

# ***Bulky scalp metastasis and superior sagittal sinus thrombosis from a cervical adenocarcinoma: An unusual case***

A Abhishek,<sup>1</sup> MM Ouseph,<sup>1</sup> P Sharma,<sup>2</sup> V Kamal<sup>2</sup> and M Sharma<sup>1</sup>

<sup>1</sup>Departments of Radiotherapy and Oncology and <sup>2</sup>Pathology, Maulana Azad Medical College (MAMC) and Lok Nayak Hospital, New Delhi, India

## **SUMMARY**

Distant cutaneous metastases from cervical malignancies are uncommon, with scalp metastases being exceptional events. We present the case of a 53-year-old postmenopausal lady with adenocarcinoma of the uterine cervix that metastasized to the scalp with superior sagittal sinus thrombosis 8 months after diagnosis. In contrast to the seven prior cases of scalp metastases of cervical squamous cell carcinoma reported in published reports, ours is the first documentation of such an occurrence in cervical adenocarcinoma. Superior sagittal sinus thrombosis has not been reported with this tumour in the past.

**Key words:** *adenocarcinoma; cervical cancer; scalp metastasis; superior sagittal sinus thrombosis.*

## **INTRODUCTION**

Cervical cancer is the commonest malignancy in women in the developing world.<sup>1</sup> It spreads locally by direct extension and distantly by invading lymphatics. Haematogenous metastases are uncommon, although such spread may occur to abdominal and thoracic viscera or to bone, in decreasing order of frequency.<sup>2</sup> The skin is an infrequent site of metastasis for this cancer, the reported incidence being 0.7–1.3%.<sup>2,3</sup> Common skin sites involved include the abdominal wall and the lower extremity.<sup>4</sup> Scalp metastases are extremely rare, with only seven indexed cases in published reports.

Superior sagittal sinus thrombosis is common in haematological malignancies but occurs only rarely with solid tumours, usually secondary to calvarial involvement. It has, however, not been previously reported in association with a uterine cervical adenocarcinoma.<sup>5–12</sup>

We report a case of adenocarcinoma of uterine cervix in a patient who presented with scalp metastasis and superior sagittal sinus thrombosis 8 months after diagnosis and treatment of primary disease.

## **CASE REPORT**

A 53-year-old postmenopausal lady presented in August 2005 with vaginal bleeding and discharge since 8 months. Clinical examination showed a 3 × 3 cm friable growth in cervix extending into the left fornix. Bilateral parametria and lower vagina were normal on examination under anaesthesia.

A CT scan showed a bulky cervix with a hypodense mass lesion extending into the upper third of vagina and stretching the vaginal fornix. Superiorly, the growth invaded the endometrium and extended till inner half of myometrium. Bilateral parametria, kidneys, bladder and rectum were uninvolved. Clinicroadiological diagnosis was cervical carcinoma International Federation of Gynaecology and Obstetrics stage IIA. Cervical biopsy showed poorly differentiated adenocarcinoma.

The patient underwent Wertheim's hysterectomy. At gross, the tumour measured 3.0 × 2.5 × 1.0 cm and extended into the left fornix. Microscopically, the moderately differentiated (Grade II) endocervical-type adenocarcinoma showed intracytoplasmic mucin and numerous mitoses (Fig. 1). A prominent lymphocyte-rich inflammatory infiltrate was seen in the adjacent stroma.

**A Abhishek** MB BS; **MM Ouseph** MD; **P Sharma** MD DNB; **V Kamal** MD; **M Sharma** MD, FICR.

Correspondence: Dr Ashu Abhishek, O.P.D. Room No. 124, Department of Radiotherapy, Lok Nayak Hospital, Delhi Gate, Bahadur Shah Zafar Road, New Delhi 110002, India. Email: ashuabhishek@yahoo.com; ashuabhishek@gmail.com

