

## CASE REPORT

# Cervical carcinoma metastasizing to fat forming solitary fibrous tumor, a case report with review of literature

ANILA KR<sup>1</sup>, CHANDRAMOHAN K<sup>2</sup>, JAYAPRAKASH PG<sup>3</sup>, JIJ V<sup>4</sup>, ANITHA MATHEWS<sup>5</sup>, JAYASREE K<sup>6</sup>

<sup>1</sup>Assistant Professor, Department of Pathology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India <sup>2</sup>Additional Professor, Department of Surgical Oncology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India <sup>3</sup>Professor, Department of Radiation Oncology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India <sup>4</sup>Assistant Professor, Department of Radiology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India <sup>5</sup>Additional Professor, Department of Pathology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India <sup>6</sup>Professor and Head of Department of Pathology, Regional Cancer Centre, Thiruvananthapuram, Kerala, India

### ABSTRACT

A 62-year-old lady who was a known diabetic and hypertensive presented to a local hospital with complaints of post-menopausal bleeding of three weeks duration. She also complained of a dragging sensation in the lower abdomen. Per vaginal examination revealed an ulceroproliferative growth in the cervix with extra cervical spread. A biopsy was taken. With an outside report of non-keratinizing squamous cell carcinoma, patient was referred to our oncology unit. Clinical examination confirmed a stage IIIB cervical cancer. Magnetic resonance imaging (MRI) of pelvis and abdomen showed the cervical cancer infiltrating the parametriae, upper third of vagina and the bladder wall. In addition, the MRI revealed a well defined lobulated heterogeneous lesion in left anterior para renal space, which was radiologically considered as metastatic deposit. A right ovarian cyst was also detected radiologically. Patient was given chemotherapy and radiotherapy for cervical cancer. Following this the pararenal mass and ovarian cyst was excised. Based on histopathology and immunohistochemistry the pararenal mass was diagnosed as fat-forming (lipomatous) solitary fibrous tumor [SFT] containing foci of metastatic carcinoma. Ovarian cyst was a mature cystic teratoma. We are reporting this case because of its rarity and also to highlight the importance of adequate sampling and careful screening of slides so as to avoid missing relevant findings. Lipomatous SFT is a rare variant of SFT. There are only very few reports of SFT serving as the recipient in tumor to tumor metastasis. According to our knowledge this is the first reported case of cervical carcinoma metastasizing to lipomatous SFT.

**Key words:** fat-forming solitary fibrous tumor, metastasis, cervical cancer

### INTRODUCTION

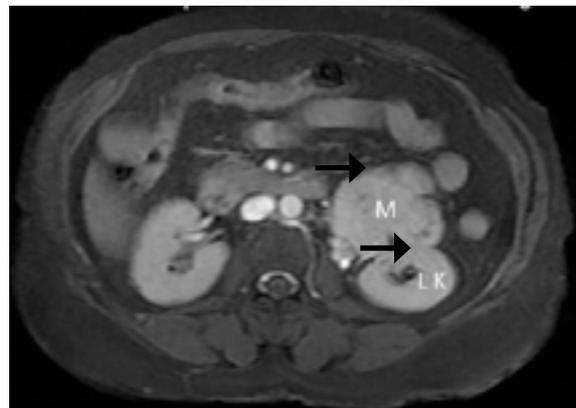
SFT is a mesenchymal tumor of fibroblastic type, which shows a prominent hemangiopericytoma-like branching vascular pattern. Fat-forming SFT is an uncommon variant, which in addition to the conventional patternless architecture of SFT, shows a variably prominent adipocytic component. They are generally regarded as benign; very few fat-forming SFTs with malignant histologic features have been reported. It is important to recognize this entity because atypical lipomatous tumor-like areas can be found, which can mimic liposarcoma.<sup>1</sup> Fat-forming SFT has similar immunophenotype to typical SFT with immunoreactivity for CD34. There are only very few case reports of SFT serving as the recipient in tumor to tumor metastasis. To our knowledge, this is the first reported case of fat-forming variant of SFT serving as recipient to carcinoma of cervix.

#### Correspondence:

Dr. Anila KR

Assistant Professor, Department of Pathology, Regional Cancer Centre, Thiruvananthapuram, Kerala-695011, India.

