APOCRINE CARCINOMA - A CLINICOPATHOLOGICAL STUDY OF SIX CASES

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Abstract: Apocrine carcinomas are rare variants of ductal carcinomas of breast. Our hospital has recorded six cases of apocrine carcinoma of breast over a period of five years. The mean age of these cases was 53.5 years and all cases were recorded in females with predilection for right side breast. In one case, the carcinoma was bilateral, presenting with right sided apocrine carcinoma and left sided ductal carcinoma of comedo type. Two cases showed Her2Neu overexpression which carries an unfavourable outcome. The prognosis of apocrine carcinoma is the same as that of infiltrating ductal carcinoma of no special type.

Keyword: Breast- Ductal carcinoma- Apocrine carcinoma

INTRODUCTION: Apocrine carcinoma is a very rare form of breast malignancy constituting 0.3% to 4% of all cases[1]. It is defined as carcinoma showing cytological and immunohistochemical features of apocrine cells in more than 90% of cells[2].

CLINICAL FINDINGS: The age of all six cases ranged from a minimum of 42 years to a maximum of 65 years with a mean average age of 53.5 years. All cases were reported in females. A predilection to right side was noted. One case had bilateral carcinoma, with right side showing apocrine carcinoma and left side showing infiltrating ductal carcinoma of comedo type. All cases presented with complaints of mass breast ranging in size from 3 to 10 cm. There were no other symptoms.

PATHOLOGICAL FINDINGS: MACROSCOPIC FEATURES: Four cases showed nodular, irregular hard masses. One case showed ulceration of overlying skin (Fig.1). One case presented with nipple retraction. On cut surface, four cases showed irregular, hard grey white masses with ill-defined borders. One showed cystic spaces filled with gelatinous material. One case showed cystic and granular areas with areas of necrosis (Fig.2). Out of six cases, five presented with lymph node enlargement. Only two of them...
showed secondary carcinomatous deposits. FIG 1: SKIN SHOWS A DEEP ULCER ABOUT 2CM FROM AREO-LAR REGION
FIG 2: CUT SURFACE: SOLID GREY WHITE MASS
MICROSCOPIC FEATURES:
All cases showed large, cystically dilated glandular spaces lined by single layer of tall columnar toxicoidal cells with abundant granular eosinophilic cytoplasm, forming micropapillary pattern in someplaces (Fig.3, 4 &5). The nuclei were vesicular with prominent nucleoli (Fig.6).One case showed apocrine DCIS in the surrounding tissue. Five cases were associated with fibrocystic disease.Among the 6 cases, immunohistochemical staining for estrogen receptor (ER), progesterone receptor(PR) and Her2/Neu was done for 4 cases, of which two were triple negative (Negative for ER / PR/HER2/Neu). The remaining two cases were negative for ER and PR and showed overexpression of Her2/Neu (Fig.7).

FIG 4: GLANDS & MICROPAPILLARY PROCESSES LINED BY TALL COLUMNAR CELLS H&E X 10 FIG5 : APOCRINE CELLS WITH ABUNDANT EOSINOPHILIC GRANULAR CYTOLASM H& E X40
FIG 6: VESICULAR NUCLEI WITH PROMINENT NUCLEOLI. H&E X 40

FIG 7: TUMOR CELLS SHOWING HER 2/Neu POSITIVITY H&E X 40

DISCUSSION:
Apocrine cells reflect a metaplastic alteration of native epithelial cells and are a usual component of fibrocystic change. The malignant transformation of this epithelium was first described by Krompecher in 1916[3]. Apocrine carcinomas are reserved for neoplasms in which all or nearly all of the epithelium has apocrine features. The most common age group ranges from 19 to 86 years[1]. Apocrine metaplasia and apocrine DCIS are considered to be precursor lesions for apocrine carcinomas. Grossly, these tumors are firm and present as a distinct breast mass indistinguishable from invasive breast carcinomas, NOS. Microscopically, apocrine carcinomas are composed of cords, sheets, and occasionally tubules of neoplastic cells. Cytologically, the tumor cells are large with relatively abundant, granular, eosinophilic cytoplasm and distinct cell margins. Vesicular nuclei with prominent nucleoli are the characteristic features of these tumors[4]. If an in-situ component is present, it is usually of the apocrine type, which is also evident in one of our cases.

Tumors that should be considered in the differential diagnosis of apocrine carcinoma include squamous (metaplastic) carcinoma, histiocytoid carcinoma, lipid-rich carcinoma, granular cell tumor and metastatic melanoma. Apocrine carcinoma tends to be immunoreactive for CEA, GCDFP – 15. The gene coding for the marker GCDFP – 15 is located on the chromosome 7q, that can be demonstrated with in situ hybridisation techniques [5]. Majority of these tumors lack detectable ER and PR [6]. These tumors are reported as ER positive in 3.8%–60% of cases, PR positive in 5.8%–40%, HER-2/Neu positive in 50%, with a proliferation index of 6.9%–23.7% and p53 alteration in 46%–50% of tumors. Androgen receptors are positive in 56%–100% of apocrine carcinoma [7]. Over expression of Her 2 neu is associated with poor outcome in most of the patients [8].

ULTRASTRUCTURE: The cells of apocrine carcinoma show the presence of numerous prominent mitochondria (some with abnormal cristae) and a variable number of large(400 to 600 nm) membrane-bound vesicles with dense homogenous osmophilic cores [9].

CLINICAL COURSE: Patients with apocrine carcinoma generally have the same clinical course as
that of non-apocrine carcinoma\textsuperscript{[4]}, though some reports suggest a somewhat better prognosis for this variant.

**CONCLUSION:** Apocrine carcinomas are rare variants of infiltrating ductal carcinomas, carrying the same prognosis as that of infiltrating ductal carcinoma of no special type. A bilateral breast carcinoma with a combination of right sided apocrine carcinoma and left sided comedocarcinoma was also seen in this study.

**REFERENCES:**


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