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Giant solitary neurofibroma in the breast: A case report and review of the literature

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Abstract
Solitary neurofibromas are a benign tumor composed of a mixture of Schwann, perineurial-like, and fibroblastic cells. Neurofibroma of the breast is rare. In this article, we reported a case of a giant solitary neurofibroma of the breast in a 48-year-old Chinese female. To our knowledge, this is the first case of breast giant solitary neurofibroma originating from the upper margin of the breast near the neck.

1. Introduction

Neurofibromas are derived from the nerve sheath and represent 5% of all benign soft tissue neoplasms. Nearly 10% of cases are found in associated with neurofibromatosis type I (NF-1) [1,2]. Neurofibromas are usually solitary tumors of the head and neck region [3]. Neurofibroma of the breast independent of neurofibromatosis is extremely rare with only a few previous cases having been reported. Presently, we describe a case of a 48-year-old woman who has a giant solitary neurofibroma in the breast originating from neck region, measuring approximately 10 cm × 7 cm × 4 cm.

2. Case report

A 48-year-old woman was admitted to our hospital with complaints of giant soft lump in the right breast. Two years earlier, she first noticed a soft, mobile mass in the upper quadrants of the right breast. She did not seek medical treatment during that time, and the mass in her right breast had gradually increased in size, but the mass enlarged rapidly over the past two weeks. She was otherwise well. There was no history of surgery or radiation therapy of her breasts. There was no family history of breast cancer. Physical examination revealed a homogeneous, soft, tenderness, well-circumscribed

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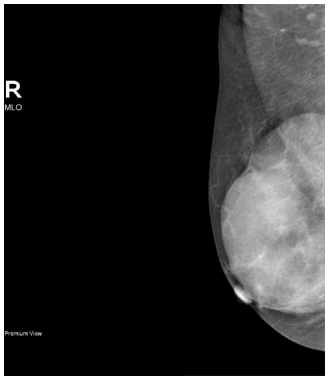

Figure 1 Right medio-lateral oblique mammogram is showing the mass lesion denser than the adjacent parenchyma in the central area of the right breast.

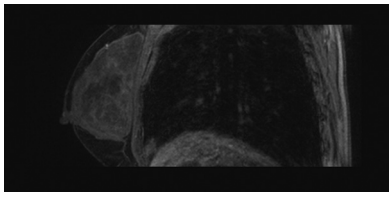

Figure 2 MRI showing the giant mass in the central area of the right breast, sagittally.

mass, measuring approximately 8 cm × 7 cm × 5 cm. There was no fixation to the underlying muscle. There was no nipple discharge, redness or swelling of skin. Mammograms showed a clear-circumscribed, lobular and equal-density mass, measuring 59.3 mm × 107.1 mm in its diameter. It was situated centrally within the breast tissue approaching to the nipple. The BI-RADS Grade of the right mass was 4b in mammogram (Figure 1). Via ultrasonography, a giant, heterogeneously (low or high) echogenic lump with smooth margin was confirmed. Color Doppler flow imaging (CDFI) showed a mild vascularity in the lump. Magnetic resonance imaging (MRI) was then performed to evaluate the mass. The mass was approximately 8.4 cm × 6.0 cm × 5.1 cm in the upper quadrants of the right breast with smooth margin and superficial lobes. On T2-weighted image, the mass mostly demonstrate high signal intensity. On contrast-enhanced T2-weighted image, the mass shows heterogeneous nodular enhancement. A phyllode tumor or giant fibroadenoma or malignancy lump was considered (Figure 2).

Surgery was performed under general and local anesthesia with a curved incision about 4.5 cm in length over the mass. The mass was situated under the subcutaneous fat tissue and the adjacent breast tissue was compressed to form a fake envelope about 2–3 mm in thickness, with an unexpected pedicle attaching to the subcutis of the upper margin of the right breast near the neck region found during blunt dissection. The mass measuring approximately 10 cm × 7 cm × 4 cm with a thin fibrous envelope was completely enucleated through the incision. Macroscopically, the resected specimen showed a grey-yellowish, elastic, toughness, and well-demarcated lump (Figure 3). Microscopically it contained slender cells with irregular nuclei and wavy configuration. No mitoses or necrosis were seen. Many

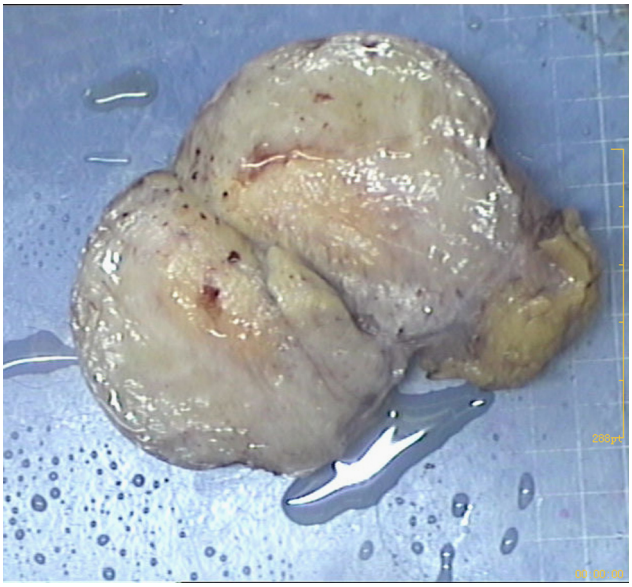

Figure 3 A gross image of the surgical specimen is shown the cut surface of the mass was grey-yellowish.

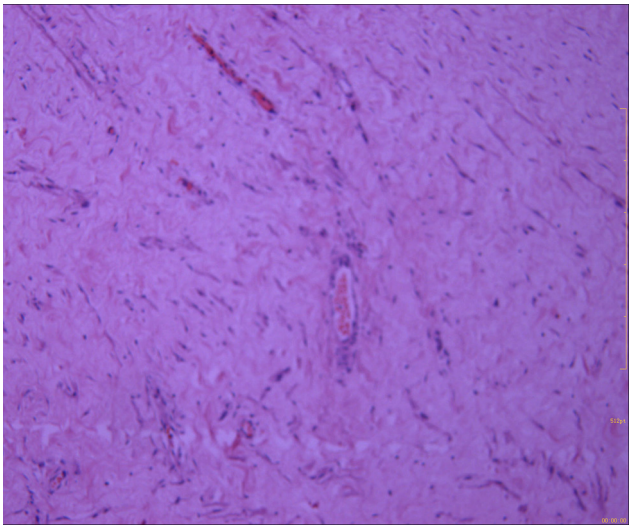

Figure 4 Postoperative Hematoxylin and Eosin (H&E) staining demonstrates spindle cells with characteristic elongated, wavy nuclei.

cells were expressing S-100 protein, with no NF-L+H expression (Figure 4). A final histologic diagnosis of neurofibroma was made. The patient is doing well with no evidence of recurrence 13 months after surgery.

3. Discussion

Neurofibromas are benign peripheral nerve sheath tumors (BPNSTs) derived from an admixture of Schwann, perineurial-like, and fibroblastic cells [4]. They mostly happen in the patients of 20–30 years old with no sex predilection. They are commonly found either as solitary lesions or part of neurofibromatosis type 1 (NF-1). The NF-1 is an inherited autosomal dominant disease with the mutation of NF-1 gene, and can occur in the dermis or subcutis evenly