A Case Report of Two Primary Cancer; Breast Cancer with Adrenal Gland Metastatic and Second Primary Neuroendocrine Tumor in Colon; A Rare Case in Al-Bashir Hospital

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Abstract

A 68 years old female, was diagnosed as a case of right breast cancer in 2013. Modify Radical Mastectomy (MRM) was done and the pathology report showed Invasive Ductal Carcinoma (IDC), stage T3N3M0. Immunohistochemistry (IHC) study revealed (Triple positive). Patient refused to treat by chemotherapy. Patient was given Herceptin 440 mg 16 cycles for one year, Aromacin tab for 5 years and 50 gray/25 fractionation radiation therapy was applying on right breast. After one year and half, patient complained from severe diarrhea 8 times per day watery contents, vomiting and suffered from lower abdominal pain. PET scan for whole body on October/2014 was done the result showed ascending colon is highly suspicious for malignancy and moderately hypermetabolic left adrenal mass. Subtotal colectomy surgery was done, the pathology report of biopsy revealed low grade malignant neuroendocrine neoplastic lesion stage of T3N1M0 physician prescribed sandostatin LAR 20 mg monthly due to neuroendocrine lesion.

On Jan/2016, cancer recurrence in the same right breast, IHC revealed ER+, PR-, Her 2+, physician decided to change aromacin to faslodex 250 mg s.c for 6 cycles. Radiation therapy was applied 20 gray/10 fractionation on scar. On may/2016, CAP-CT scan result revealed two enlarged left axillary L.N and left soft tissue density adrenal mass (3.0*2.3). Excisional lymph node was done which revealed IDC, ER+, PR-, Her2+. Physician decided to discontinue faslodex and switch to aromacin 20 mg monthly. CAP-CT which was done on Feb /2017; single left axillary L.N 1 cm, small hypodense lesion (spleen 4 cm), left adrenal lesion (2.2*2.6 cm) and osteolytic lesion were noted in iliac areas, so the physician considered those results a metastatic areas from breast and prescribed tykerb 84 tab, Patient now on (sandostatin 20 mg I.M, Herceptin 440 mg, aromacin tab and tykerb tab) monthly, zometa 4 mg q3 months, patient now still on follow up with a good condition.

Conclusion: Breast cancer metastatic to left adrenal gland which is extremely rare especially when they originate from IDCs. The present case is the seventh breast cancer metastatic to the adrenal gland in the literature up to our search. Neuroendocrine tumor was happened in colon after one year and half which was a rare second primary malignancy (SPM) among female breast cancer.

Keywords: Breast cancer; Neuroendocrine tumor; Gene; Adrenal gland; Second primary

Introduction

Breast cancer is the most common cancer among female in the world, it is approximately around 25% of all cancers in 2012 [1]. Invasive Ductal Carcinoma (IDC) is the most common histological type of breast cancer, accounting for up to 85% of all breast cancer [2]. The most common organs can Invasive Ductal Carcinoma (IDC) easily metastasis are lungs, bone, brain, liver, but less frequently it can also spread, ovaries, spleen, pancreas, kidneys [3]. Metastasis to adrenal glands from breast tumors is rare especially when they originate from IDCs [4]. Neuroendocrine tumor of colon is increasingly diagnosed in the US, with an annual incidence of 1 per 100,000 [5]. Most common site is GI tract accounting for more than 60% of NET [6]. Approximately 50% of patients are asymptomatic, but sometimes patients suffer from rectal bleeding, pain, and diarrhea, even during the metastatic stage [7].

We reported a rare case of metastatic invasive breast ductal carcinoma to the left adrenal glands in addition second primary cancer in colon which called low grade malignant neuroendocrine
neoplastic lesion. Up to our knowledge this case is the seventh to be presented in the literature that described metastatic to adrenal gland. The present study was approved by the Ethics Committee of Al-basheer Hospital and ministry of health after get acceptance from head of oncology department and the written informed consent was provided by the patient.

Case Presentation

A 68 years old female, was diagnosed as a case of right breast cancer in 2013. She had negative medical and family history regarding breast cancer. Her first menstrual history was at age 15. She became a pregnant at 20 years old. The patient has 12 children all of them were breast feeding. Modify Radical Mastectomy (MRM) was done and the pathology report showed that the histopathology type of tumor was (IDC), moderately differential (comedo type), tumor size 7 cm in greatest dimension and lump node involvement by tumor 16/19. Finally stage T3N3M0. Immunohistochemistry (IHC) study for hormonal receptors was done and revealed ER positive, PR positive and Her 2 positive (Triple positive). Patient refused to treat by chemotherapy but she accepted to treat by hormonal and target therapy. Patient was given Herceptin 440 mg i.v16 cycles for one year, Aromacin tab was prescribed for 5 years and 50 gray/25 fractionation radiation therapy was applying on right breast.