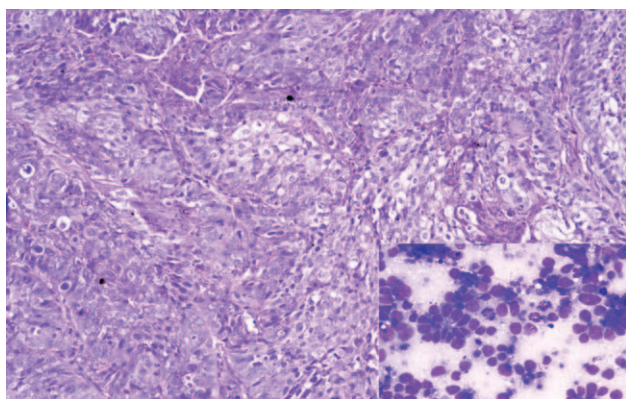
Conflict of interest: None.

Submitted 2 August 2006; accepted 22 August 2006.

doi: 10.1111/j.1440-1673.2007.01918.x

© 2008 The Authors

Journal compilation © 2008 The Royal Australian and New Zealand College of Radiologists



**Fig. 1.** Histological section from the cervical primary tumour shows closely packed papillae lined by large cells with abundant clear cytoplasm and hyperchromatic nuclei (haematoxylin-eosin,  $\times 250$ ). Inset: fine needle aspiration cytology scalp lump displays malignant epithelial cells with prominent mitoses forming acini in a necrotic background (Giemsa,  $\times 400$ ).

No angiolymphatic emboli or any associated *in situ* component were noted. The parametrial and paracervical soft tissues, uterine corpus, fallopian tubes, ovaries and all the resection margins (including the vaginal cuff) were histologically uninvolved. Two of the 13 lymph nodes dissected harboured tumour metastases. The pathological stage was (pT2, pN1, pMX).

The patient was offered concomitant postoperative adjuvant chemoradiotherapy, considering the risk factors identified in the specimen. She, however, declined chemotherapy and was therefore started on external beam radiotherapy in November 2005. But after receiving 28 G in 14 fractions, she discontinued treatment because of personal reasons and was lost to further treatment and follow up.

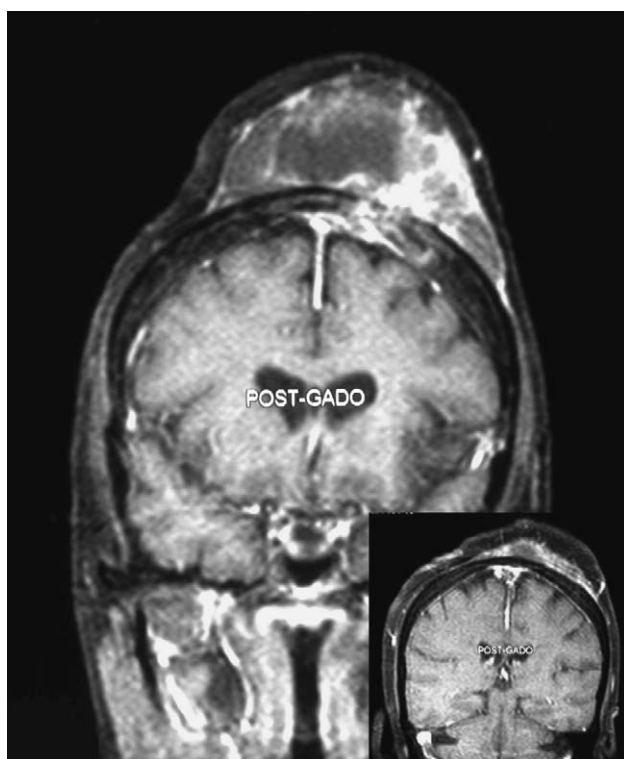
The patient returned 4 months later in March 2006 with a rapidly progressing painful swelling over the anterior scalp present for 20 days and repeated episodes of generalized tonic clonic seizures. There was no history of vomiting or symptoms suggestive of raised intracranial pressure. Patient did not have any clinically identifiable neurological deficits or papilloedema. Examination showed a midline  $8 \times 8$  cm firm, nontender, noncompressible, nonpulsatile swelling over the midline frontal scalp fixed to the underlying skull (Figs 2,3). The overlying stretched skin of the swelling was, however, uninvolved without any evidence of fixity, dilated veins or ulceration. Pelvic examination did not show any residual disease. Plain radiogram of skull was suggestive of a soft tissue swelling, with pressure effects over the outer table of skull. A MRI of her cranium confirmed presence of the scalp mass with involvement of both tables of frontal skull with thickening of adjacent dura. There was no evidence of direct invasion into brain parenchyma or superior sagittal sinus (Fig. 4). Magnetic resonance venogram showed complete thrombosis of superior sagittal sinus (Fig. 5). Systemic evaluation did not show any other foci of metastases.



