

# Dermatofibrosarcoma Protuberans of the Vulva: A Report of 2 Cases of Unusual Localization

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## ABSTRACT

This case report aimed to describe the clinical symptoms, pathological features, treatment, and prognosis of two cases of vulvar dermatofibrosarcoma protuberans (DFSP). Two Iranian women aged 37 and 35 presented with a nodular mass lesion in labia major and were initially diagnosed with DFSP in the vulva. Magnetic resonance imaging of the abdominopelvic region showed a small round lesion in the right side of the vulva vaginal region. The excisional procedure was performed under general anesthesia, and postoperative recovery was uneventful. Histopathology reported DFSP, which is a rare vulvar tumor. The patients were further investigated by computed tomography scan for metastasis, showing that the chest, abdomen, and pelvis were normal. The outcome was favorable. The DFSP is a rare tumor, constituting only 0.1% of all malignancies. Vulvar DFSP is exceptionally rare.

**Keywords:** Dermatofibrosarcoma protuberans, Unusual localization, Vulvar sarcoma



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## Introduction

Dermatofibrosarcoma protuberans (DFSP) of the vulva is a rare, slow-growing, low-to-intermediate-grade malignant tumor of the dermis layer of the skin classified as a sarcoma that usually invades the subcutaneous tissue and muscles (1-3). Although the exact cause of the DFSP of the vulva is unknown, studies have implicated a chromosomal translocation (4-6). The incidence of DFSP was 4.1 per million per year during 2000-2010 (7) or approximately 0.1% of all cancers and less than 1% of all sarcomas (8, 9). The tumor is seldom found in the vulva, with less than 50 cases currently reported in the medical literature (8, 10). The DFSP rarely leads to metastasis (fewer than 5% of cases). Vulvar DFSP is typically observed in middle-aged and older women and is diagnosed by biopsy. In most patients, it can be diagnosed using magnetic resonance imaging (MRI). The DFSP of the vulva grows slowly and presents for years before being noticed. They are painless when they are small, while large tumors can cause pain and discomfort due to pressure on the adjoining tissues and structures. The standard treatment techniques for resectable DFSP are complete surgical excision with wide the local excisions of 2 or 3 cm tumor-free margins (9, 11-13). Unresectable DFSPs are treated with radiation therapy.

The prognosis of the DFSP of the vulva is good and depends on the cancer stage, as well as the overall health of the individual. Here, we present the clinical symptoms, radiological features, pathological characteristics, treatment, and prognosis of two cases with vulvar DFSP.

## Case Presentation

One of the patients was a 37-year old Iranian woman presented at the Gynecology Oncology Department of Shahid Beheshti Hospital affiliated to Isfahan University of Medical Sciences, Iran, with a non-tender nodular 3×2 cm<sup>2</sup> lesion of solid texture without ulceration and treatment history. The tumor was located in labia major (Figure 1), and lymphadenopathy was not noted. The patient stated that mass was present for at least 6 months and grew slowly. Preoperative pelvic MRI showed a small mass with heterogeneous enhancement in the right side of the vulva vagina. However, the cervix and uterus body were unremarkable and had subtle secretion in the canal cavity. In chest computerized tomography (CT)

and abdominopelvic ultrasonography, no metastatic disease was revealed. All routine blood tests and Pap smears were normal. Surgery was performed with wide local excision to obtain a 2 cm margin from the tumor. The patient had an uneventful postoperative recovery and was discharged after 2 days. The excised lesion of  $7 \times 6 \times 3 \text{ cm}^3$  contained multiple nodular lesions, and the

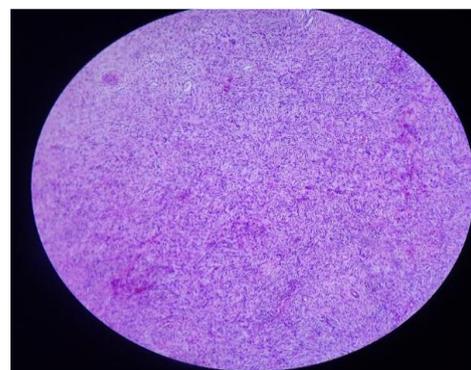
largest with the diameter of 2 cm was sent for histopathology showing DFSP. Histological examination demonstrated a storiform and honeycomb pattern, positively stained for CD 34 and vimentin indicating DFSP (Figure 2). After 11 months of follow-up, she was disease-free, and there is no evidence of recurrence.