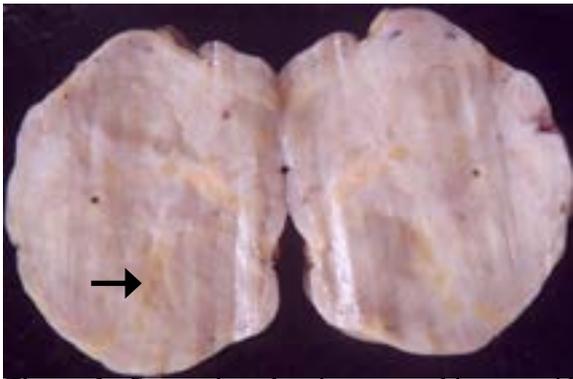
E-mail: [venuquila@yahoo.com](mailto:venuquila@yahoo.com)



**Figure 1,** MRI showing a well defined lobulated heterogenous lesion in left anterior renal space (M-mass, LK-left kidney)

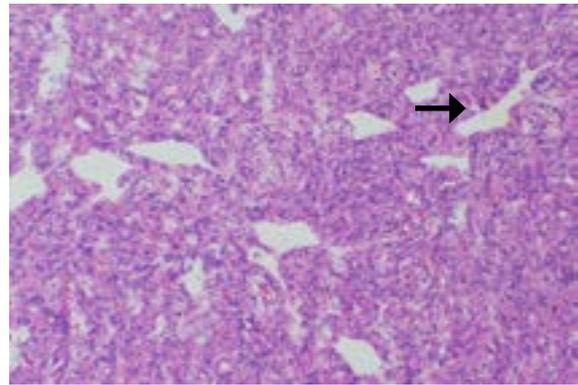
### CASE REPORT

A 62-year-old lady was referred to our oncology clinic with a diagnosis of non-keratinizing squamous cell carcinoma of cervix. She was a known diabetic on insulin. She was also taking anti-hypertensive drugs. She complained of post-menopausal bleeding of three weeks duration and a dragging sensation in the lower abdomen. Per vaginal and per-rectal examina-



**Figure 2,** Cut-section showing grey-white myxoid appearance with focal yellowish areas.

tion showed ulceroproliferative growth in the cervix with extension to both parametriae and involvement of pelvic wall. The growth was also involving upper third of vagina and was infiltrating wall of urinary bladder. With a clinical diagnosis of stage IIIB cervical cancer, patient was subjected to MRI of pelvis and abdomen for staging. MRI in addition to the cervical cancer, picked up a relatively well defined lobulated heterogeneous lesion in left anterior renal space measuring 9.5x7.2x5.4cm (Fig. 1). This lesion was radiologically considered to be a metastatic deposit. MRI also detected dermoid cyst of right ovary. Patient was managed with concurrent chemotherapy and radiotherapy, along with weekly cisplatin at a dose of 40mg/m<sup>2</sup> for four and half weeks. Following this after 2 weeks interval, 3 sittings of intracavitary radiotherapy was given. On re-evaluation, the left pararenal mass showed no response to therapy, hence a tru-cut biopsy was taken from the para-renal mass, which was reported as spindle cell neoplasm with hemangiopericytomatous pattern. Excision of the mass along with excision of ovarian cyst was done. Grossly the mass was circumscribed, nodular and measured 9x7x5cm. Cut section was grey-white, myxoid with foci of yellowish-tan areas. There were no areas of necrosis or hemorrhage. (Fig. 2) Microscopy showed a spindle cell neoplasm comprising of bland spindle cells with a pattern less architecture. The lesion showed “stag horn” vessels in a collagenized stroma. Nuclear atypia and mitoses were not observed. (Fig. 3). In addition were seen lipomatous areas. There were no lipoblasts or atypical lipomatous areas. The spindle cells were diffusely and strongly immunoreactive with CD34 and were negative for S100 and CK. A tiny focus of atypical epithelial appearing cells was incidentally detected. More sections were studied which revealed multiple larger foci of atypical epithelial cells arranged in nests and cords with peripheral palisading in areas and focal rosetoid pattern, suggesting a neuroendocrine differentiation. These cells were strongly positive for cytokeratin (Fig. 4) and negative for CD34 and S100. In view of the morphology of the epithelial component differing from the outside biopsy report of non-keratinizing squamous cell carcinoma, cervix, the slides of cervi-



**Figure 3,** Neoplasm composed of spindle cells arranged haphazardly in stroma rich with stag horn-shaped branching vessels. (H&E x100)

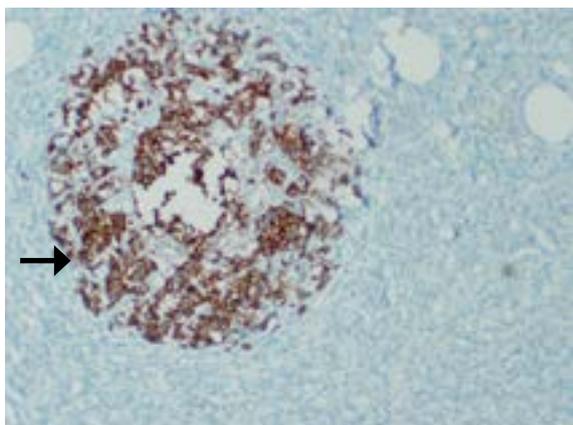
cal biopsy were reviewed at our centre. This showed a poorly differentiated carcinoma, morphology resembling the carcinomatous focus within the pararenal mass which on immunohistochemistry showed neuroendocrine differentiation by the positivity for NSE and chromogranin. The sections from SFT with carcinomatous foci were studied with chromogranin. The foci of epithelial cells were positive for chromogranin. A diagnosis of fat-forming solitary fibrous tumor with metastasis from cervical carcinoma with neuroendocrine differentiation was made.

