; therefore, they tend to be larger at the time of diagnosis. According to the previously reported cases, most male patients presented with palpable masses accompanied by common signs of cancer, such as edema, erythema, and nipple retraction, but those signs were absent in our case. MBC shows lower rates of axillary nodal involvement but higher rates of both local recurrence and metastasis. Luini *et al*[9] reported high rates of pulmonary metastasis, suggesting that MBCs were more associated with hematogenous spread than with lymphatic spread. Compared to invasive ductal carcinoma (IDC), more MBCs present with stage IV disease at diagnosis, and more than 50% of MBCs develop local or distant metastases within 5 years. MBC is associated with a poor prognosis.

Radiologic findings of MBCs are similar to other types of breast cancers. They are also similar to benign lesions, as is common for triple-negative breast cancers. Therefore, careful examination and active histologic confirmation must be performed. On MRI, MBC presents as isointense or hypointense, similar to other histologic types of invasive breast carcinoma. High signal intensity on T2-weighted images is a frequent finding. The commonly reported kinetic pattern is an early enhancement and a delayed washout corresponding to the enhancing peripheral portion and non-enhancing internal components[10].

Pathologic confirmation is the gold standard for diagnosis. The most common type of MBC is squamous cell carcinoma, followed by spindle cell carcinoma. MBC must be differentiated from phyllodes tumors, primary sarcomas, and fibromatoses. Although male breast cancers are usually hormone-receptor positive, most MBCs are negative for estrogen receptor, progesterone receptor, and human epidermal growth factor receptor 2. However, MBC shows even more aggressive behavior than the more common type of triple-negative invasive ductal carcinoma[11]. Lien *et al*[12] recently proved that the epithelial-mesenchymal transition (EMT) related genes were notably upregulated in MBC. EMT is known to be related to cancer invasion, progression, and resistance to chemotherapy. These findings validate the poor prognosis of MBC.

Surgery is the treatment of choice for MBCs. Due to their larger sizes and high propensity for local recurrence than IDCs, mastectomy is preferred as the surgical treatment. Axillary lymph node dissection is not recommended initially because nodal involvement is not common. Sentinel lymph node biopsy is preferable. It is known that MBCs are more resistant to chemotherapy.

There is no optimal chemotherapeutic regimen for MBC. Katz *et al*[2] reported on the youngest man to be treated with surgery and chemotherapy for MBC. The patient received adjuvant chemotherapy with four cycles of dose-dense adriamycin and cyclophosphamide followed by 12 wk of paclitaxel, one of the standard regimens.

Chen *et al*[13] reported on systemic chemotherapy for MBC. They insisted that MBC behaves more like a low-grade sarcoma rather than IDC. Although the data is limited, it is reported that taxane-based regimens show better results than other regimens. Hormone therapy is usually unnecessary because of the high prevalence of triple-negative status. The role of radiotherapy is also uncertain; however, it can be performed as part of palliative care. The lack of data makes it difficult for physicians to manage patients with MBC. In our case, chemotherapy was not administered considering the patient's advanced age and comorbidities.

Recently, some studies have attempted to find new therapeutic approaches. Basho *et al*[14] reported a high frequency of alterations in the PI3K/AKT/mTOR pathway in MBC. According to this report, MBC treated with an mTOR-based systemic therapy regimen showed a better outcome than non-metaplastic triple-negative breast cancer treated with the same regimen. Adams[15] reported remarkable responses to immune checkpoint inhibitors, like pembrolizumab and durvalumab, in advanced MBC with PD-L1 expression.

CONCLUSION

MBC is a distinct disease entity that shows a dismal prognosis compared to other types of breast cancer. There is no standard mode of treatment, but surgery is the treatment of choice. Conventional therapeutic modalities like chemotherapy, radiotherapy, hormone therapy, and molecular-targeted therapy can be applied, but their effects are not certain. Future studies of effective treatments and agents, like immunotherapy and molecular-targeted treatment, are needed to improve the course of the disease.

FOOTNOTES

Author contributions: Kim HY and Jung YJ performed the surgery, reviewed the literature, and contributed to manuscript drafting; Lee SJ, Kim DI, Jung CS reviewed the literature and contributed to manuscript drafting; Kim JY analyzed and interpreted the pathologic specimen; Nam KJ and Choo KS analyzed and interpreted the imaging findings; all authors issued final approval for the version to be submitted.

Supported by the 2020 research grant from Pusan National University Yangsan Hospital, No. 2020-193.

Informed consent statement: The requirement for informed consent was exempted by the Institutional Review Board of the Pusan National University Yangsan Hospital (No. 05-2021-092).

Conflict-of-interest statement: The authors declare that they have no conflict of interest.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

Country/Territory of origin: South Korea

ORCID number: Hyun Yul Kim 0000-0001-7717-7734; Seungju Lee 0000-0001-5100-0017; Dong-il Kim 0000-0001-9874-1322; Chang Shin Jung 0000-0002-2945-4191; Jee Yeon Kim 0000-0002-0503-984X; Kyung Jin Nam 0000-0001-5118-1903; Ki Seok Choo 0000-0001-5072-4259; Youn Joo Jung 0000-0002-9647-8556.

