

## CONTENTS

### Editorial

- Criteria for deciding cost-effectiveness for expensive new anti-cancer agents  
*Rajiv Sarin*..... 1

### Original Articles

- The effect of three mouthwashes on radiation-induced oral mucositis in patients with head and neck malignancies: A randomized control trial  
*PD Kumar Madan, PS Sequeira, Kamalaksha Shenoy, Jayaram Shetty* ..... 3
- Implications of contrast-enhanced CT-based and MRI-based target volume delineations in radiotherapy treatment planning for brain tumors  
*Niloy R Datta, Rajasekar David, Rakesh K Gupta, Punita Lal* ..... 9
- Radiofrequency ablation of hepatic metastasis: Results of treatment in forty patients  
*GK Rath, PK Julka, S Thulkar, DN Sharma, Amit Bahl, S Bhatnagar*..... 14
- Execution of mantle field with multileaf collimator: A simple approach  
*Ramachandran Prabhakar, Kunhi Parambath P Haresh, Pappiah S Sridhar, Macharla A Laviraj, Pramod K Julka, Goura K Rath*..... 18
- Prognostic and diagnostic value of serum pseudocholinesterase, serum aspartate transaminase, and serum alanine transaminase in malignancies treated by radiotherapy  
*Arun Chougule, Sofia Hussain, Dwaraka Prasad Agarwal* ..... 21

### Review Article

- An overview on applications of optical spectroscopy in cervical cancers  
*C Murali Krishna, GD Sockalingum, MS Vidyasagar, M Manfait, Donald J Fernanades, BM Vadhiraja, K Maheedhar*..... 26

### Case Reports

- Radiotherapy for management of skin cancers in fibrodysplasia ossificans progressiva: A case report and review of the literature  
*John Antony Frew, Charles G Kelly* ..... 37
- Sarcomatoid squamous cell carcinoma of uterine cervix: Pathology, imaging, and treatment  
*Milind Kumar, Amit Bahl, Daya Nand Sharma, Shipra Agarwal, Dhanapathi Halanaik, Rakesh Kumar, Goura Kishore Rath* ..... 39

### Brief Communications

- Chest wall metastasis from hepatocellular carcinoma in the absence of a primary: An unusual presentation  
*Kaustav Talapatra, Reena Engineer, Jai Prakash Agarwal, Shilpa Vyas, Shyam Kishore Shrivastava*..... 42
- Endobronchial metastasis of follicular thyroid carcinoma presenting as hemoptysis: A case report  
*RAS Kushwaha, Sanjay Kumar Verma, Sanjay Vineet Mahajan*..... 44
- Accelerated partial breast irradiation: An advanced form of hypofractionation  
*Ashwini Budrukkar* ..... 46
- Coexistence of carcinoma breast and Paget's disease of bone  
*S Sundaraiya, PK Pradhan, A Gupta, M Jain, SK Mishra, BK Das*..... 48

### Letter to Editor

- Dysplastic hematopoiesis and underlying dysthyroidism  
*Riad Akoum, Michel Saade, Wafic Tabbara, Emile Brihi, Marwan Masri, Khaled Habib, Gerard Abadjian*..... 50

### Reviewers' List, 2007 ..... 51

# Sarcomatoid squamous cell carcinoma of uterine cervix: Pathology, imaging, and treatment

## ABSTRACT

Sarcomatoid squamous cell carcinoma of the cervix is a rare tumor. Only 16 cases have so far been reported in literature. We report here one such tumor occurring in a 54-year-old postmenopausal woman. Our case report describes the clinical, pathological, and PET scan characteristics of this tumor. The patient was treated with concurrent chemoradiotherapy and is disease free at 6-months follow-up.

**KEY WORDS:** Cervix, PET scan, sarcomatoid carcinoma

## INTRODUCTION

Sarcomatoid squamous cell carcinoma (SSCC) is a rare malignancy of the cervix. Till date, only 16 cases of SSCC of cervix have been reported in literature.<sup>[1]</sup> It differs from squamous cell carcinomas of the cervix in terms of having a poorer prognosis, as it is an aggressive neoplasm with short disease-free survival. The tumor usually is at an advanced stage at presentation and is characterized by early recurrence following treatment. This tumor has unusual metastatic sites, such as the peritoneum, kidney, and subcutaneous tissues.<sup>[2]</sup> Due to the rarity of this tumor, no separate diagnostic and treatment recommendations are available and it is usually managed like squamous carcinoma of the cervix.

