

Parotid Gland Metastasis from Breast Origin

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Abstract

Introduction: Metastatic involvement of parotid gland from breast carcinoma is rare. According to a literature review, only 24 cases have been reported.

Case report: A 48-year-old woman with a history of left breast cancer complained of swelling in the right parotid gland. Biopsy was performed and made the diagnosis of metastasis from breast carcinoma. The patient was treated by chemotherapy and radiotherapy.

Conclusion: Local control of the disease should not be underestimated and a multimodal treatment combining surgery, radiotherapy and chemotherapy should be given every time it seems possible.

Keywords: Breast cancer; Parotid gland; Metastasis; Radiotherapy

Introduction

Parotid tumors represent 3% of head and neck tumors and 80% of salivary gland tumors [1]. The parotid metastasis from breast carcinoma is extremely rare. To our knowledge 24 cases are published nowadays. There is no therapeutic consensus. The management depends on the stage of the disease and the prognosis is dark. We report a case of parotid gland metastasis of breast cancer with review of the literature.

Case Report

A 48-year-old woman, presented in 2005 a left breast carcinoma classified T2N2aM0 according to TNM classification. She had a mastectomy associated with axillary lymph node dissection. Histological examination revealed an invasive ductal carcinoma (IDC) of 2.5 cm, grade II according to Scraff-Bloom-Richardson score (SBR), hormonal receptors positive; 2 lymph nodes out 7 identified were invaded (2N ± 7N). She underwent eight cycles of adjuvant chemotherapy with 5-Fluotouracil – Epirubicin – cyclophosphamid (FEC) and paclitaxel followed by locoregional radiotherapy at the dose of 52.2 Gy completed in August 2008. A hormone therapy with tamoxifen was prescribed for five years. In 2013 she presented a pulmonary metastatic relapse treated with five courses of FEC followed by aromasine. One year later, she developed cutaneous metastases treated with tamoxifen. In

2015, she had letrozole for bone progression. In July 2016, physical examination identified a firm right parotid mass measuring 5 cm, not painful and without signs of facial nerve involvement. The biopsy revealed an invasive ductal carcinoma of the breast invading the parotid parenchyma. Chemotherapy combination of capecitabine plus vinorelbine was performed. The evolution was marked by the increase and ulceration of the mass associated with active bleeding (Figure 1) responsible for a decrease in hemoglobin with a level of 5 g/dl. The patient was transfused by two packed red blood cells and trusted us for radiotherapy. Computed tomography revealed a heterogeneous mass of the right parotid measuring 5 cm (Figures 2A and 2B). Haemostatic radiotherapy was given at a dose of 13 Gy in two fractions. Three months after the end of radiotherapy and 12 months after the initial diagnosis, the patient was alive with a stabilization of the parotid mass and disappearance of the bleeding.

Discussion

The parotid metastasis is rare accounting for 9% to 14% of parotid tumors [2]. We select two types of parotid metastases according to their method of spread: lymph node metastases where the neoplastic cells were found in the intra-glandular and peri-glandular lymph nodes of the parotid gland originating from the head and neck tumors, mainly from squamous cell carcinomas and melanomas, and parenchymal metastases by hemotogenous spread [3]. In order of frequency, these tumors were described: bronchial carcinoma, renal cancer, mammary carcinoma, colonic carcinomas, carcinoma of the prostate, carcinoma of the stomach and sarcoma of the uterus [3]. Their frequency was estimated to be 1.8% to 4% of secondary parotid tumors [4]. Dissemination of the breast cancer to the parotid gland is rare. Among 34 patients with parotid metastasis, two of them had a breast origin [5].

Review of literature reveals only 24 cases of parotid metastases from breast cancer (Table 1) [2,6-21]. The mean age was 59.6 years and ranged between 40 and 76 years. Our case has 48 years old. A case of parotid metastasis has been described for a man [10]. The most clinical



Figure 1: A large ulcerative and bleeding exophytic mass on the right side.