After one year and half, patient complained from severe diarrhea 8 times per day watery contents, vomiting and suffered from lower abdominal pain. Physician prescribed drugs to alleviate the pain and to return bowel movement to the normal but patient still suffered from diarrhea despite of drug administration. So physician decided to do PET scan for whole body on October/2014, the result showed hyper metabolic colonic wall thickening (ascending colon) is highly suspicious for malignancy and moderately hyper metabolic left adrenal mass.

On November/2014 patient was doing colonoscopy which was revealed moderate differentiation adenocarcinoma. Subtotal colectomy surgery was done, the pathology report of biopsy ileum, cecum, ascending colon and right hemicolecotmy revealed low grade malignant neuroendocrine neoplastic lesion (well differentiated), and stage of T3N1M0. Special immunostains was done and results were as follows: NSE, chromogranin A, S-100 were all positive for neoplastic cells, while CD36, vimentin V9 were positive in fibro vascular areas surrounding neoplastic cell. Physician prescribed sandostatin LAR 20 mg monthly due to neuroendocrine lesion. On may/2015 patient was doing CAP-CT which showed abnormal finding soft tissue density left adrenal mass lesion (2.2*1.9 cm). See Figure 1.

On January/2016, patient has two nodules at the site of scare, after removing them, the histopathology report showed (recurrence in the same right breast), IDC, grade 2 moderately differentiated, IHC were done and revealed ER+, PR-, Her 2+, physician decided to change aromacin to faslodex 250 mg s.c for 6 cycles and radiation therapy was applied 20 gray/10 fractionation on scar. On may/2016 mammogram was done on left breast, which was shown cluster group of macrocalcification in UOQ and need for further evaluation, CAP-CT scan was done and revealed two enlarged left axillary L.N and left soft tissue density adrenal mass (3.0*2.3) see Figure 2. Excisional lymph node was done which revealed IDC, ER+, PR-, Her 2+ and the right breast mass re-excision showed foci of giant cell. Physician decided to discontinue faslodex and switch to aromacin 20 mg monthly. Pt still on Herceptin 440 mg + sandostatin 20 mg monthly.

On august/2016 patient has osteopenia according to bone densitometry report, physician prescribed zometa 4 mg i.v every 3 months. Patient now on follow up, left breast ultrasound was shown ill defined hypoechoic lesion with post a coustic shadow with extension to the nipple about 3*1.2 cm retroareolar. The result of CAP-CT which was done on Feb/2017; single left axillary LN 1 cm, small hypodense lesion (spleen 4 cm), left adrenal lesion (2.2*2.6 cm) see Figure 3 and osteolytic lesion were noted in iliac areas, so the physician consider those results a metastatic areas from breast and prescribed tykerb tabs.

Patient now on (sandostatin 20 mg I.M, Herceptin 440 mg, aromacin and tykerb tabs) monthly, zometa 4 mg q3 months, patient now still on follow up.

Discussion

Patients with right sided breast cancer are more likely to have a relative with breast cancer. Right Breast cancer is usually happened.
in younger women have genetic and history relation, more negative
receptors with smaller tumor size and metastasis to the bone early
and more aggressive behaviors compared to the left side breast cancer
[8] but in this case patient has 68 years old and has no any cancer
history of her family, tumor size 7 cm and metastatic to adrenal
gland first which is non consist with literature review but there is a
congruent with aggressiveness of disease comparing with Nosheen
Fatima retrospective study in 2013.

According to Local Breast Cancer Recurrence; the risk of local
recurrence decreased with event-free time. Overall, it was 1% after
3 event-free years and 3% within 5 years after diagnosis, it differed
by subtype, with ER-positive, PR-positive, HER2-negative breast
cancer with the lowest risk and triple-negative with the highest risk.
The risk was 2.2% with triple and with ER+, PR-, HER2- was 2.4%
[9]. Comparing with our case the recurrence was done after 3 years
in the same right breast with translation of receptors and after one
year from the local recurrence spread to left side breast cancer with
aggressive behavior may be due to rejection chemotherapy treatment.