## CASE REPORT

A 54-year-old postmenopausal lady presented in our gynecology malignancy clinic, with complaints of blood-stained whitish discharge per vaginum of 1 month duration. She also had complaints of mild pain in her lower back. General physical examination revealed a Karnofsky performance status of 80. On local examination, the cervix was replaced by an ulceroproliferative friable growth, 4 × 4 cm in size, extending up to the upper one-third of the vagina. Bilateral parametria were thickened up to the lateral pelvic wall. The rectal mucosa was free. Histopathological examination showed it to be a sarcomatoid squamous cell carcinoma of the cervix. Pathologically, sarcomatous and epithelial components could easily be recognized within the tumor. A well-to-moderately differentiated squamous cell carcinoma was present within the superficial part of the tumor in the

form of polygonal cells exhibiting intracellular keratinization and intercellular bridges [Figure 1A]. This component blended imperceptibly with the sarcomatous component of the tumor [Figure 1B]. The spindle tumor cells demonstrated moderate to marked nuclear pleomorphism. The nuclei were hyperchromatic, had a coarsely clumped chromatin, and single or multiple prominent nucleoli. Brisk mitotic activity and focal tumor necrosis were also noted. There was no evidence of any heterologous or glandular differentiation. On immunophenotyping, both the epithelial and the spindle cell components of the tumor showed variable but strong cytoplasmic positivity for both pancytokeratin [Figure 1C] and vimentin [Figure 1D].

Chest x-ray, cystoscopy, and sigmoidoscopy were normal. CECT of abdomen and pelvis showed a mass lesion in cervix and upper vagina, without any pelvic or para-aortic lymphadenopathy. PET scan using FDG was also done for pretreatment evaluation and for characterizing the tumor appearance on PET scan. Increased glucose uptake was detected on PET images [Figure 2] in the region of cervix and the upper vagina, with maximum SUV of 5.7 and 10.6 for the vagina and the cervix, respectively.

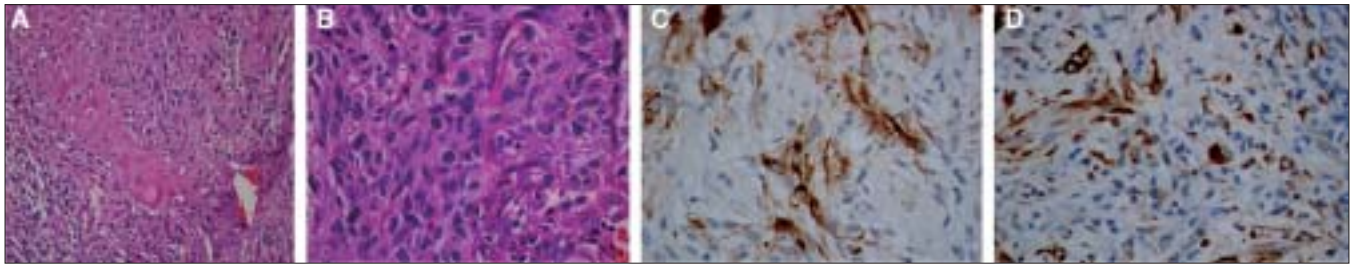
The patient was clinically staged as FIGO stage IIIB disease. She was planned for concurrent chemoradiation therapy, using weekly cisplatin 40 mg/m<sup>2</sup>. Radiotherapy consisted of external-beam radiation therapy to whole pelvis, with a dose of 50 Gy in 27 fractions over 5.5 weeks (midline shield inserted after a dose of 40 Gy in 22 fractions). This was followed by three fractions, over 3 weeks, of high-dose-rate (HDR) intracavitary radiotherapy (ICRT) with a dose of 7 Gy delivered to point A. The patient

Milind Kumar,  
Amit Bahl,  
Daya Nand Sharma,  
Shipra Agarwal<sup>1</sup>,  
Dhanapathi Halanaik<sup>2</sup>,  
Rakesh Kumar<sup>2</sup>,  
Goura Kishore Rath

