

## Sebaceous carcinoma of the male breast

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### Abstract

Sebaceous carcinoma of the male breast is an exceedingly rare occurrence. Literature is inadequate about the prognosis and treatment of such malignancies. We report histo-pathological and immuno-histochemical (IHC) findings in a case of sebaceous carcinoma of breast of a 60-year-old male. An initial biopsy suggested sebaceous carcinoma. Total mastectomy was performed, followed by local radiotherapy and adjuvant chemotherapy. The receptor status was triple negative. Pan cytokeratin and epithelial membrane antigen were positive, whereas S-100 was focally positive and HMB-45 and Melan A were negative. IHC is central to diagnosis and differentiation of these rare kind of tumours from the common invasive ductal carcinomas. The exact line of treatment following excision of the tumour is unclear. Local radiotherapy is generally indicated, whereas the role of adjuvant chemotherapy is uncertain. Wider reporting of such cases will help in widening the horizon of prognosis and management of these tumours.

**Keywords:** sebaceous carcinoma; male breast carcinoma; immunohistochemistry; mastectomy

### Introduction

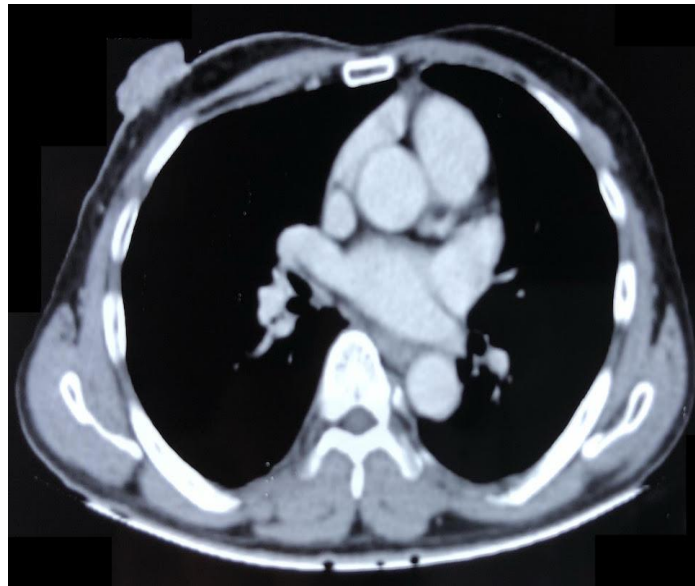
Sebaceous carcinoma of the breast (SCB) is a rare presentation. Generally, sebaceous carcinomas are reported most commonly in the eyelid. Till date, around 20 cases have been reported in published English literature. Almost all of these cases are reported in females, with one being a male. The case was reported infiltrating ductal carcinoma showing lipid-rich sebaceous like component [1]. We describe a case of male SCB who presented to us after surgery and was treated with chemotherapy and radiotherapy. A thorough review of literature of all the cases, including the histological, immunochemical, clinical, follow up and outcome data is presented.

### Case report

The patient is a 60-year old male who presented with complaints of progressively increasing fungating growth in the right breast since 9 months. Excision biopsy was done outside. A biopsy done outside was suggestive of poorly differentiated malignant tumour with clear cell

changes, possibly sebaceous cell carcinoma. The tumour showed sheets and groups of tumour with marked nuclear pleomorphism, high nucleocytoplasmic ratio, hyperchromatism and increased mitotic activity with clear cell changes, lymphocytic infiltrate in the stroma and active areas of necrosis and inflammation. A review of the histopathology slides confirmed the diagnosis of sebaceous cell carcinoma of the breast (SCB). The Immunohistochemistry (IHC) was CK-7, BerEP4 and EMA positive and, Mammoglobin, GCDFFP, CEA, ER, PR and Her2neu negative.

