

Undifferentiated Pleomorphic Sarcoma of Lower Extremity

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ABSTRACT

A case of 60 year male presented with gradually increasing swelling of left lower leg of 6 month duration. Which was rapidly increased in size since last 2 months , with secondary changes of necrosis and skin ulceration . On histopathology reported as “Undifferentiated pleomorphic sarcoma”. The proper clinical history, careful grossing with extensive sampling and ancillary techniques are critical for confirming the diagnosis such important rare entity .

Key Words: soft tissue tumor , sarcomas , histopathology.

Introduction

The old terminology malignant fibrous histiocytoma has been replaced by term “Undifferentiated pleomorphic sarcoma”, either without modification or further modification by giant cell or inflammatory type. As per WHO[1] in its 2002 classification of soft tissue sarcomas, malignant fibrous histiocytoma which was considered the most common soft tissue neoplasm in adults now accounts for about 5% adult soft tissue sarcomas[2].

Case Report

We report a case of 60 year old male who presented to our surgical outpatient department with complaints of swelling over left leg since 6 months and watery discharge from the same site since 2 months.

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The swelling had rapid onset and progressively increased in size. On examination, the swelling was present over the anterior aspect of left leg below the knee measuring approximately 10x6x5 cm in size. It was soft to firm vaguely nodular and tender on palpation. Surface ulceration measuring approximately 3x2 cm along with non-foul smelling sero-pululent discharge, slough and granulation tissue were noted. The swelling was rapidly growing and aggressive in nature. Patient also gave a history of a similar swelling at the same site a year back which was managed surgically. The histo pathological report of previous swelling was high grade myxofibrosarcoma / undifferentiated pleomorphic sarcoma. The patient however defaulted and presented a year later with recurrence at the same site. Routine investigation showed micro hypocytic anemia, hemoglobin 9.8 %, total leucocytic count 13500/cu mm, neutrophilia , raised ESR . There was no evidence of any systemic disease or metastasis on radiological investigation. The present swelling was excised and sent for histopathology examination. We received a round to oval mass covered with skin totally measuring 12x8x3cm and skin measuring 12x8cm. External surface was nodular and showed surface ulceration.

Serial cut sections revealed a grey-white, firm tumor with focal myxoid areas (Fig-1).



Fig 1: Gross specimen of tumor with cut section revealed a grey-white, firm tumor with focal myxoid areas

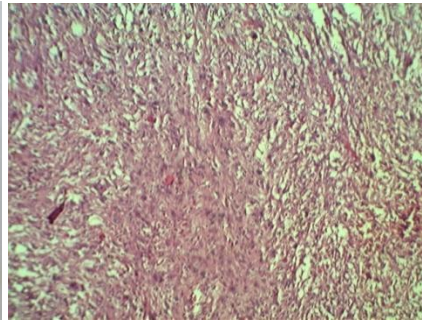


Fig 2: Photomicrograph showing neoplastic cells arranged in loose sheets, nests, fascicles and diffuse pattern set in a myxoid stroma. (H&E stain, x100)

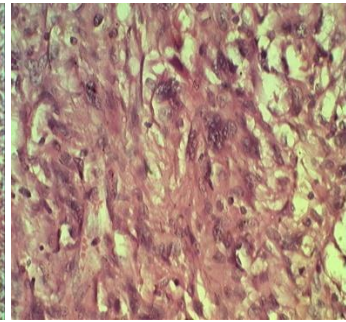


Fig 3: Photomicrograph showing spindle cells were moderately pleomorphic, with hyperchromatic or vesicular nuclei with 1-2 nucleoli and moderate amount of eosinophilic cytoplasm and scattered giant cells. (H&E stain, x400)

Microscopically, the tumor was composed of neoplastic cells arranged in loose sheets, nests, fascicles and diffuse pattern set in a myxoid stroma (Fig-2). Individual spindle cells were moderately pleomorphic, with hyperchromatic or vesicular nuclei with 1-2 nucleoli and moderate amount of eosinophilic cytoplasm (Fig-3). Scattered multinucleate giant cells, hypo and hyper dense areas, few intervening areas with mild mononuclear infiltrate, increased mitotic activity, hemorrhage and necrosis were noted. Based on these findings diagnosis of high grade myofibrosarcoma was given. Undifferentiated pleomorphic sarcoma was reserved as a differential diagnosis. IHC revealed weak positivity for SMA and negativity for desmin, calretinin, melanin, factor-VIII, CD31, CD45 and cytokeratin, thus confirming the diagnosis. The patient was subjected to wide excision. On follow up he was doing well.

