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## CASE REPORT

# PRIMARY PLEOMORPHIC LEIOMYOSARCOMA OF MALE BREAST

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## ABSTRACT

Leiomyosarcoma rarely occurs as a primary breast sarcoma. We describe the first case of primary pleomorphic leiomyosarcoma of breast in a 50 year old male. Initial biopsy was suggestive of malignant fibrous histiocytoma. Subsequently on immunohistochemistry (IHC) of the mastectomy specimen confirmed it to be leiomyosarcoma. Combined with the histological features and IHC findings a diagnosis of pleomorphic leiomyosarcoma was made.

**KEY WORDS:** Leiomyosarcoma, Male breast, Pleomorphic.

**This article may be cited as:** Khan MM, Atique M, Sharif N, Rauf F, Ahmad S. Primary pleomorphic leiomyosarcoma of male breast. *Gomal J Med Sci* 2013; 11:111-3.

## INTRODUCTION

Pleomorphic leiomyosarcoma is a morphological variant of leiomyosarcoma and constitutes around 10% of all leiomyosarcomas.<sup>1</sup> Leiomyosarcoma by itself rarely occurs as a primary breast tumor. In the literature review we found that around 30 cases have been reported so far,<sup>2</sup> out of which only 03 were in the male breast.<sup>3</sup> We here present the first case of pleomorphic leiomyosarcoma in the male breast.

Leiomyosarcoma of the breast is difficult to diagnose and requires immunohistochemistry for correct histopathological interpretation or electron microscopy to differentiate it from poorly differentiated sarcomatoid carcinomas.<sup>2</sup> This report is about a case of primary leiomyosarcoma of the breast in a 50-year-old man. The purpose of this work is to increase awareness of both clinicians and pathologists about such lesions and highlight the unusual microscopic features which are likely to mislead histopathologists on light microscopy.

## CASE HISTORY

A 50 year old Afghan male presented with painless swelling in the right breast for the last 05 years. It started gradually increasing in size for the last one year which brought the patient for surgical consultation and biopsy. The family history was unremarkable regarding any malignancy. The physi-

cal examination revealed a firm discrete mass 10 cm in diameter lateral to the nipple. No axillary lymph nodes were palpable.

Initially an incisional biopsy was received in the pathology department for processing. It comprised of two irregular pieces of firm tissue measuring 2.5x2x0.5 cm collectively. Microscopically it revealed proliferation of spindle cells with hyperchromatic nuclei beneath the dermis. They were arranged in interlacing bundles forming prominent storiform pattern at several places. A few bizarre giant cells and frequent mitotic figures were also present (Fig. 1). On the basis of cellular morphology a diagnosis of malignant fibrous histiocytoma was made.

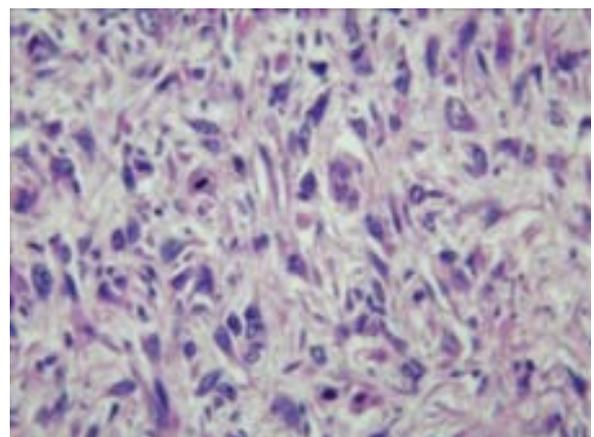


Fig 1: Pleomorphic cells with hyperchromatic nuclei and bizarre giant cells.

The patient underwent modified radical mastectomy of the right breast. The received specimen comprised of breast partly covered by skin with re-

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tracted nipple measuring 12.5x11x4 cm. On cutting a firm whitish mass was found measuring 9x4x3.5 cm (Fig. 2). The mass had a homogenous appearance with focal hemorrhages. It was found to be 0.5 cm away from the deep resection margin and almost reaching one of the peripheral resection margins. On one side skeletal muscle fibers were attached to it. No lymph nodes were recovered.



Fig 2: Grayish white mass inside mastectomy specimen.

The basic microscopic features of the tumor remained the same. However, pleomorphism was found to be greater with more multinucleated tumor giant cells some of which contained intranuclear inclusions. Brisk mitotic activity and a more diffuse storiform pattern was also seen (Fig. 3). The blocks were sent to Armed Forces Institute of Pathology Rawalpindi for immunohistochemical studies.



Fig 3: Diffuse storiform pattern.