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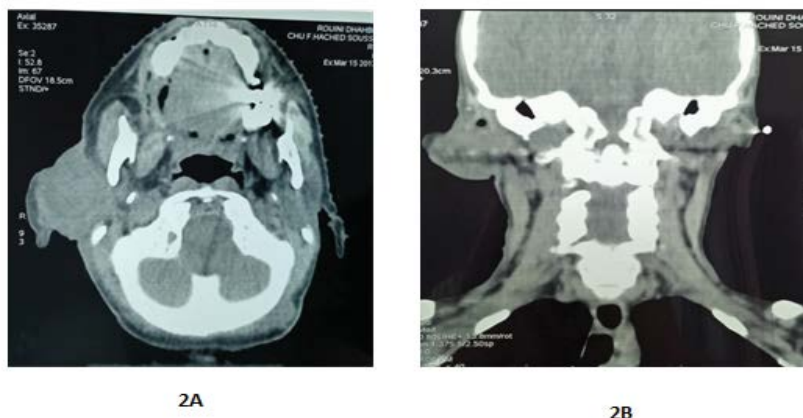


Figure 2 (A and B): Computed tomography scan image of the parotid mass.

References	Age (yrs)	Histology	Location (Breast)	Staging	Location (PG)	Other metastasis	Symptoms	Size (cm)	Therapy	Outcome
Wiesel et al. [6]	62	ILC	Left	Stade IV	Left	Bone	Swelling	5	RT 40 Gy, HT (tam)	Alive, 8 months
	61	IDC	Left	T2N0M0	Left	Bone	Swelling	1.5	Partial parotidectomy + RT4000 rads+ CT (cyclophosphamide, MTX, 5FU)	Alive, 1 year
	74	--	Left	T2N1M0	Left	--	Mass+FNP	--	RT30 Gy, CT (Cyclophosphamide, MTX, 5FU)	Alive, 6 years
Bisset et al. [7]	41	IDC	Right	T0N0M0	Left	None	FNP, Mass	--	Radical parotidectomy + RT 50 Gy	Alive, 24 M
	65	--	Right	T2N1M0	Left	None	Mass	5	RT 50 Gy, 25 fractions	DWD, 22 M
Calvo et al. [8]	57	IDC	Right	--	Left	--	Pain	--	Parotidectomy	--
Kollias et al. [9]	66	--	Right	--	Left	None	Mass	--	Superficial Parotidectomy+ RT+HT	DWD, 3 M
	52		Right	--	Right	None	Mass	--	IDEM	DWD, 15 M
	57		Left	-	Right	None	Mass	--	IDEM	Alive, 15 M
Joyce et al. [10]	71	IDC	Right	T2N0M0	Right	None	Mass+FNP	--	Radical parotidectomy	--
Szymansky et al. [11]	66	IDC	Right	--	Left	--	FNP	--	Parotidectomy	--
	58	IDC	Right		Right	--	Mass		Parotidectomy, RT, CT	
Zhang et al. [12]	40	phyl	Left	--	Right	Lung	Mass	3	Excision of a parotid and pulmonary nodule	Alive, 7 M
Laforga et al. [13]	52	IDC	Left	T1N0M0	Left	None	Mass	2	Parotidectomy, docetaxel (6 courses), RT, HT (letrozole)	--
Dungore et al. [2]	42	IDC	Right	T3N0M1	Left	Parotid	Mass	4	Total parotidectomy, lymph node dissection, RT, CT	Lost to follow-up
Ramesh et al. [14]	63	ADK	Right	M1	Right	Parotid	Mass	3	HT (anastrozole)	Alive, 3 M
Ando et al. [15]	67	IDC	Left	T1N3M1 node	Left	None	Mass	--	Partial parotidectomy, capecitabine, trastuzumab	Alive, 4 M
Cihan et al. [16]	70	IDC	Left	pT2N3M0	Left	Thyroid, Bone, Liver	Mass	2	Superficial parotidectomy, cervical RT 50 Gy, Paclitaxel 80mg/m2(8 courses)	Lost to follow-up
Sellinger et al. [17]	74	ILC	Left	pT2N1M0	Right	Bone	FNP	--	Parotidectomy	--
Alath et al. [18]	43	IDC	Right	T2N2M1 bone, liver	Left	Bone, Liver	Mass	3	Parotidectomy	DWD, 8 M
Duncan et al. [19]	76	IDC	Right	--	Right	None	Mass	2	Letrozole	--
Ackan et al. [20]	61	IDC	Right	--	Right	Adrenal	--	--	Parotidectomy + adrenalectomy	Alive, 12 M
Kmeid et al. [21]	65	IDC	Right	--	Right	None	Mass	2	Total parotidectomy	--
Current case	48	IDC	Right	T2N2M0	Right	Lung, Bone, Skin	Mass	5	CT (xeloda), RT 13 Gy en 2 fractions	Alive, 12 M