**Fig. 2.** Clinical photograph showing midline frontal scalp swelling without skin involvement.



**Fig. 3.** Clinical photograph showing a distinct scalp swelling with no dilated veins or ulceration.



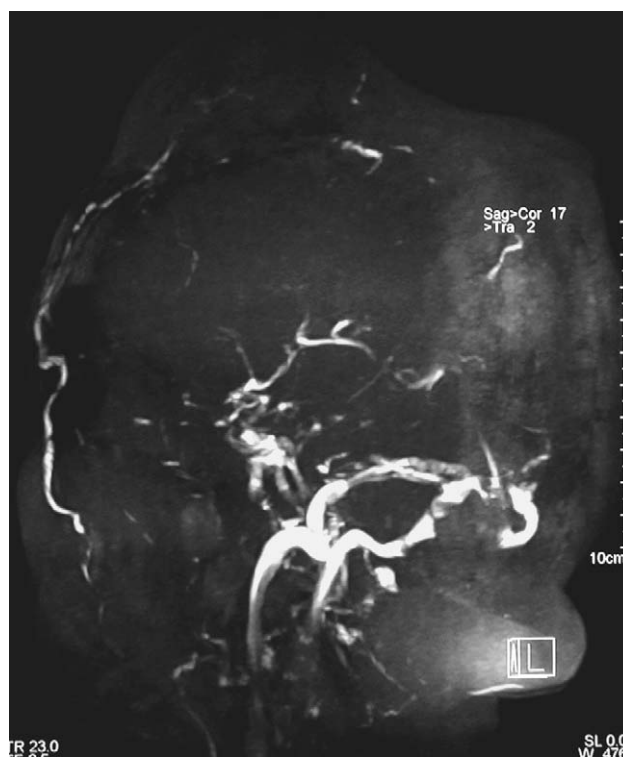
**Fig. 4.** T1-weighted post-gadolinium magnetic resonance coronal image showing midline scalp swelling with direct invasion to both tables of skull and thickening of adjacent dura matter. The figure in the inset shows thrombosis of superior sagittal sinus.

Fine-needle aspiration cytology carried out from the scalp swelling showed metastatic adenocarcinoma with extensive necrosis (Fig. 1, inset). The cytological features of sheet-like as well as acinar arrangements of cells with focal mucin content and brisk mitotic activity were similar to the cervical primary mass.

Metastatectomy was unfeasible despite the solitary site of spread (without local failure) as a result of the superior sagittal sinus thrombosis. After stabilization of symptoms with anticoagulant therapy and anti-epileptic drugs, she was initiated on multiagent chemotherapy (cisplatin 30 mg Day1 (D<sub>1</sub>)–D<sub>4</sub>, 5-fluorouracil 500 mg D<sub>1</sub>–D<sub>5</sub> and bleomycin 15 IU D<sub>1</sub> and D<sub>5</sub>, in 3-weekly schedules). With two chemotherapy cycles, the patient achieved approximately 50% clinical regression. At this stage, she received palliative whole-brain radiotherapy (30 G in 10 fractions over 2 weeks, with two parallel opposed fields, the upper border of which was left to fall off in air to include the scalp lesion). The patient was last assessed at the end of radiotherapy when she was clinically stable. Unfortunately, she chose to stop all treatment at this stage and was unavailable for further follow up.

