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CASE REPORT

Dermatofibrosarcoma protuberans of the foot in a 72-year-old man: A case report

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Introduction

Dermatofibrosarcoma protuberans (DFSP) was characterized as a keloid sarcoma by Taylor in 1890. Ferrand subsequently recognised it as a recurring dermatofibroma. Hoffman, in 1924, used the term DFSP. The 2012 National Comprehensive Cancer Network guidelines state that 'typical' DFSP is a rare low to intermediate grade sarcoma originating from fibroblasts [1, 2]. It is an intermediate-level soft tissue sarcoma that arises in the dermal layer of the skin and has the potential to infiltrate deeper structures. [3] The chromosomal translocation t(17;22)(q22;q13) between chromosomes 22 and 17 causes its cytogenetic growth, forming the fusion protein COL1A1-PDGFB [4, 5]. The standard treatment involves complete surgical removal, typically achieved through wide local excision, ensuring a tumour-free margin. In rare cases, amputation may be necessary [6].

Case description and management

A 72-year-old male presented to the surgical outpatient department of Acharya Vinoba Bhave Rural Hospital with a primary complaint of a non-healing ulcer on the left great toe for 2 months. He had no previous history of asthma, diabetes, hypertension, or tuberculosis. His family history did not reveal any significant medical conditions. Eleven months prior, the patient had noticed a non-healing ulcer on his left foot featuring everted margins, without any active discharge or bleeding. He underwent a ray amputation of the left great toe, along with prior debridement of the ulcer, followed by two sessions of platelet-rich plasma (PRP) therapy. The ulcer healed after the operation. During examination, a single 4×4 cm ulcer was noted at the site of the left great toe amputation. No active bleeding was observed; however, slough was present alongside healthy granulation tissue. There was no local rise in temperature, and lymphadenopathy was absent. The dorsalis pedis and posterior tibial pulses were palpable. A neurological examination of the lower limbs indicated normal muscular tone and power, except for the left foot, which exhibited slight weakness. All other motor and sensory evaluations were normal. Routine investigations were within normal limits, including complete blood count, blood glucose levels, and renal and liver function tests.

Ray amputation of the metatarsal joint of the left great toe was performed. The specimen measured 8×6.5×5 cm (Figure 1). On sectioning, whitish, diffuse, homogeneous areas were identified, extending to the inferior aspect of the superior border of the great toe. Histopathological examination of the whitish area within the soft tissue revealed features suggestive of a borderline fibrohistiocytic tumour (DFSP). He was advised to maintain proper local wound hygiene, undergo daily wound dressing, and consume a high-protein diet. Regular follow-ups were recommended every six months for the next 5–6 years to monitor his recovery.

Discussion

DFSP is a rare, low-grade malignant soft tissue tumour that originates in the dermis and progressively extends to subcutaneous tissues and muscles [1]. It predominantly affects the trunk (40–50%), proximal limbs (30–40%), and head and neck

Key messages

A rare dermatofibrosarcoma protuberans (DFSP) case in a 72-year-old man underscores the challenges in diagnosing and treating this slow-growing sarcoma. Despite previous amputation, recurrence required further surgical intervention. Histopathological confirmation was essential for an accurate diagnosis. This case highlights the significance of early detection, surgical treatment, and long-term monitoring in preventing recurrence and metastases.

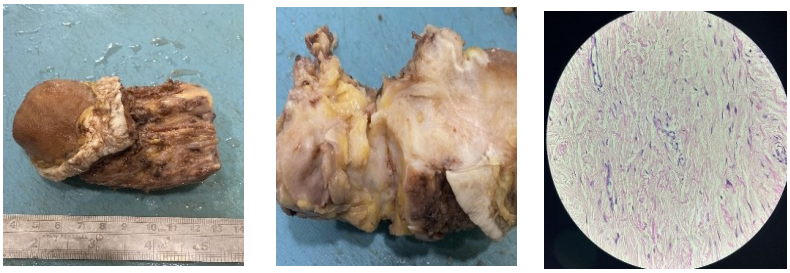

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Figure 1 a) Amputated left great toe, b) Gross image of the amputated left great toe measuring 8×6.5×5 cm, c) Spindle-shaped cells arranged in a storiform pattern on a high-power field.

(10–15%); however, it can also arise in uncommon locations such as the perineum [7]. DFSP is characterised by slow growth and local invasiveness, with a low metastatic potential of less than 5% [7, 5]. When metastasis occurs, it is typically following multiple recurrences and primarily affects the lungs, while regional lymph node involvement is exceedingly rare, occurring in only 1% of cases. The overall incidence of DFSP is estimated at 6.3 cases per million people, with a slight predominance among women [8, 9]. The disease primarily affects adults between the ages of 20 and 50, while there are fewer reported cases among geriatric patients [6]. According to epidemiological reports, DFSP in the feet remains rare [5], usually involving the great toe with a long disease duration. It is difficult to diagnose and has the potential to metastasise from untreated DFSP [7, 10].

This study meaningfully contributes to the research on DFSP by presenting a rare case of an elderly patient who responded well to treatment through ray amputation. Given the low incidence of DFSP in older adults, this case underscores the importance of considering DFSP in the differential diagnosis of soft tissue tumours within this population. The successful use of ray amputation highlights its effectiveness in achieving complete tumour excision while preserving functional outcomes.

Patients frequently receive incorrect diagnoses of their soft tissue neoplasms due to confusion with conditions such as myxoid sarcoma, keloids, Bednar tumours, angiosarcoma, dermatofibromas, and spindle cell melanoma [5]. A secure diagnosis relies on testing tissue samples and conducting immune cell tests to differentiate DFSP from other diseases. The survival expectancy for patients diagnosed with DFSP remains highly favourable, as their predicted ten-year survival rate reaches 99.1%. When patients present with metastatic disease, doctors estimate their survival period to be approximately two years from the time of diagnosis.

Histopathological assessment combined with extended patient monitoring is essential for managing DFSP. Maintaining a comprehensive differential includes atypical cases of DFSP in elderly patients, as these situations require urgent medical attention. Ray amputation has proven successful in treating DFSP for this patient, as evidenced by its effectiveness in such circumstances.

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Author contributions

Manuscript drafting and revising it critically: SV. *Approval of the final version of the manuscript:* AC. *Guarantor of accuracy and integrity of the work:* RD, CM.

Conflict of interest

We do not have any conflict of interest.

Data availability statement

We confirm that the data supporting the findings of the study will be shared upon reasonable request.

Supplementary file

Not applicable

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