Discussion

Undifferentiated pleomorphic sarcomas are extremely rare soft tissue sarcomas. Previously it was considered as pleomorphic malignant fibrous histiocytoma under the category of high grade soft tissue sarcomas. Undifferentiated pleomorphic sarcomas are divided into two variants depending on their specific features as

1. Undifferentiated pleomorphic sarcoma with giant cells (also known previously as giant cell malignant fibrous histiocytoma)

2. Undifferentiated pleomorphic sarcoma with prominent inflammation (also called as inflammatory malignant fibrous histiocytoma)

Undifferentiated pleomorphic sarcoma mostly occurs in the limbs mainly in the lower limb. The age of presentation is mainly the 5th to 7th decade of life[3]. These tumors are usually deep seated and clinically show progressive and rapid growth. The inflammatory undifferentiated pleomorphic sarcoma is often associated with systemic manifestations as fever, weight loss, leucocytosis, eosinophilia etc. and is more common in the retroperitoneum. Giant cell undifferentiated pleomorphic sarcoma is more common in the deep soft tissues of extremities. More than 90% of cases arise in deep soft tissue and present with large soft tissue masses (5-15 cm), usually well circumscribed. Few cases with sub-cutaneous location have also been noticed which were generally smaller in size. In our case the tumor was situated in the leg which recurred and showed rapid growth. Later on it showed secondary skin changes of ulceration and necrosis. Grossly the tumor revealed pseudo-encapsulation, multilobulation and fleshy appearance. Cut section revealed foci of hemorrhage, myxoid or necrotic changes. On histopathology, the tumor showed highly variable morphological pattern from storiform to pleomorphic areas. Tumor composed of mixture of spindle and pleomorphic cells on a myxoid background. The cells show variable cellularity, atypia, pleomorphism and increased mitosis.

Undifferentiated pleomorphic sarcoma is a diagnosis of elimination. So for final diagnoses all other mimics and differential diagnoses like pleomorphic variant of rhabdomyosarcoma, liposarcoma, leiomyosarcoma, malignant peripheral nerve sheath tumor and high grade myxofibrosarcoma [4,5] should be properly evaluated. For giant cell variant – giant cell rich carcinomas of lung, kidney, etc. giant cell tumor of soft tissue, osteosarcoma-extraskeletal, melanoma should be properly differentiated. For inflammatory undifferentiated pleomorphic sarcoma, lymphoma, Hodgkin disease, inflammatory carcinoma and inflammatory myofibroblastic tumor remain the differential diagnoses. Undifferentiated pleomorphic sarcoma, with stromal myxoid change but without other classic features of myxofibrosarcoma can be referred more generally as undifferentiated pleomorphic sarcoma with myxoid stroma. Many a times, differentiation from high grade myxofibrosarcomas becomes difficult on routine histopathology study. In our case also, it resembled high grade myxofibrosarcoma. However, on immunohistochemistry it did not show reactivity for any tumor marker. Proper clinical history, careful grossing with extensive sampling and ancillary techniques like immunohistochemistry, electron microscopy and molecular genetics are critical for confirming the diagnosis [6]. Immunohistochemistry helps in arriving at a confirmed diagnosis. Usually these tumors have limited reactivity for SMA, while are immunonegative for desmin, h-caldesmon, S-100 protein, epithelial and vascular markers [7,8]. In our case, IHC revealed weak positivity for SMA and negativity for desmin, calretinin, melanin and factor-VIII, CD31, CD45 and cytokeratin. Wide excision followed by radiation is treatment of choice. Adjuvant chemotherapy may be required in younger patients. The overall five year survival rate is upto 65-70% of cases [9]. These tumors behave very aggressively. Undifferentiated pleomorphic sarcoma in majority of lesions have local recurrence rate from 19-30% [8]. In our case also the tumor showed local recurrence and rapid growth.

Conclusion

We are presenting this case for its extreme rarity. Undifferentiated pleomorphic sarcoma requires

appropriate diagnosis as histologically tumor shows high grade pleomorphic features, however clinical course of patient is favourable. Also these cases requires regular follow up to detect any recurrence or malignant change.

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