

KEYNOTE-522 and Male Spindle cell carcinoma of the breast: A case report

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Background/Introduction

- Metaplastic Breast Cancer (MBC) is a rare group of tumors with an array of morphologies that is composed of mesenchymal cells or non-glandular epithelium¹.
- MBC accounts for less than 1% of all breast cancers with the spindle cell variant comprising less than 0.5%⁷.
- MBC spreads hematogenously with low incidence of lymph node involvement and typically presents with a higher tumor stage with increased risk of recurrence and death due to disease compared to triple negative breast cancer and invasive ductal carcinoma^{1,2,4,5}.
- While rare, spindle cell carcinoma is the most common of the six MBC subtypes in the western world (34%) and biologically more aggressive^{6,8}.
- There are currently no standard treatment guidelines for MBC. Surgery (+/-) radiation has been a common historical approach given its sarcomatous histology; however, new studies suggest benefit with a multimodal approach^{2,3}.
- Per Literature review, there are only a handful of male MBCs and no recorded evidence of male spindle cell breast cancer subtype¹⁰⁻¹⁵.
- Newer evidence projects improved survival from chemotherapy + adjuvant radiotherapy^{2,3,16}.

Case Report

- A 72-year-old male presented to his primary care physician with right breast tenderness, swelling, and purulent nipple discharge that developed over five weeks after accidentally hitting it against a wall.
- Mammogram (Figure 1) showed a large central mass with a group of suspicious microcalcifications within the mass. Ultrasound (Figure 2) showed a mass measuring 7.8x6.7x6.5cm and suggestion of a central scar.
- Pathology: High-grade metaplastic breast carcinoma – spindle cell subtype. ER/PR/HER2 -, Ki67 83%
- Staging PET/CT scan (Figure 3) was negative for avid regional or distant metastasis. He was deemed to have clinical stage IV disease.
- The patient was placed on neoadjuvant chemotherapy based off the KEYNOTE-522 trial that includes (Phase 1): four cycles of pembrolizumab (200 mg) every 3 weeks + paclitaxel and carboplatin (Phase 2): four cycles of pembrolizumab every three weeks + doxorubicin and cyclophosphamide⁹.

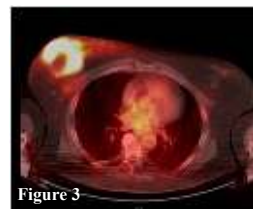
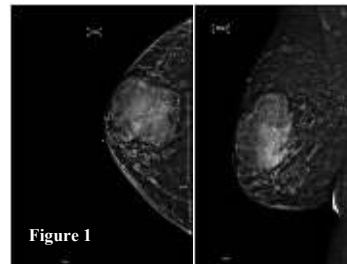


Figure 3: A-F (A: initial presentation, B – F: changes in physical exam throughout neoadjuvant immunochemotherapy to present time)



Discussion

- We based our chemotherapeutic regimen off the randomized phase three KEYNOTE-522 trial, which indicates an increased complete pathological response rate for early-stage triple negative breast cancer using pembrolizumab plus neoadjuvant chemotherapy compared to chemotherapy alone⁹.
- On physical exam, his erythema and induration worsened after three weeks of therapy but has since improved. His mass appears more freely mobile and has clinically shrunk in size from 12.5 x 11.5 cm to now 5 x 5.5 cm (Figure 4, Images A-F).
- Given the scarcity of literature regarding MBC and male MBC, our treatment plan focused on prior success using immunotherapy as an adjunct to standard breast cancer chemotherapy regimens against triple-negative, non-MBC breast cancer.

Conclusion

- After completion of neoadjuvant therapy, our plans are to proceed restaging PET/CT followed by mastectomy and sentinel node biopsy if there is an adequate response to therapy. Pending final surgical pathology, we will likely continue forth with adjuvant pembrolizumab every 3 weeks for up to nine cycles with radiation therapy.
- This is the first known report on male spindle cell carcinoma and MBC treated based off the KEYNOTE-522 trial. While we are still amid completing neoadjuvant therapy, we have already appreciated clinical improvement in the size and texture of the mass.
- Depending on final outcomes, KEYNOTE-522 could be considered as a plausible approach to future triple-negative MBC cases.

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