Breast angiosarcoma in a young patient, case report

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Abstract
We show a case report on primary breast angiosarcoma, clinical presentation, histopathology findings, and a brief revision about breast angiosarcoma.

The patient develops a rapidly grown breast tumor, without diagnosis until she arrived at oncology gynecology services. She is 22 years old, this kind of angiosarcoma is not relational to radiotherapy or family cancer syndrome.

Ower group performed a simple mastectomy plus major pectoral resection, no axillary dissection was necessary and chemotherapy treatment.

The patient has 5 months of free period disease without relapse symptoms.

Ultrasound or mammography is not much useful in diagnosis about it. Magnetic resonance is more helpful in non-epithelial breast tumors.

Free border resection, the grade of the tumor, and suspect to the aggressive tumor are strong points to consider in this kind of breast tumor. Chemotherapy until now is not beneficial in adjuvant treatment just palliative election. Survival media time is 35-40 months after treatment.

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risk factors in primary breast angiosarcoma. She does not report history about family cancer.

Discussion

Primary sarcomas of the breast are an infrequent clinical condition, they are an incidence of fewer than 1% of all breast cancers. Sarcomas arise from mesenchymal tissue of the mammary gland, one of the most common histological subtypes of primary sarcoma of the breast is angiosarcoma. There is primary angiosarcoma this tumor develops during the third or fourth decades of life. And the secondary breast angiosarcoma, radiation-induced soft tissue sarcoma, after conservative surgical treatment and radiotherapy on the breast.

Adem and his team found that angiosarcoma and fibrosarcoma in the breast are most frequent breast sarcomas, and the size tumor is the most important survival prognostic factor, and they do not launch axillary nodal metastases.

Primary angiosarcoma of the breast typically presents as a palpable breast mass in women in the third and fourth decade of life. Secondary angiosarcomas of the breast are generally found in older women following breast cancer treatment. Secondary angiosarcoma may present with skin lesions such as nodules or discoloration, due to damage of lymphatic or vascular channels following surgery and irradiation. There is typically a latency period of 10-20 years following breast conservation and radiotherapy.

There are Angiosarcoma Project (ASC project), an initiative enabling US and Canadian patients to remotely share their clinical information and biospecimens for research.

There are Angiosarcoma Project (ASC project) an initiative from the US and Canada, it can help to share remotely clinical information about angiosarcoma for current or futures research on this topic. (https://ascproject.org) [8].

This group found PIK3CA mutated genes for angiosarcoma has taken more importance; this topic in particular for breast angiosarcoma, they found the response of pembrolizumab in those kinds of patients even complete responses in two patients in metastatic disease [8].

Targeted inhibition of the PIK3, signaling pathway can have deep effects on cancer cell growth through numerous mechanisms [9].

How is the best target the PIK3 pathway in cancer treatment remains a topic of active investigation in particular for breast angiosarcoma?

Relapse metastatic angiosarcoma for a medical oncologist is a serious challenge, standard chemotherapy nor targeted agents has demonstrated good and durable responses. Drugs used for metastatic angiosarcoma include doxorubicin, paclitaxel, docetaxel, and bevacizumab.

Small case series have documented durable benefits of metronomic chemotherapy in relapsing angiosarcoma [10].

Sher and coworkers reported than adjuvant chemotherapy using anthracycline and ifosfamide or gemcitabine and a taxane did no significantly improve recurrence-free survival compared with patients who did not receive chemotherapy treatment [11]. However, the administration of palliative chemotherapy resulted in a 48% response rate. In the case of secondary angiosarcomas induced by radiation treatment docetaxel showed promise response [12].

In other small series of Biwas and workers reported a median overall survival was 37.4 months (range, 8.7–92.8 months). The median RFS was 17.9 months (range, 2.5–69.4 months). They used to as chemotherapy paclitaxel and gemcitabine like palliative treatment.

In addition to it, Four of 5 patients had negative mammograms [13].

In Sri Lanka reported a bilateral synchronous angiosarcoma after surgery and radiotherapy (secondary breast angiosarcoma) in a patient of 62 years old, she develops those tumors with only 5 years of history to radiotherapy, the difference with frequent radio induced tumor between 10 or 20 years [14].

Ragavan in Singapore and coworkers give treatment to 13 patients with angiosarcoma, 5 patients received any axillary surgical treatment, and they do not detect axillary nodal metastasis and neither axillary relapse. Recurrence was usual to the bone, liver, ovary, contralateral breast, peritoneum [15].

Breast angiosarcoma has limited available literature with small and inconclusive results, but surgery treatment with wide and clear tumor border is the best treatment, tumor size and grade are principal prognostic factors (like others sarcomas) adjuvant treatment is unclear in results, axillary nodal treatment is not necessary, molecular trigger therapy someday will be a useful treatment in the metastatic stage.

The tumor cells from breast angiosarcoma proved to be immunoreactive to vascular markers (CD31 and CD34) and negative to epithelial markers; is helpful to confirm breast angiosarcoma but is very important suspect it with the clinical appearance [16].

However, we do not use immunochemistry in the present case. Mammographic and sonographic findings are non-specific and can be normal in up to a third of cases. Sonographic findings are non-specific, and the mass can be hypercoechoic, hypoechoic, or heterogeneous. Heterogeneous sonographic appearances may be due to hemorrhage of the tumor into the surrounding stroma. In secondary angiosarcoma, dermal lesions may be difficult to distinguish from post-irradiation skin thickening, skin thickening could be done only stage found in ultrasound [17].

In primary angiosarcoma, a heterogeneous mass is demonstrated on MR imaging with low signal intensity on T1 images and high signal on T2 images. On dynamic phase imaging, kinetic enhancement depends on tumor grade. High-grade tumors may demonstrate rapid enhancement with washout kinetics, but lower-grade tumors usually demonstrate plateau or persistent enhancement kinetics [18] (Figures 1-6).

Conclusions

Breast angiosarcoma is an aggressive tumor with poor survival, five rear overall rates range 38-78%, and 5 years free survival between 38

Figure 1. Clinical photography - asymmetric breast.
Figure 2. Chest Tomography of breast tumor

Figure 3. Whole breast tumor with ink

Figure 4. Lobular breast tissue surrounded by several vascular canal anastomosis (microphotograph)

Figure 5. Tumor solid form with a vascular branch growing and mitotic activity

Figure 6. Microphotograph show intravascular papillar growing

and 56%. Size tumor looks to be the most important factor in survival, (less than 5 cm). Early diagnosis with correct (with R0 or negative margins) surgical treatment can give patients a good quality of life, but in a rare tumor we need more reports also clinical essays if we want to improve the life of these patients. Axilar nodal dissection is not helpful for this tumor.

As well as advanced tumor grade (grade 3) is associated with significantly worse overall survival.

Adjuvant treatment is not much useful for radiotherapy or chemotherapy. The early clinical suspect is the key and does not delay treatment until now is the correct behavior.

References
Valdespino VE (2020) Breast angiosarcoma in a young patient, case report


