

## Malignant Phyllodes Tumor with Squamous Metaplasia: A Rare Case Report

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**Abstract:** Phyllodes tumors are uncommon biphasic fibro epithelial neoplasm of breast, comprising of <1% of all breast neoplasm. We report a case of a 65 years old female patient admitted to the General Surgery Department with palpable mass in right breast. Clinical diagnosis was made as Phyllodes tumor. FNAC revealed benign cystic lesion with possibility of epidermal cyst. Mass was excised sent for Histopathologic examination. It was diagnosed as malignant phyllodes tumor with squamous metaplasia. Squamous metaplasia with in phyllodes tumor is rare and may occur in benign, borderline and malignant types. There are few cases reported in the literature. We report this case in view of its rarity.

**Keywords:** Breast tumors, phyllodes tumor, malignant, squamous metaplasia.

### INTRODUCTION

Phyllodes tumors are a distinct rare fibro epithelial neoplasm. These constitute only 0.3% to 0.5% of all breast tumors [1]. The commonly affected age group on women is 45 to 49 years [1,2] and rarely found in adolescents and elderly. It was described as early as 1774, as a gaint type of fibro adenoma [3]. This was first described by Chelius in 1827. Cystosarcoma phyllodes term was first coined by Jahnnes Muller in 1838 for these tumors.

The World Health Organization adopted the term PT in 1981 and sub-classified them histologically as benign, borderline and malignant according to histological features like tumor margins, stromal over growth, tumor Necrosis, cellular atypia and mitosis per high power field by Rosen [4]. Majority of PT have been described as benign (35-64%) with remained divided between the border line and malignant subtypes. Phyllodes tumor growths rapidly asymmetric of rare fibro epithelial neoplasm of breast[5]. Breast lesions with a significant spindle cells or mesenchymal components are not commonly encountered in FNAC material. . The value of FNAC in diagnosis of phyllodes tumor remains controversial, but core needle biopsy has high sensitivity and negative predictive value. Examination of cystic areas of squamous metaplasia in phyllodes tumor by fine needle aspiration cytology may lead to a mistaken diagnosis of squamous cyst [6]. Here we present a case of malignant phyllodes tumor with squamous metaplasia in 65 years old female.

### CASE REPORT

A 65 years old female patient came to General Surgery department with complaints of swelling in the Right breast since 1 year and associated with pain on and off. She has known history of diabetes mellitus and hypertension 6 years back. Hematological

investigations, liver function tests and renal functional tests were normal. On examination revealed a palpable swelling measuring 6x5cm in right breast involving upper outer and lower quadrant. No history of puckering cracks over nipple areola. Lump is mobile along with breast tissue, firm in consistency and surface is nodular, skin over swelling is pinchable. Clinical diagnosis was phyllodes tumor. FNAC was performed on breast lump. Smears examined showed sheets, clusters and dispersed anucleated squamous cells against hemorrhagic background (Fig.1). Breast lump diagnosed as benign cystic lesion with possibility of epidermal cyst on FNAC. FNAC offered differential diagnosis of phyllodes tumor versus an epidermal cyst. The mass was excised and sent for histopathological examination. Macroscopically shows a single lobular firm mass measuring 9x9cm. External surface is congested, lobular. Cut surface shows grey-white to grey-brown with focal cystic areas. Focal mucinous areas and calcifications are seen. Microscopic examinations of the lesion composed of spindle shaped cells. Cells are arranged in fascicles and herring bone pattern (Fig.2). Cells have oval to elongated nuclei, prominent nucleoli with scanty to moderate cytoplasm. Many atypical mitotic figures are noted (Fig.3). Few foci show cystically dilated ducts with stromal fronds projecting in to the lumen. Squamous metaplasia of

ductal epithelial cells is noted. One foci shows cystically dilated duct lined by squamous epithelium and lumen filled with keratinous material (Fig.4). Adjacent to the lesion, fibro adipose tissue with ducts lined by benign ductal epithelial cells are noted. By the

histopathological examination, the case was diagnosed as malignant phyllodes tumor with squamous metaplasia of ducts. Post operative period was uneventful and follow up of 3 months showed good recovery and no evidence of tumor recurrence locally.

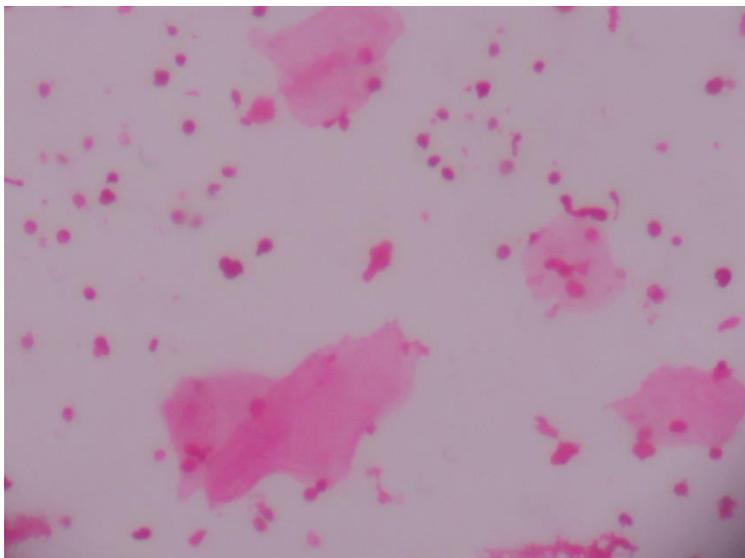


Fig.1: Microscopic examination (H & E stain) (400X) shows dispersed anucleated squamous cells.