## DISCUSSION

Carcinoma cervix commonly spreads through direct local extension, and when distant spread occurs, it is usually



**Fig. 5.** Magnetic resonance venogram image showing nonvisualization of superior sagittal sinus, suggestive of complete thrombosis of superior sagittal sinus.

because of lymphatic invasion. Haematogenous spread in carcinoma cervix is a late process and usually is seen to spread to liver, lungs and bones, especially in poorly differentiated subtypes. Few of the uncommon sites of metastases that have been reported include the skin and s.c. tissues, brain, meninges, heart and breast.<sup>2–5,13</sup>

A review through the reported cases suggests that occurrence of scalp metastases does not appear to be related to the initial stage of presentation. It has been reported in patients treated for early as well as advanced stages of disease.<sup>14–17</sup> In the available reports, interval from initial diagnosis to development of scalp metastases varied from 8 months to 4 years and the location of scalp involved and number of lesions in scalp were varied and nonuniform.<sup>14–19</sup> Except in the report from Park *et al.*, these patients had scalp as the sole site of metastasis.<sup>14</sup>

Although our patient had involvement of pelvic lymph nodes at presentation, the lack of para-aortic, mediastinal or supra-clavicular lymph node involvement makes retrograde lymphatic spread a very unlikely mode of spread. Different hypotheses have been put forward for explaining isolated haematogenous involvement of scalp from distant malignancies. Fay *et al.* attributed the presence of rich vascularity, warmth and immobility to explain metastases in scalp region.<sup>20</sup> Another hypothesis that has been used for explaining this kind of spread involves interaction between tumour cells and endothelial cell



receptors in the target organs. This possibility was first described by Nicolson *et al.* for explaining the tendency of cancer cells to metastasize to specific organs.<sup>21</sup>

It is a known fact that systemic malignancies, especially lymphoreticular, with or without scalp or calvarial involvement, can be associated with intracranial venous sinus thrombosis.<sup>6–11</sup> Although rare and none reported in carcinoma of uterine cervix, there are reports of skull metastasis from distant primary solid tumours leading to superior sagittal sinus thrombosis.<sup>12</sup> Direct invasion into venous sinus or thrombosis extending through venous communications between scalp and intracranial venous sinuses (when there is scalp or skull involvement) and systemic hypercoagulability (when there is no such direct sinus, skull or scalp involvement) have been the proposed explanations.

Irrespective of the mode of spread, presence of scalp metastases in patients with carcinoma of uterine cervix indicates advanced disease and a very poor prognosis. Two of the reported cases had survival of less than few weeks from the time of diagnosis of the metastatic disease.<sup>15</sup> It is not known whether presence of sagittal sinus thrombosis will have an adverse effect on prognosis of these patients.

In view of the poor prognosis in these patients, the intent of management should ideally be palliative. Radiation therapy is an accepted method for palliative treatment for these patients. But in patients with good general condition, surgical excision of the metastatic lesion and combination chemotherapy are also options that need to be considered. Our patient has achieved good symptom palliation with use of multiagent chemotherapy and radiation therapy.

Although some of the manifestations of metastatic uterine cervical carcinoma such as nodal metastases and involvement of solid organs of abdomen and thorax are well known, cutaneous, especially scalp, involvement is rare and the association with superior sagittal sinus thrombosis makes this an extremely rare presentation. With growing technical advances and knowledge, we can expect more frequent reports and better understanding of mechanisms and natural history of these rare manifestations, thereby leading to clearer management strategies for these patients.