Immunohistochemistry (IHC) showed positivity for vimentin, smooth muscle actin (SMA), CD 68 and CD 10 (Fig. 4) and was negative for CK 7, GCDFP 15, CK 5/6 and S-100 which gave a differential of sarcomatoid sarcoma (myoepithelial sarcoma) and leiomyosarcoma. But the strong positiv-

ity for vimentin (fig. 5) and SMA (Fig. 6) and negativity for GCDFP 15, CK 5/6 and P 63 strongly favored the diagnosis of leiomyosarcoma breast. On reviewing the hematoxylin and eosin (H&E) slides we found that some of the spindle cells had cigar-shaped nuclei which were in line with the IHC results. The other prominent feature, i.e. a diffuse storiform pattern is usually not a feature of leiomyosarcoma but commonly accompanies its variant pleomorphic leiomyosarcoma.<sup>5</sup>

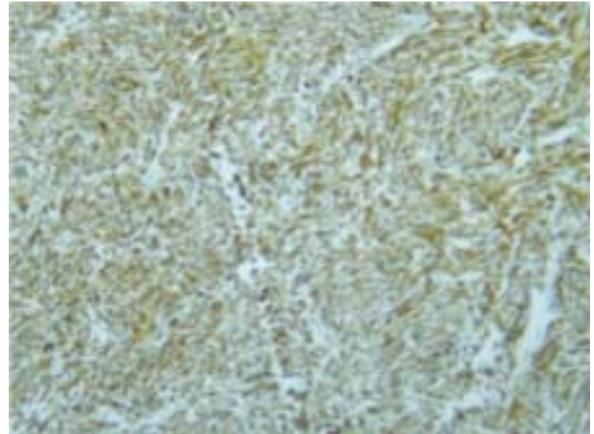


Fig. 4: CD 10 positivity.

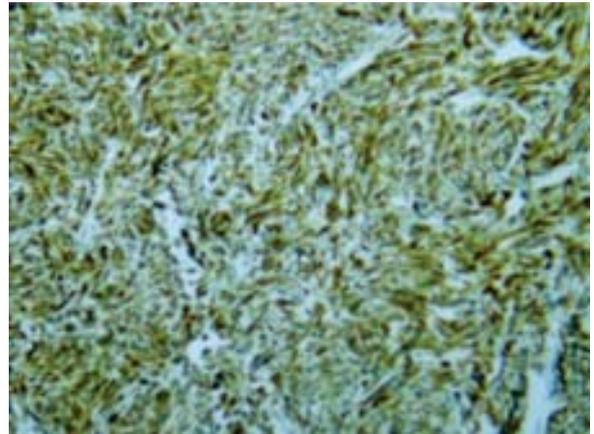


Fig. 5: Vimentin positivity.

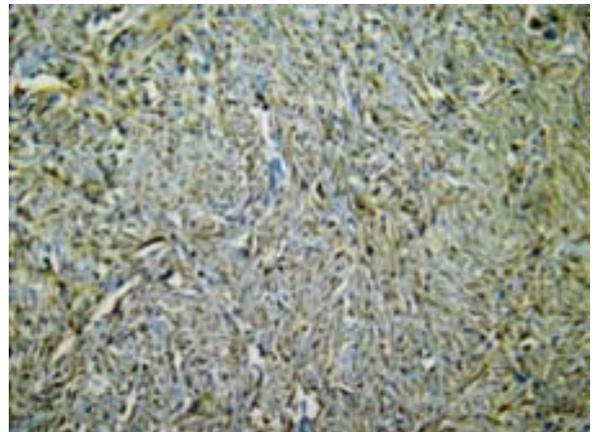


Fig. 6: SMA positivity.

Based on the IHC results along with unusual microscopic features, a diagnosis of pleomorphic leiomyosarcoma was made.

## DISCUSSION

Sarcomas by themselves comprise less than 1% of all primary breast cancers and only a few of them are leiomyosarcomas.<sup>4</sup> Out of 30 reported cases only 25 cases in the literature have been confirmed as primary leiomyosarcoma of the breast proven on IHC or electron microscopy.<sup>2</sup> In the male breast it is a very rare tumor and only 03 cases have been reported so far.<sup>3</sup> IHC or electron microscopy is crucial in the final diagnosis.

Pleomorphic leiomyosarcoma is a variant of leiomyosarcoma and has been found in almost all organs.<sup>1</sup> No case of pleomorphic leiomyosarcoma in the male breast has been reported up till now.

In pleomorphic leiomyosarcoma the neoplastic cells have more bizarre features with numerous tumor giant cells, high mitotic activity and a prominent storiform pattern. The latter is sometimes so overwhelming that a diagnosis of malignant fibrous histiocytoma is made on H&E.<sup>5</sup> We encountered a similar problem in our initial diagnosis where the diffuse and prominent storiform arrangement of neoplastic spindle cells favored a diagnosis of malignant fibrous histiocytoma. IHC results diagnosed the lesion as leiomyosarcoma emphasizing its role in making a final opinion in cases of spindle cell tumors.

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CONFLICT OF INTEREST  
Authors declare no conflict of interest.  
GRANT SUPPORT AND FINANCIAL DISCLOSURE  
None declared.