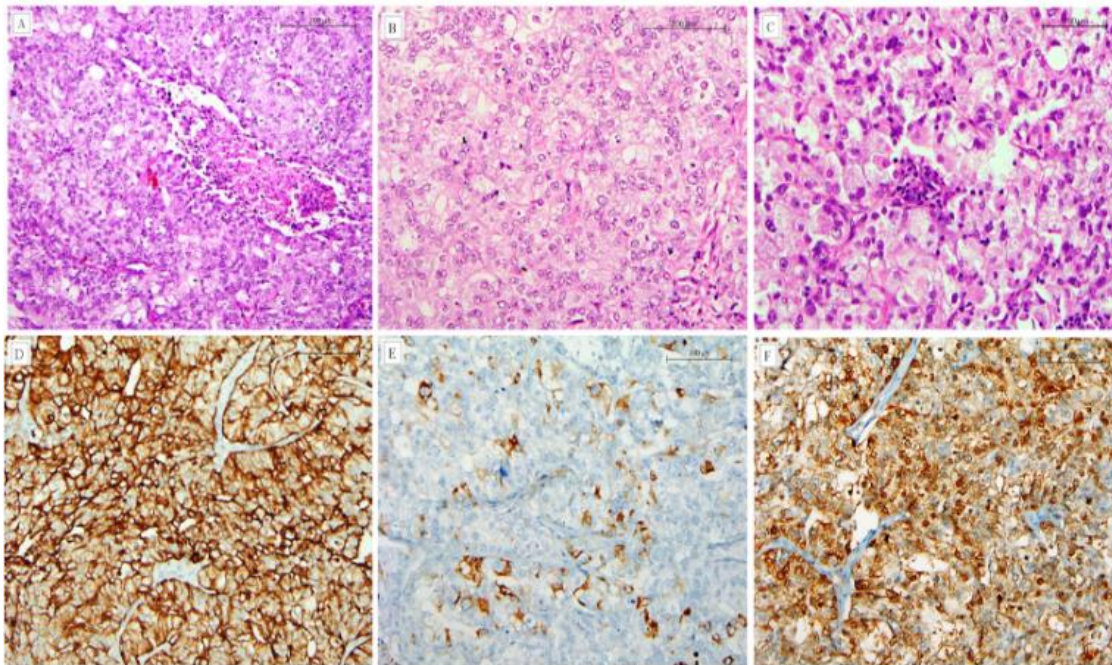
Routine haemogram, kidney and liver function tests and electrolytes were within normal limits. CECT Scan of the thorax was suggestive of right breast soft tissue lesion with heterogenous post contrast enhancement measuring approximately 4 X 3 X 2 cms (Figure 1). Interface of the lesion with underlying chest wall was well-defined. Right axilla showed multiple lymph nodes with mild post contrast enhancement, no necrosis and loss of fatty hilum, with the largest one measuring approximately 11 X 9 mms. Chest X-Ray and CT Abdomen were normal.



**Figure 1.** Axial and coronal images of CT Thorax showing the lesion in right breast

A wide local excision with right axillary dissection was performed. The post op HPE showed the tumour with macroscopic extension into epidermis with skin ulceration. The pT size was 4.5 X 3.3 X 1.4 cm, central and unifocal. The subepithelial zone showed tumour disposed in sheets and nests. The tumour cells were moderately pleomorphic, having vesicular nuclei, distinct nucleoli, moderate amounts of eosinophilic

cytoplasm and focal cytoplasmic clearing. Fair number of mitoses were seen. Surrounding stroma showed lymphoplasmocytic infiltrate. All the margins were clear with no lymph node metastasis. All the hormone receptors were negative. Among other markers, Pan CK and EMA were positive. S-100 was focally positive. HMB-45, CEA, GCDFP and Melan A were negative (Figure 2).



**Figure 2.** Post-op HPE and IHC

Microphotograph sebaceous carcinoma showing (A-C) epithelial neoplasm with sebaceous differentiation, cells in sheets with some acini, moderate atypia, mitoses (H&E x 200); Immunohistochemical typing showed diffuse expression of Cytokeratin 7 (D), focal epithelial membrane antigen (E) and strong nuclear and cytoplasmic S100 (F).

Treatment consisted of modified radical mastectomy followed by radiotherapy and chemotherapy. The radiotherapy was given to the right

breast using bilateral tangential fields to a dose of 50 Gy. The chemotherapy consisted of 6 cycles of doxorubicin, cyclophosphamide and 5-fluorouracil. In view of the triple negative receptor status, no hormonal therapy has been given.

### Discussion

SCB is a rare metaplastic breast malignancy. It is characterized by a

nested or lobular growth pattern of tumor cells mixed with cells having sebaceous differentiation [2]. It is defined as a breast malignancy with sebaceous differentiation in at least 50% of the cells and not originating from cutaneous adnexal sebaceous glands of the skin of the breast [3, 4]. The term sebaceous carcinoma was first used by Tavassoli, who described it as a distinct subtype of breast carcinoma [4]. Data on the genetic features of these tumours is not available. The histological and IHC features in these cancers conform with those arising in more common anatomic locations like skin and adnexa [6, 7].

A thorough literature review found only 20 described cases of SCB, of which only one case was a male SCB. Three cases were described by von Bogaert et al. [17] and Carlucci et al. [18] each. Svajdler et al. [15] published a case series of 4 cases in 2016. Rest of the cases were reported as case reports of a single patient [1, 8-14, 16]. The detailed IHC report was available for only 13 cases. The available details of these cases are described in the table below (Table 1). The patients ranged from 45-85 years, except one, who was 25 years old. Eight cases were right sided breast cancers.