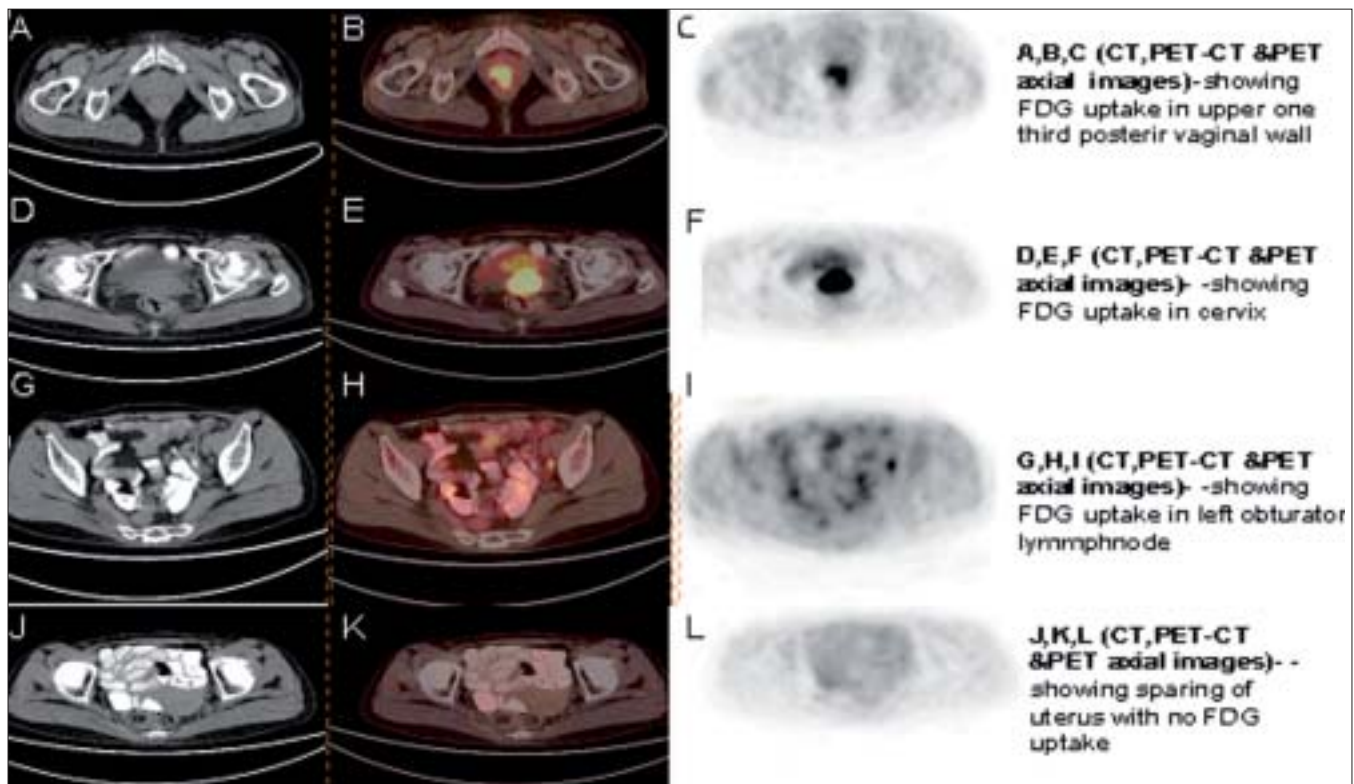
Department of Radiation  
Oncology, <sup>1</sup>Pathology and  
<sup>2</sup>Nuclear Medicine, All  
India Institute of Medical  
Sciences, New Delhi -  
110 029, India

### For correspondence:

Dr. Amit Bahl,  
Department of Radiation  
Oncology, All India  
Institute of Medical  
Sciences, New Delhi -  
110 029, India.  
E-mail: dramitbahl@  
yahoo.com



**Figure 1:** (A) Squamous cell carcinoma blends imperceptibly with the sarcoma-like tumor (H and E;  $\times 200$ ). (B) The spindle cell component. Hyperchromatic, pleomorphic nuclei with frequent mitoses are seen (11 o'clock position) (H and E.  $\times 400$ ). (C) Immunoperoxidase staining for pancytokeratin shows strong cytoplasmic positivity within both the scattered spindle cells as well as in the epithelial component (PAP-hematoxylin;  $\times 400$ ). (D) Immunoperoxidase staining for vimentin also shows strong cytoplasmic positivity within both the components (PAP-hematoxylin;  $\times 200$ )



**Figure 2:** PET/CT images showing uptake in the primary and pelvic lymph nodes

tolerated the entire treatment well and is disease free at 6 months follow-up.

## DISCUSSION

About 90% of cervical cancers are squamous cell carcinomas. Adenocarcinomas constitutes about 2-4% of all cervical cancers. Other rare pathologies are melanomas, sarcomas, lymphomas, and metastatic tumors. Sarcomatoid squamous cell carcinoma of cervix (SSCC) is a rare histological variant and, so far, only 16 cases have been reported in the English literature<sup>[1-4]</sup> [Table 1].

