Management of Breast Metastases from Gastroenteropancreatic Neuroendocrine Tumor Origin

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Introduction

- Solid tumor metastases to the breast are rare. Most common metastases are from the contralateral breast, melanoma, or adenocarcinoma of other visceral origins.
- Neuroendocrine tumors (NET) metastatic to the breast have rarely been reported.
- We describe our single-institution experience managing breast metastases from gastroenteropancreatic NETs.

Methods

- An IRB retrospective review was performed from a comprehensive neuroendocrine tumor database for patients who underwent treatment between 1994-2010.
- Moffitt Cancer Center tumor registry and Pathnet queries were conducted for NET metastases to the breast.
- Breast carcinoma with neuroendocrine features, bronchial NETs and primary breast NETS were excluded.
- Descriptive statistics and Kaplan-Meier analysis were performed using SPSS 20 software.

Results

- 17 female patients were identified with pathologically confirmed gastroenteropancreatic NET metastases to the breast. (Table 1)
- Eighty-eight percent initially presented with Stage IV disease.
- Five patients (29%) presented with synchronous breast metastases and were initially mis-diagnosed as primary breast carcinoma.
- Twelve patients (71%) had metachronous breast metastases.
- Breast metastases were managed with excision in 13 (76%) for palliation or diagnosis. The remainder were observed and managed expectantly. (Table 2)
  - Median breast tumor size was 1.0 cm.
    - 71% were Chromogranin-A (CrA) and Synaptophysin (Synphysin) positive. (Figure 1)
- Carcinoid syndrome was present in 16 patients (94%).
- With a median follow up of 68 months (range 16-250 months), 13 (76%) were alive while 4 (24%) had died of disease.
  - There was no statistical difference in survival based on breast presentation. (Figure 2)

Table 1-Demographics

Variable	N (%)
Age (years)	52.5 (36-70)
Primary NET Site of Origin	
Small Intestine	16 (94)
Pancreas	1 (6)
Method of Breast Diagnosis	
Palpable Mass	4 (23)
Abnormal Mammogram	6 (35)
Octreoscan	2 (12)
Computed Tomography	1 (6)
Unknown	4 (23)
Bilateral Breast Involvement	2 (12)
Multiple Nodules	3 (18)
Breast Presentation	
Synchronous	5 (29)
Metachronous	12 (71)
Time to Metachronous Breast Presentation (mo)	28 (3-200)
Ovarian Metastases	
Synchronous	3 (18)
Metachronous	2 (12)

Table 2- Treatment and Outcome

Variable	N (%)
Removal of Primary NET	12 (71)
Primary Gastroenteropancreatic Tumor Size (cm)	3.05 (0.8-5.2)
Management of Breast NET Metastases	
Lumpectomy	13 (76)
Mastectomy	0
Observation	4 (23)
Median Breast Tumor Size (N=11, cm)	1.0 (0.3-1.6)
Adjuvant Treatment	
Octreotide Therapy	16 (94)
Systemic Chemotherapy	5 (29)
Interferon	4 (24)
Breast Irradiation	3 (18)
Vital Status	
Alive	13 (76)
Dead	4 (24)

Figure 1-Immunohistochemistry

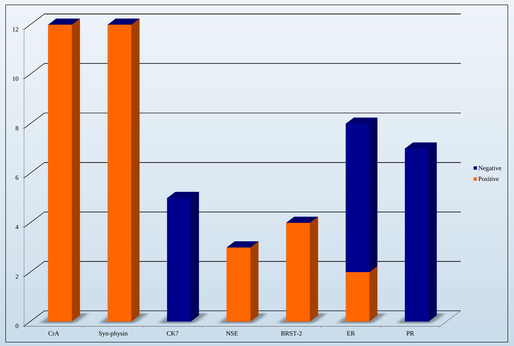
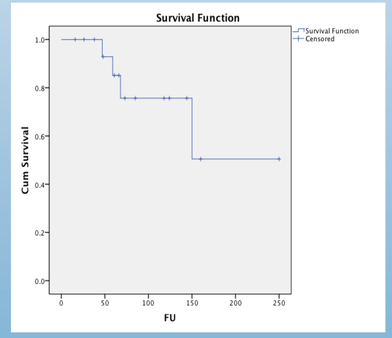
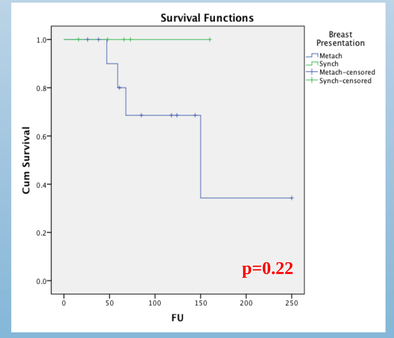


Figure 2-Overall Survival and Breast Presentation





Conclusions

- Breast metastases from gastroenteropancreatic NETs are rare.
- A diagnosis of breast cancer in the setting of a history of NET warrants consideration of metastatic NET disease.
- There is no survival difference based on timing of presentation of metastatic breast NET disease.
- Excision may be considered for definitive diagnosis of metastatic NET disease or palliation of symptoms.
- Long-term survival is possible for those who develop breast metastases despite advanced stage of diagnosis of gastroenteropancreatic NET disease.