S-Editor: Xing YX

L-Editor: A

P-Editor: Xing YX

REFERENCES

- 1 Barr JG, Jane Clayton ES, Sotharan W. A case of metaplastic breast cancer in a man. *J Surg Case Rep* 2013; **2013** [PMID: 24964410 DOI: 10.1093/jscr/rjs047]
- 2 Katz H, Jafri H, Dougherty T, Lebowicz Y. Rare case of metaplastic breast cancer in a man. *BMJ Case Rep* 2018; **2018** [PMID: 29514832 DOI: 10.1136/bcr-2017-222033]
- 3 Kuo SH, Chen CL, Huang CS, Cheng AL. Metaplastic carcinoma of the breast: analysis of eight Asian patients with special emphasis on two unusual cases presenting with inflammatory-type breast cancer. *Anticancer Res* 2000; **20**: 2219-2222 [PMID: 10928181]
- 4 Rehman A. Triple-negative phenotype of poorly-differentiated metaplastic breast carcinoma in a male: an oncological rarity. *J Coll Physicians Surg Pak* 2013; **23**: 370-372 [PMID: 23673183]
- 5 Tampakis A, Tampaki EC, Trafalis D, Nonni A, Kontzoglou K, Patsouris E, Kontos M, Kouraklis G. Nestin and CD146 expression in metaplastic breast cancer: stem-cell therapy in need? *Eur Rev Med Pharmacol Sci* 2017; **21**: 4137-4140 [PMID: 29028085]
- 6 Huvos AG, Lucas JC Jr, Foote FW Jr. Metaplastic breast carcinoma. Rare form of mammary cancer. *N Y State J Med* 1973; **73**: 1078-1082 [PMID: 4348806]
- 7 Wargotz ES, Deos PH, Norris HJ. Metaplastic carcinomas of the breast. II. Spindle cell carcinoma. *Hum Pathol* 1989; **20**: 732-740 [PMID: 2473024 DOI: 10.1016/0046-8177(89)90065-8]
- 8 Sinn HP, Kreipe H. A Brief Overview of the WHO Classification of Breast Tumors, 4th Edition, Focusing on Issues and Updates from the 3rd Edition. *Breast Care (Basel)* 2013; **8**: 149-154 [PMID: 24415964 DOI: 10.1159/000350774]
- 9 Luini A, Aguilar M, Gatti G, Fasani R, Botteri E, Brito JA, Maisonneuve P, Vento AR, Viale G. Metaplastic carcinoma of the breast, an unusual disease with worse prognosis: the experience of the European Institute of Oncology and review of the

- literature. *Breast Cancer Res Treat* 2007; **101**: 349-353 [PMID: [17009109](#) DOI: [10.1007/s10549-006-9301-1](#)]
- 10 **Kim HJ**, Kim SY, Huh S. Multimodality Imaging Findings of Metaplastic Breast Carcinomas: A Report of Five Cases. *Ultrasound Q* 2018; **34**: 88-93 [PMID: [29394219](#) DOI: [10.1097/RUQ.0000000000000340](#)]
- 11 **Jung SY**, Kim HY, Nam BH, Min SY, Lee SJ, Park C, Kwon Y, Kim EA, Ko KL, Shin KH, Lee KS, Park IH, Lee S, Kim SW, Kang HS, Ro J. Worse prognosis of metaplastic breast cancer patients than other patients with triple-negative breast cancer. *Breast Cancer Res Treat* 2010; **120**: 627-637 [PMID: [20143153](#) DOI: [10.1007/s10549-010-0780-8](#)]
- 12 **Lien HC**, Hsiao YH, Lin YS, Yao YT, Juan HF, Kuo WH, Hung MC, Chang KJ, Hsieh FJ. Molecular signatures of metaplastic carcinoma of the breast by large-scale transcriptional profiling: identification of genes potentially related to epithelial-mesenchymal transition. *Oncogene* 2007; **26**: 7859-7871 [PMID: [17603561](#) DOI: [10.1038/sj.onc.1210593](#)]
- 13 **Chen IC**, Lin CH, Huang CS, Lien HC, Hsu C, Kuo WH, Lu YS, Cheng AL. Lack of efficacy to systemic chemotherapy for treatment of metaplastic carcinoma of the breast in the modern era. *Breast Cancer Res Treat* 2011; **130**: 345-351 [PMID: [21792625](#) DOI: [10.1007/s10549-011-1686-9](#)]
- 14 **Basho RK**, Yam C, Gilcrease M, Murthy RK, Helgason T, Karp DD, Meric-Bernstam F, Hess KR, Valero V, Albarracin C, Litton JK, Chavez-MacGregor M, Hong D, Kurzrock R, Hortobagyi GN, Janku F, Moulder SL. Comparative Effectiveness of an mTOR-Based Systemic Therapy Regimen in Advanced, Metaplastic and Nonmetaplastic Triple-Negative Breast Cancer. *Oncologist* 2018; **23**: 1300-1309 [PMID: [30139837](#) DOI: [10.1634/theoncologist.2017-0498](#)]
- 15 **Adams S**. Dramatic response of metaplastic breast cancer to chemo-immunotherapy. *NPJ Breast Cancer* 2017; **3**: 8 [PMID: [28649648](#) DOI: [10.1038/s41523-017-0011-0](#)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