This rare pathological entity has been described more frequently in the oral cavity, pharynx, esophagus, skin, and larynx. This

tumor usually affects elderly woman with median age of 67 years. Pathologically, the transition from squamous cell carcinoma to spindle cells can be demonstrated in this entity. It can be differentiated from malignant mixed mullerian tumor (MMMT) of the cervix by the fact that MMMT does not show the merging of carcinomatous and sarcomatous components.<sup>[3]</sup> Moreover the carcinomatous component of mixed mullerian tumor is usually of the adenomatous or undifferentiated type. SSCC can be differentiated from amelanotic malignant melanoma by special staining and electron microscopy.<sup>[5]</sup>

Brown *et al.* have published the largest case series of nine patients till date.<sup>[1]</sup> Immunohistochemistry showed coexpression of cytokeratin and vimentin in tumor cells. All nine patients were reported to have had complete response to

**Table 1: Cases of sarcomatoid squamous cell carcinoma reported in literature**

Author	FIGO staging	Treatment given	Follow-up
Rodrigues, <i>et al.</i> <sup>[2]</sup>	Stage Ib2	EBRT + RAH	12 months; DOD
Pang <sup>[3]</sup>	Stage Ib	RAH + Chemo RT	2 months; DOD
	Stage Ib	RAH + chemo RT	14 months; DOD
Steeper <i>et al.</i> <sup>[4]</sup>	Stage III	Chemo RT	8 weeks; DOD
	Stage NR	EBRT	NR
Brown <i>et al.</i> <sup>[1]</sup>	Ib2	RAH + pelvic EBRT	Recurred <sup>a</sup>
	Ib2	EBRT	42 months; disease free
	Ib1	RAH + chemo RT	5 months; disease free
	Ib	EBRT	Recurred <sup>a</sup>
	Ila	EBRT	40 month; disease free
	IVa	EBRT + exenteration	Recurred <sup>a</sup>
	IVb	CRS + RAH + Chemo	Recurred <sup>a</sup>
	IVb	EBRT	Recurred <sup>a</sup>
	Ila	EBRT	22 months; disease free

EBRT - External-beam radiotherapy, RAH - Radical abdominal hysterectomy, DOD - Died of disease, CRS - Cytoreductive surgery, NR - Not reported

<sup>a</sup>Median disease-free survival of the 5 patients with recurrences: 4.9 months, range (2-9.5 months)

treatment, but five patients had recurrences, with a median disease-free interval of 4.9 months (range 2-9.5 months) and none of them responded to second-line treatment. Only four patients remained disease free on follow-up up to a period of 5, 8, 30, and 40 months, respectively. Pang *et al.* reported two cases in which the features were similar to those of SSCCs in the digestive and upper respiratory tracts, with the additional finding of osteoclast-like giant cells in each case.<sup>[3]</sup>

The histopathological diagnosis of SSCC rests upon a squamous cell carcinoma merging with a spindle cell component. Giant cells may also be seen. Cytokeratin is positive in both the spindle and squamous cell components.

PET scan as an imaging modality has not been utilized in this rare pathology. PET scan would help in pretreatment evaluation as it can rule out distant metastasis in this aggressive tumor. In our case, PET demonstrated high uptake in the region of the cervix and upper third of the vagina, which was consistent with the clinical findings. The SUV max values were 5.7 in the vagina and 10.6 in the cervix. Uptake in left obturator node was also detected with an SUV max value of 2.5. There was no evidence of para-aortic node involvement or distant metastasis.

Due to the lack of data and recommendations, these patients have been treated according to the broad treatment guidelines set out for squamous cell carcinoma of the cervix with grim

results. Radiation therapy remains the main modality of treatment of this malignancy. Radiation therapy has been shown to reduce local recurrence and can salvage about 25% of the patients. In view of the poor survival data and the aggressive nature of the tumor, the addition of novel chemotherapeutic agents needs to be explored in this tumor. This case report will bring the number of such cases reported in English literature to 17. Optimal treatment modalities still remain to be defined for this tumor.

## REFERENCES

1. Brown J, Broaddus R, Koeller M, Burke TW, Gershenson DM, Bodurka DC. Sarcomatoid carcinoma of the cervix. *Gynecol Oncol* 2003;90:23-8.
2. Rodrigues L, Santana I, Cunha T, Felix A, Freire J, Cabral I. Sarcomatoid squamous cell carcinoma of the uterine cervix: Case report. *Eur J Gynecol Oncol* 2000;21:287-9.
3. Pang LC. Sarcomatoid squamous cell carcinoma of the uterine cervix with osteoclast like giant cells: Report of two cases. *Int J Gynecol Pathol* 1998;17:174-7.
4. Steeper TA, Pisciole F, Rosai J. Squamous cell carcinoma with sarcoma-like stroma of the female genital tract: Clinicopathologic study of four cases. *Cancer* 1983;52:890-8.
5. Clement PB, Zubovits JT, Young RH, Scully RE. Malignant mixed mullerian tumors of the uterine cervix: A report of nine cases of a neoplasm with morphology often different from its counterpart in the corpus. *Int J Gynecol Pathol* 1998;17:211-22.

Source of Support: Nil, Conflict of Interest: None declared.