Authors	Age	Sex	Laterality	pTNM	ER/PR/HER2	CK-7	Ber-EP4	EMA	GCDFP	S-100	Treatment	FU
Prescott et al. (8); 1992	74	F	R	T2NXM X	NA †			+				NA
Mazzella et al. (1); 1995	55	M	L	T2N0M X	+/+/-							AND ‡ 10 months
Tavassoli et al. (9); 1999	46	F	R	T3N0M X	-/+NA							NA
Varga et al. (10); 2000	45	F	R	T2NXM X	+/+/-							AWD § 132 months Skin, Bone metastasis
Hisaoka et al. (11); 2006	71	F	R	T1cN1-2 Mx	+/+NA	+		+				NA
Numoto et al. (12); 2007	49	F	L	T1cNxM x	+/+/-			+				NA
Murakami et al. (13); 2009	50	F	L	T1cN1-2 Mx	-/-+	+		+	-	-		AND 24 months
Ramljak et al. (14); 2010	85	F	L	T2NXM X	-/-							NA
Svajdler et al. (15); 2015	65	F	R	T1cN1a M0	+/+/-	NA	NA	+	NA	-	Quadrantectomy+ SLN+AxD+ACT +RT(42.56 Gy), Lterozole	AND 27 months
Svajdler et al. (15); 2015	61	F	R	T2N1aM 1	-/-+	NA	NA	+	NA	NA	Mastectomy + AxD+ FAC+RT (50 Gy) 1 <sup>st</sup> line: Pacli+ Bevacizumab 2 <sup>nd</sup> line: Gem+Carbo	DOD 28 months Liver, Lung, Bone metastasis
Svajdler et al. (15); 2015	66	F	R	T2N1aM 1	+/++	NA	NA	-	-	-	Mastectomy+ AxD+FAC+Tam +RT(50 Gy)+ Vinorelbine+Cap ecitabine Pacli+Bevaci+Letrozole	AWD 70 months Local Rec. Endometrial ca
Svajdler et al. (15); 2015	25	F	R	TxN0M x	+/+/-	NA	NA	+	-	+	Segmentectomy+ AxD+AC+RT(50 Gy+15 Gy boost)+ anti-estrogen	AND 75 months
Yamamoto et al. (16); 2017	80	F	L	T2N0M 0	-/-	+	+	+	NA	NA	Partial mastectomy+ RT; No NACT	AND 16 months Cervical Carcinoma
Present case; 2018	60	M	R	T2N0M 0	-/-	+	+	+	-	Focally +	MRM+ALND+RT	AWD 16 months

**Table 1**

†NA – Not available, ‡AND – Alive with no disease, §AWD – Alive with disease, DOD - Died of disease

**Table 1.** Summary of demography, pathological (histological and immuno-histochemical) findings and clinical outcomes in reported cases of sebaceous carcinoma of breast

The receptor positivity status of the cases is variable ranging from triple positive to triple negative cancers. The complete panel of IHC markers is not available for all cases. 7 patients showed Estrogen receptor positivity, while three cases showed HER2 positivity. The ER and HER2 status was available for 12 and 10 cases, respectively. Eight cases were epithelial membrane antigen positive and three cases showed cytokeratin positivity. Five out of nine patients with known nodal status showed nodal positivity pointing towards aggressive nodal spread of the disease. Four out of the six cases with known M status had metastatic disease.

There is very little literature on prognosis and behaviour of the malignancy. Hence, the query regarding the best possible management option remains largely unanswered. Like in intraductal carcinomas, most of these cases were also treated with combination of surgery, chemotherapy and radiotherapy. Three of the 5 patients for whom treatment details are available, had mastectomies, while two others had lumpectomies. All these patients had axillary lymph node dissections. Radiotherapy was given ranging from 42.5 – 50 Gy. One of these patients also received boost of 15 Gy. Anti-estrogen therapy was started depending upon the estrogen receptor positivity status. The chemotherapy consisted of anthracyclines plus cyclophosphamides along with a taxane or 5-fluorouracil.

The follow-up data was available for 7 of these patients. The survival of the cases ranged from 10-132 months. The differential diagnosis to be considered in this case includes lipid-rich carcinoma, carcinoma with apocrine differentiation, adenoid cystic carcinoma and liposarcoma [5].

In conclusion, we described a case of SCB. The prognosis of these type of cancers is variable. The summary of all the cases reported suggests non-uniformity in management protocols for this particular subtype of mammary carcinoma. More reports on this topic on diagnosis, treatment and prognosis are needed to further refine the management.

## Disclosure

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