ILC: Invasive Lobular Carcinoma; IDC: Invasive Ductal Carcinoma; phyl: Malignant Phyllodes Tumor; ADK: Adenocarcinoma ; FNP: Facial Nerve Palsy ; PG: Parotid Gland; RT: Radiotherapy; CT: Chemotherapy; DWD: Died With Disease; M: Months; Y: Years

Table 1: Table summarizing the 24 cases in the literature and the patients in this report.

presentation was a palpable mass in the parotid region observed in 75% of cases (18 patients), the mean size was three cm. Peripheral facial paralysis was present in 21% of cases (5 patients). The parotid involvement was homolateral in 58.5% of cases (14 patients) and

controlateral in 41.5% of them (10 patients). It was synchronous with a mammary carcinoma in 3 cases [2-20]. A fine needle aspiration cytology (FNAC) is now widely used for parotid tumors with an accuracy of 79 to 97% [22,23]. But it needs a trained and experienced cytologist.

The FNAC permitted to apply the positive diagnosis in 41% of the cases that were published in the literature (10 patients). The biopsy was performed in 21% of cases. Our patient had a biopsy. The FNAC is not current practice in our country yet. Metastatic disease to the parotid gland presents a diagnostic problem [18]. The morphological and immunocytochemical characteristics between a primary salivary duct carcinoma and a metastatic ductal breast carcinoma are similar [18]. The association of negative estrogen receptor and intensive staining for carcinoembryonic antigens (ACE) orientate towards salivary duct carcinoma [2,24]. Some authors believe that the presence of a clinical history of a breast carcinoma asserts the diagnosis of parotid metastases [2]. In our case, the diagnosis was made on the clinical presentation and morphological features. The optimum treatment of a patient with a parotid metastasis from breast origin is not well established given the rarity of the case. It depends on the patient's condition and the stage of the disease (Table 1).

The surgery represents the treatment of choice when feasible. An appropriate parotidectomy with negative margins and with preservation of the facial nerve when possible is preferred [21]. Most authors suggest a superficial parotidectomy when disease is clinically limited to the superficial lobe [4,25]. It was successful in providing control local in most cases [21]. A total or radical parotidectomy is reserved when the deep lobe or the facial nerve are involved [4,21]. Lymph node dissection is required in the presence of clinical or radiological adenopathy. Prophylactic lymph node dissection is not recommended. Postoperative radiotherapy is recommended to improve local control [4]. Some authors prefer chemotherapy to remove occult and microscopic metastases and indicate radiotherapy in case of larger tumor or close surgical margins [13]. The local control is essential; it helps to avoid morbidities secondary to facial paralysis, ulceration and bleeding of the mass. Our patient was in an advanced stage, she had chemotherapy and palliative radiotherapy. The prognosis of patients presenting with parotid gland metastasis from a distant primary tumor is usually poor, with a 5-year survival rate of 10%. It depends on the type of the tumor and the stage of the disease [2].

Conclusion

A parotid mass in a patient with a history of mammary carcinoma must be considered as a metastasis. It is an extremely rare and aggressive entity with a poor prognosis. A multimodal treatment combining surgery, radiotherapy and chemotherapy should be given every time it seems possible in order to get a better local control and a good quality of life.

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