## REFERENCES

1. Ferlay J, Bray F, Pisani P, Parkin DM. Globocan. 2000: cancer incidence, mortality and prevalence worldwide, version 1.0. IARC CancerBase no. 5. IARC Press, Lyons, France, 2001.
2. Carlson V, Delclos L, Fletcher GH. Distant metastases in squamous-cell carcinoma of the cervix. *Radiology* 1967; **88**: 961–6.
3. Imachi M, Tsukamoto N, Kinoshita S, Nakano H. Skin metastasis from carcinoma of uterine cervix. *Gynecol Oncol* 1993; **48**: 349–54.
4. Hayes AG, Berry AD. Cutaneous metastases from squamous cell carcinoma of cervix. *J Am Acad Dermatol* 1992; **26**: 846–50.
5. Shimizu I, Hayashi S, Uehara M, Nakayama S. Cutaneous metastases to the scalp from carcinoma of the uterine cervix. *Arch Dermatol* 1983; **119**: 275–6.
6. Herkes GK, Partington MD, O'Neill BP. Neurological features of cranial vault lymphomas: report of two cases. *Neurosurgery* 1991; **29**: 898–901.
7. Sigsbee B, Deck MD, Posner JB. Nonmetastatic superior sagittal sinus thrombosis complicating systemic cancer. *Neurology* 1979; **29**: 139–46.
8. Nicholson JC, Darmady JM, Kohler JA. Superior sagittal sinus thrombosis complicating maintenance treatment for acute lymphoblastic leukemia. *Pediatr Hematol Oncol* 1996; **13**: 287–91.
9. Patchell RA, Posner JB. Neurologic complications of carcinoid. *Neurology* 1986; **36**: 745–9.
10. Stein ME, Drumea K, Eppelbaum R, Ben-Schachar M, Brown J, Haim N. Nonmetastatic superior sagittal sinus thrombosis complicating Burkitt's lymphoma: a case report. *Isr J Med Sci* 1995; **31**: 439–41.
11. Landolsi A, Ben Fatma L, Ben Ammou S *et al.* Non-metastatic thrombosis of the superior sagittal sinus complicating Burkitt's lymphoma. A case report. *Ann Med Interne (Paris)* 2003; **154**: 67–9.
12. Chaudhuri R, Tarnawski M, Graves MJ, Graves PE, Cox TC. Dural sinus occlusion due to calvarial metastases: A CT blind spot. *J Comput Assist Tomogr* 1992; **16**: 30–34.
13. Sotto LSJ, Graham JB, Pickren JW. Post mortem findings in cancer of uterine cervix. *Am J Obstet Gynecol* 1960; **80**: 791–4.
14. Park JY, Lee HS, Cho KH. Cutaneous metastasis to the scalp from squamous cell carcinoma of the cervix. *Clin Exp Dermatol* 2003; **28**: 28–30.
15. Maheshwari GK, Baboo HA, Ashwathkumar R, Dave KS, Wadhwa MK. Scalp metastasis from squamous cell carcinoma of the cervix. *Int J Gynecol Cancer* 2001; **11**: 244–6.
16. Agarwal U, Dahiya P, Chauhan A, Sangwan K, Purwar P. Scalp metastasis in carcinoma of the uterine cervix – a rare entity. *Gynecol Oncol* 2002; **87**: 310–12.
17. Gairola M, Sharma DN, Mukhopadhyay P, Jayalakshmi S, Mishra BK, Rath GK. Scalp metastasis of a uterine cervix carcinoma. *Obstet Gynaecol Today* 2000; **V**: 488–9.
18. Vieira SC, Ribeiro SC, Sousa Júnior WO *et al.* Scalp metastasis from carcinoma of the cervix: case report. *Rev Bras Gynecol Obstet* 2003; **25**: 609–11.
19. Bohme M, Baumann D, Dohat H, Lenz E, Roder K. Rare type of metastasis in progressive carcinoma. *Zentrabl Gynakol* 1990; **112**: 1357–62.
20. Fay T, Henry GC. Correlation of body segmental temperature and its relation to the location of carcinomatous metastasis. Clinical observations and response to methods of refrigeration. *Surg Gynecol Obstet* 1938; **66**: 512–14.
21. Nicolson GL, Winkelhake JL. Organ specificity of blood-borne tumor metastasis determined by cell adhesion. *Nature* 1975; **255**: 230–32.