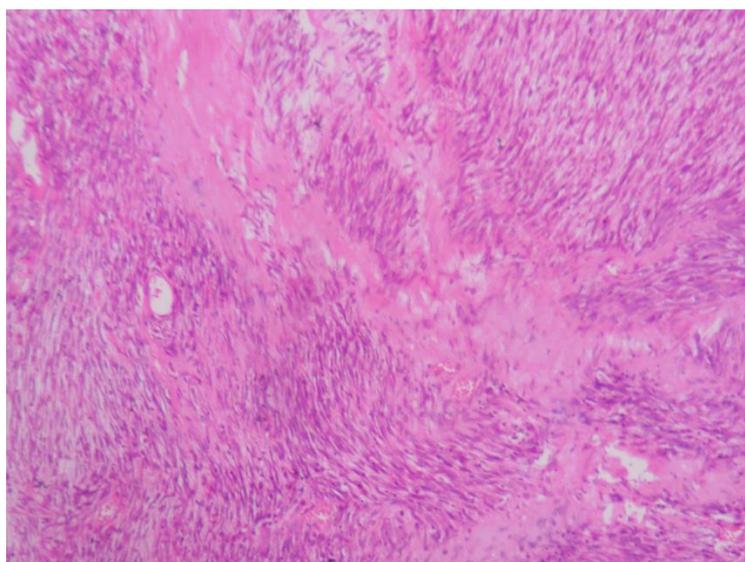


Fig.2: Microscopic examination (H & E stain) (100X) shows spindle shaped cells arranged in fascicles and herring bone pattern

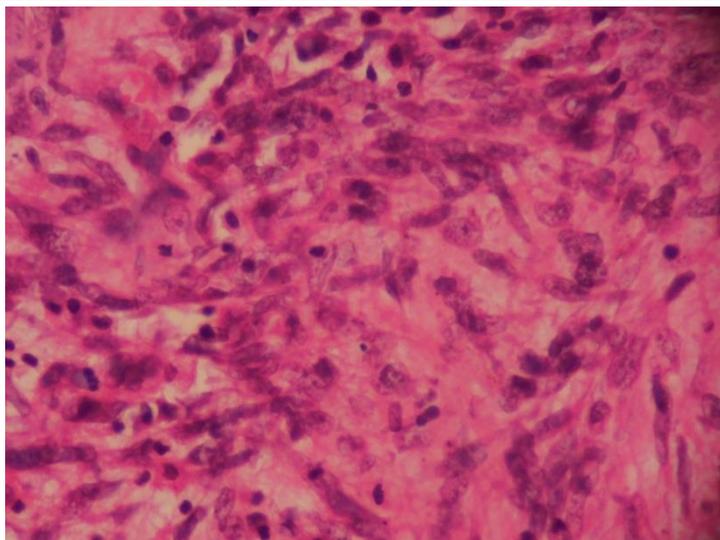


Fig.3: Microscopic examination (H & E stain) (400X) shows spindle shaped cells with elongated nuclei and atypical mitotic figures

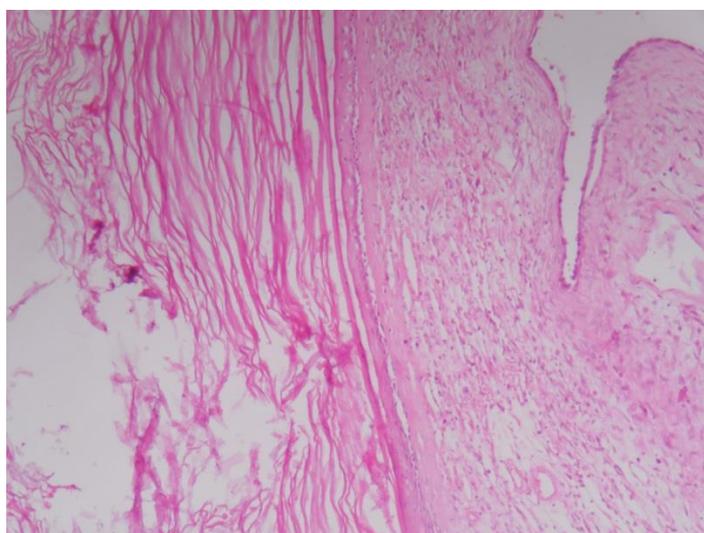


Fig.4: Microscopic examination (H & E stain) (100X) shows cystic dilated duct lined by squamous epithelium and lumen filled with keratin material