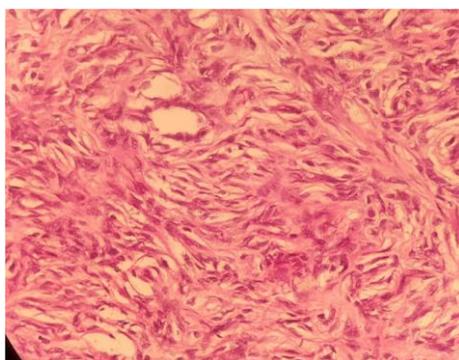
**Figure 1.** Preoperative photo of vulvar tumor showing right labia majora



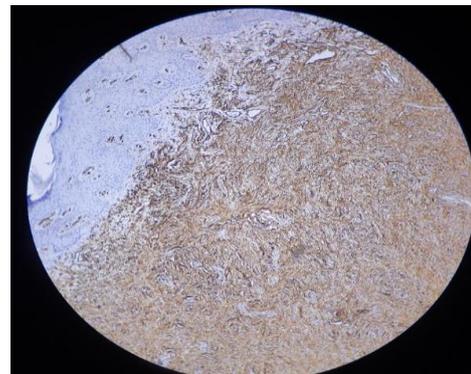
**A**



**B**



**C**



**D**

**Figure 2.** Honeycomb pattern interdigitates with lobules of subcutaneous fat (H and E, ×100) A. Uniform population of slender fibroblasts arranged in storiform pattern (H and E, ×200) B. and C. Diffuse cytoplasmic CD34 (C; H and E, ×100) and vimentin (D; H and E, ×200) positivity

The second case was a 35-year-old woman who presented to a gynecologic oncologist for a recurrent 2 cm mass lesion in labia major one year after the surgical resection of a nodular mass lesion. On clinical examination, a 3×3 cm, non-tender, pink, nodular lesion of solid texture was present on the right labium major without ulceration (Figure 1). Lymphadenopathy was not observed, and pathological examination reported DFSP. Ultrasonography revealed a heterogeneous mass of 35×9 mm<sup>2</sup> in labia major, which contained solid cyst with ill-defined area and infiltration in subcutaneous fat. All routine blood tests and Pap smears were normal. Chest and abdomen CT

showed no evidence of metastasis. The lesion was removed with 2 cm clear margins using a wide local excision technique. The excision involved the superficial and deep facial layers of the vulva. The remaining defect measured 6×3×2 cm and involved the right labium major and right upper inner thigh. The defect site was then repaired without the need for graft, and she was discharged home after 2 days. Specimens were sent for pathological examination, and DFSP was reported with a negative margin. This patient was followed for 3, 6, and 9 months (Figure 3) and was disease-free after 9 months.



**Figure 3.** Postoperative photograph demonstrating healing at 9-month and 11-month follow-up

## Discussion

The DFSP is a rare tumor, with studies in the United States indicating the incidence of this lesion as 4.2 per million people during 1973-2002 (14, 15) and 4.1 per million people during 2000-2010 (16). The most common sites of DFSP are trunk (42%-62%) (1, 8), extremities (16%-30%), as well as head and neck (10%-16%) (9). The DFSP in the vulva is extremely rare, with about 50 reported cases worldwide (1). Labia major was the most frequently affected site.

The DFSP is strongly stained for CD 34 and vimentin as seen on immunohistochemical studies in our cases (8). This tumor may be asymptomatic with an irregular nodule or violaceous plaque. It usually occurs as a solitary lesion (8). Our patients had multiple primary lesions that extend between the right vulva and groin. One of our patients had a history of recurrences. In sonography and CT scans, DFSP was a heterogeneous subcutaneous solid mass with speculated margins (17, 18). MRI can show the extension and depth of the lesion (1, 17). However, the diagnosis was confirmed only after a biopsy and pathologic examination.

The morphologic and molecular pathological findings of vulvar DFSP are similar to DFSP in other sites (19, 20). Translocation of chromosomes 17 and 22 (t(17:22)) is observed in over 90% of DFSPs (21). Currently, the exact cause of the development of vulvar DFSP is unclear, and no definitive risk factors have been reported. The suspicious factors contributing to DFSP entail the site of trauma (22), a region of extensive burns (23), surgical incision sites (24), vaccination sites (BCG vaccination) (25), arsenic poisoning (26), and other risk factors (27, 28). Age over 50 years appears to be a risk factor for local recurrence (29). Wide local excision surgery resection with a margin of 2-3 cm of normal tissue is recommended for both primary and recurrent DFSP.

## Conclusion

In conclusion, our patients presented with clinically suspected symptoms of DFSP and were found to have vulvar DFSP after gynecological, surgical, and pathological assessments. It is suggested that DFSP in

middle-aged women may be misdiagnosed. Despite uncertainty concerning the underlying disease mechanism, DFSP can represent uncommon sites without specific symptoms. These cases allowed identifying known but rare clinical pictures of vulvar lesions.

### Authors' Contributions

Allameh T, collected case materials, literature reviewed, wrote the manuscript, designed figures, and contributed to the discussion and revision of the manuscript. Also, the final revising and rewriting of

this manuscript were done by Allameh T, Nazemi M, Mousavi L. The pathology analysis of these cases were performed by Mohammadi B.

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### Conflict of Interest

The authors declared no conflict of interest.

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