Following final pathology diagnosis patient was re-evaluated. Her CT showed lung metastasis. Liver function test was deranged and hence chemotherapy for neuroendocrine carcinoma could not be given. The patient's condition deteriorated and she succumbed to her illness eight months after the diagnosis.

## DISCUSSION

Fat-forming solitary fibrous tumor, also known as “lipomatous hemangiopericytoma (lipomatous HPC),” is a rare variant of solitary fibrous tumor (SFT). The term lipomatous HPC was first coined by Nielsen *et al.* in 1995.<sup>2</sup> The first case in the literature is believed to have been reported by Theunissen *et al.*<sup>3</sup> The histomorphology of fat-forming SFT is similar to the conventional SFT with pattern less pattern, stag horn vessels admixed with a variably prominent mature adipocytic component. Fat-forming SFT usually follows a benign course comparable to the conventional SFT. Malignancy in fat-forming SFT is characterized by increased cellularity, large size, mitotic count of >4/10hpf, areas of necrosis etc. Presence of lipoblasts and atypical lipomatous areas in this variant of SFT can result in erroneous diagnosis of liposarcoma.<sup>1</sup> The characteristic SFT areas and CD34 positivity by immunohistochemistry will help in reaching a correct diagnosis.

Tumor-to-tumor metastasis is a rare interesting phenomenon first described by Berent in 1902.<sup>4</sup> the most frequent donor tumor site is the lung, while renal cell carcinoma is the most common recipient. In 1968, Campbell *et al.*<sup>5</sup> reviewed previously reported cases and asserted the criteria for tumor-to-tumor



**Figure 4**, CK positivity in epithelial cells, while spindle cells are negative for CK. (IHCx200)

metastasis as follows: (1) the existence of more than one primary tumor, (2) the recipient tumor is a true neoplasm, (3) the donor tumor is a true metastasis with established growth in the host tumor that is not the result of contiguous growth (“collision tumor”) or embolization of tumor cells and (4) tumors that have metastasized to the lymphatic system, where a lymphoreticular malignant tumor already exists, are excluded. A solitary fibrous tumor is extremely rare as a recipient tumor, and our case report, according to our knowledge, represents the fourth case and the first of fat-forming SFT serving as the recipient in tumor-to-tumor metastasis.<sup>6,7,8</sup> The rich vascular supply of SFT may be a factor serving as a fertile ground for tumor metastasis. The metastasis to an organ or another tumor is related to anatomic location, vascularity, and the local immune response to the tumor. This case in addition to reporting a rare combination of tumor to tumor metastasis highlights the importance of adequate sampling and careful screening of slides so as to avoid missing relevant findings. In the initial sections in our case only a very tiny focus of atypical epithelial cells was seen, only when addi-

tional sections were studied did the multiple foci of metastatic carcinoma become evident. In the present case patient was a known case of carcinoma of cervix, but sometimes the metastatic focus will be the initial presenting feature of a second primary, which may alter patient management.

#### REFERENCES

1. Lee JC, Fletcher CD. Malignant fat-forming solitary fibrous tumor (so-called “lipomatous hemangiopericytoma”): clinicopathologic analysis of 14 cases. *Am J Surg Pathol.* 2011;35:1177-85.
2. Nielsen GP, Dickersin GR, Provenzal JM, Rosenberg AE. Lipomatous hemangiopericytoma: a histologic, ultrastructural and immunohistochemical study of a unique variant of hemangiopericytoma. *Am J Surg Pathol.* 1995;19: 748–56.
3. Theunissen PH, Ariens AT, Pannebakker MA, Blaauw G. Late recurrence of a hemangiopericytoma with lipomatous components. *Pathologe.* 1990;11:346–9.
4. Berent W. Seltene metastasenbildung. *Zentralbl Allg Pathol.* 1902; 13:5.
5. Campbell LV Jr, Gilbert E, Chamberlain CR Jr, Watne AL: Metastases of cancer to cancer. *Cancer* 1968; 22:635-43.
6. Kragel C, Wei S. Renal cell carcinoma metastasizing to solitary fibrous tumor of the pleura: a case report. *J Med Case Rep.* 2011; 5:248.
7. Gonullu G, Sullu Y, Basoglu A, Elmali M, Karaoglanoglu M, Yucel I. Metastatic breast carcinoma to solitary fibrous tumor in the lung. *Indian J Cancer.* 2010; 47:76-8.
8. Petraki C, Vaslamatzis M, Argyrakos T, Petraki K, Strataki M, Alexopoulos C, Sotsiou F. Tumor to tumor metastasis: Report of two cases and review of the literature. *Int J Surg Pathol.* 2003; 11:127-35.