## DISCUSSION

Phyllodes tumor are an uncommon fibro epithelial neoplasm of the breast which rarely show aggressive behavior. Clinically Patients present with rapidly growing mobile mass having smooth borders. On Microscopic examination phyllodes tumor shows spindle cell stromal hyper cellularity and reminiscent of intra canalicular growth pattern. Based on histological features like cellularity, stromal over growth margin status and mitotic figure count in stromal cells, phyllodes tumor is sub-classified by benign, borderline and malignant. Mitotic figure count parameter is commonly used for classifying phyllodes tumor. If Mitotic figures are  $< 4/10$  High power field (HPF), it is considered as benign and if mitotic count  $> 10/10$  High Power field it is diagnosed as malignant phyllodes tumor. In our case mitotic figure were observed more than  $10/10$  HPF. Metaplastic changes may occur in the stromal and epithelial components of Phyllodes tumor but are rare. Squamous metaplasia of ductal epithelium

can occurs in benign, malignant and borderline PTs. There are few cases reported in the literature [7,8].

Benign phyllodes tumor microscopically shows a well defined circumscribed border, mild stromal cellularity little or no stromal cell atypia. Foci of stromal condensation around ducts are seen. Cleft like distribution of glands and stromal into cystic spaces in a leaf like pattern will be present. Epithelial component shows ductal hyperplasia, squamous metaplasia and apocrine metaplasia. Stroma shows hemorrhages, necrosis, fat, bone, cartilage and skeletal muscle. Borderline phyllodes tumor microscopically shows moderate stromal cellularity with mild to moderate atypia and mitotic activity of  $5-9/10$  HPF. Stromal over growth is absent or focal. Malignant phyllodes tumor microscopically shows hyper cellular stroma, stromal cells are moderate to spindle shaped with marked pleomorphism, prominent mitotic activity  $\geq 10$  mitoses/ $10$  HPF. Stromal cells are arranged in

fascicles, having bone pattern and sheets. Cartilage, adipose tissue, skeletal muscle, necrosis also noted in the stroma. Focal benign glandular elements are admixed malignant stromal cells. In the phyllodes tumor sarcomatous area shows different stromal changes like angiosarcoma, chondrosarcoma, liposarcoma, osteosarcoma and rhabdomyosarcoma.

Phyllodes tumor can be differentiated from other lesions like Metaplastic Carcinoma, Fibromatosis, Fibro sarcomas of breast and Myofibroblastoma by histopathological examination. Microscopic examination of metaplastic carcinoma shows spindle cells which are arranged in storiform pattern with focal mitotic activity. Focal glandular pattern of tumor cells are noted. Epithelial component is malignant. In malignant phyllodes tumor epithelial component is benign.

Microscopic examination of Fibro sarcoma shows elongated spindle cells arranged in sheets. Herring bone pattern with few showing fibroblastic proliferations. It can be differentiated with phyllodes tumor by absence of epithelial components.

Microscopic examination of Myofibroblastoma shows homogenous population of spindle shaped cells with ovoid nuclei and pale cytoplasm. Cells are arranged in clusters separated by hyalinized collagenous stroma throughout the tumor. Mitotic figures are rare. It can be differentiated with phyllodes tumor by absence of intrinsic epithelial component.

Microscopic examination of Fibromatosis shows elongated spindle cells with relative uniform appearance. Cells have small pale oval or spindle nuclei with little pleomorphism. It can be differentiated with Phyllodes tumour by absence of epithelial component and mitotic figures of spindle cells.

Metaplastic changes may be noted in phyllodes tumor in the epithelial or stromal components. The epitheliums rarely show apocrine or squamous metaplasia. Ductal or tubular carcinoma insitu, invasive carcinoma arises in the epithelial component [5]. Squamous metaplasia of ductal epithelium which may occur in benign, malignant and borderline phyllodes tumors has been found in about 10% phyllodes tumor. The squamous change has been suggested to benign within the myoepithelial cell layer before eventually involving entire acinus [9]. This myoepithelial origin of the metaplastic squamous cells has been supported by the immunohistochemistry markers like actin, vimentin and S-100 in metaplastic squamous cells [10]. In our case extensive squamous metaplasia of duct with formation and cyst simulating epidermoid cyst was present in malignant phyllodes tumor

## CONCLUSION

Malignant phyllodes tumor runs a fatal course due to rapid growth of tumor. Histopathological examination is still gold standard in diagnosis and classification of phyllodes tumor. Extensive squamous metaplasia in Malignant Phyllodes tumor should be considered by histopathology in case of rapidly growing tumor with solid and cystic component yielding benign anucleate squamous on FNAC.

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