In addition, in our case, breast cancer metastatic to left adrenal
gland which is extremely rare especially when they originate from
IDCs versus ILC which is associated with adrenal gland metastasis
[10]. Up to our knowledge, only six cases have been reported
previously in the literature (Table 1) [11-16]. The present case is the
newest and the seventh in the literature. The adrenal gland metastasis
are asymptomatic in the majority of patients [17]. It is difficult to
distinguish between primary adrenal gland tumor and metastatic
adrenal gland, to identify the diagnosis, the physician must do CT
scan with pathological examination [12] and to confirm the diagnosis,
each patient who has a history of malignance and mass >2 cm in
diameter in adrenal gland must be highly considered as a possible
case of adrenal gland metastasis [17]. The patient in the present
case was asymptomatic with no abdominal pain or other problems;
however, she had a history of right and left breast carcinoma and a
CAP-CT revealed left soft tissue density adrenal mass (3.0*2.3) which
was considered as a possible metastasis.

According to second primary cancer in our case, neuroendocrine
tumor was happened in colon after one year and half which was a rare
Second Primary Malignancy (SPM) among female breast cancer. Our
results are in contrast to previous studies in literature. The result of
cohort study conducted by Hung M-H et al. in 2016 which demonstrate
that the occurrence of second primary tumor was significantly higher
for uterine, thyroid then bone and soft tissue cancers among female
breast cancer patients [18]. In Dutch female breast cancer patients
the standardized incidence ratios (SIRs) were elevated for cancers of
the esophagus, stomach, colon, rectum, lung, uterus, ovary, kidney,
and bladder cancers, and for soft tissue sarcomas (STS), melanoma,
non-Hodgkin’s lymphoma, and Acute Myeloid Leukemia (AML)
respectively. Among patients age 50 years and older, radiotherapy
was associated with raised STS risk, chemotherapy with increased
risks of melanoma, uterine cancer, and AML; and hormonal therapy
with uterine cancer [19]. Up to our search in pubmed, ELM data base,
there was a rare case of multiple endocrine neoplasia type 1 (MEN1)
which contains carcinoid tumors associated with breast cancer with
the MEN1 gene mutation in a 45-year-old female was diagnosed
with breast cancer. A germ-line MEN1 gene mutation was detected
and it could be assumed that MEN1 syndrome may have possibly
predisposed the present patient to breast cancer [20]. But in Furuuchi
and his colleges study in 2000; APC gene mutations presented in 57%
of colorectal cancers and in 18% of breast cancers. APC mutations
were observed at a significantly high frequency in advanced stages
of primary breast cancers (TNM classification, P=0.05) [21]. So there
is APC gene mutation association between breast and colorectal
cancers. However, additional case reports and studies are required
to illustrate gene mutation and gene association between breast cancer
and neuroendocrine tumors.

Table 1: Reported cases of metastatic adrenal gland from Invasive ductal carcinoma.

<table>
<thead>
<tr>
<th>References</th>
<th>No of case</th>
<th>Authors</th>
<th>years</th>
<th>Location</th>
<th>Tumor size</th>
<th>Sign &amp; symptoms</th>
<th>Immunohistochemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1</td>
<td>Liu et al, 2010</td>
<td>64</td>
<td>Left adrenal gland</td>
<td>6</td>
<td>Asymptomatic</td>
<td>C-erbB-2+, GCDPP-15+</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>Yoshitomi et al, 2012</td>
<td>46</td>
<td>Right adrenal gland</td>
<td>NA</td>
<td>Asymptomatic</td>
<td>E-caderhin+, CK+</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>Akhtar et al, 2012</td>
<td>45</td>
<td>Left adrenal gland</td>
<td>2.8</td>
<td>Pain in abdomen, shortness of</td>
<td>ER+, PgR+, HER 2+</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>Eren et al, 2012</td>
<td>38</td>
<td>Left adrenal gland</td>
<td>4</td>
<td>Asymptomatic</td>
<td>NA</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>Andjelić-Dekić et al, 2014</td>
<td>58</td>
<td>Left adrenal gland</td>
<td>NA</td>
<td>Asymptomatic</td>
<td>HER2+</td>
</tr>
<tr>
<td>16</td>
<td>6</td>
<td>TAO HE et al, 2016</td>
<td>35</td>
<td>Left adrenal gland</td>
<td>2.5</td>
<td>Asymptomatic</td>
<td>ER+, PR+, Her2+</td>
</tr>
</tbody>
</table>

Conclusion

The present case is considered as a rare case of right breast cancer
in patient has 68 years old and has no any cancer history of her family,
with large tumor size 7 cm and metastatic to adrenal gland first which
is non consist with literature review. Breast cancer metastatic to left
adrenal gland which is extremely rare especially when they originate
from IDCs. The present case is the seventh breast cancer metastatic
to the adrenal gland in the literature up to our search. Neuroendocrine
tumor was happened in colon after one year and half which was a
rare Second Primary Malignancy (SPM) among female breast cancer.
However, additional case reports are required to illustrate gene
mutation and gene association between breast cancer and
neuroendocrine tumors.

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radiology pictures with original reports and helped us by answering
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References


