CASE REPORT

PRIMARY ALVEOLAR RHABDOMYOSARCOMA OF BREAST – A RARE CASE REPORT

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HOW TO CITE THIS ARTICLE:

Gireesh V. Achalkar. "Primary alveolar rhabdomyosarcoma of breast – a rare case report". Journal of Evolution of Medical and Dental Sciences 2013; Vol2, Issue 49, December 09; Page: 9473-9475.

ABSTRACT: Sarcoma of the breast constitute less than 1% of all malignant breast tumors and primary rhabdomyosarcoma is very rare entity with limited case reports in literature. Here we report a case of primary rhabdomyosarcoma of breast in an adolescent girl. She presented with progressively increasing lump in right breast and mammography was suggestive of a malignant lesion. Modified radical mastectomy was performed. The tumor was diagnosed histologically as alveolar rhabdomyosarcoma. The patient was discharged and her postoperative recovery was uneventful.

KEYWORDS: Rhabdomyosarcoma (RMS), Breast, adolescent.

INTRODUCTION: Rhabdomyosarcoma (RMS) is common in children and adolescents. The occurrence of rhabdomyosarcoma is rare in adults. It commonly involves extremities, head and neck (orbit, nasopharynx, middle ear and oral cavity) and genitourinary tract. Primary RMS arising from the breast is uncommon and we are reporting this case of primary RMS of breast as it was mimicking invasive ductal carcinoma (IDC) clinically.

CASE REPORT: A 16 year old girl presented with lump in right breast since 2 months associated with difficulty in breathing and was clinically evaluated as having intraductal carcinoma. On examination she was moderately built. Blood examination revealed microcytic hypochromic anemia. Her biochemistry including lactate dehydrogenase (LDH) and uric acid were within normal limits.

Her breast examination revealed 5 x 4 cm of hard mass in the upper and outer quadrant of right breast with no abnormality in left breast. The mass was not adherent to overlying skin or underlying muscles. Lymph nodes were enlarged in right axilla. Mammography showed a high density mass with marginal irregularity. Ultrasonography also revealed a 5 x 4.2 cm solid mass. The patient underwent modified radical mastectomy.

On gross examination, serial sectioning of the mastectomy specimen revealed a well circumscribed growth measuring 5.5 x 4.5 x 3 cm. Cut section showed variegated appearance with solid grey white areas, hemorrhage and necrosis. Eight lymph nodes were found in axillary tail. On microscopic examination it revealed alveolar rhabdomyosarcoma (figure 1 and 2).

Fig. 1: microscopic view of small round cells of rhabdomyosarcoma (200X)

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Fig. 2: microscopic view of rhabdoid cells with abundant cytoplasm (400X)

This was a biphasic tumor with small round cell areas and spindled areas. There were frequent mitoses and large areas of necrosis. There was no dysplasia within overlying squamous epithelium. There were areas with cells having abundant eosinophilic cytoplasm, imparting a rhabdoid appearance. Immunohistochemistry was done and it was positive for desmin (figure 3), myogenin and myo D1, thus confirming the diagnosis of alveolar rhabdomyosarcoma. None of the axillary lymph nodes showed metastases. The patient was discharged with postoperative chemotherapy advice.

Fig. 3: Microscopic view of RMS with desmin positivity.

DISCUSSION: Rhabdomyosarcoma(RMS) is believed to arise from primitive mesenchymal cells committed to skeletal muscle lineage but these tumors can also arise in other organs such as urinary bladder¹.

These tumors may arise from anywhere in the body but with few predilections. Embryonal variety commonly occurs in head and neck region of children^{1,2}.

RMS comprises most common sarcoma in children and adolescents. Diagnosis of rhabdomyosarcoma is by detection of cross striations characteristic of skeletal muscle under light or electron microscopy. Staining for actin, desmin, myogenin and myo D1 confirm the diagnosis. Molecular and genetic markers are also used to differentiate the various subtypes³.

Alveolar variety is mainly seen in adolescents. Botryoid variety is seen in genitourinary tract of young children. Totally resectable tumor has better outcome while residual disease and metastatic disease has got bad prognosis.

Evans⁴ reported primary rhabdomyosarcoma of breast in a 41 year old woman which was managed by mastectomy and patient had metastatic deposits to left upper arm and shoulder three and a half year later, which was consistent as that of primary in breast.

IR study group⁵ reviewed 26 patients with RMS and compared with data regarding 47 similar patients in previously published report, the histological type was alveolar in 24, embryonal in one and not determined in one.

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Cell of origin of Rhabdomyosarcoma (RMS) is frequently debated^{6,7}. It may be due to muscle forming cell called satellite cell or it may be due to mesenchymal progenitor cell which are committed to myogenic lineage. It is hypothesized that such cell may give rise to RMS^{8,9}.

CONCLUSION: Rhabdomyosarcoma of breast is rare but has to be thought of as one of differential diagnoses particularly in adolescent female. Histopathology proved useful in diagnoses and formulating treatment plan.

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Date of Submission: 20/11/2013.

Date of Peer Review: 21/11/2013.

Date of Acceptance: 26/11/2013.

Date of Publishing: 03/12/2013