A rare case of renal metastasis from squamous cell carcinoma of the cervix

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ABSTRACT

Cervical cancer is the most frequent type of cancer in women in many developing countries. Squamous cell carcinoma of the cervix spreads principally by lymphatics and less commonly through blood vessels. The most frequent sites for those who develop distant metastasis include lungs (21%), lumbar and thoracic spine (16%), and para-aortic lymph nodes (7%). Metastasis to the kidney is extremely rare with <10 previously reported cases. We report a case of renal metastasis from squamous cell carcinoma of the cervix detected in end-stage kidney due to hydronephrosis.

Key Words: Carcinoma of cervix, renal metastasis, squamous cell carcinoma

INTRODUCTION

Despite advances in detection and management, cervical cancer continues to be a significant health problem on a worldwide scale. Cervical cancer is the most frequent type of cancer in women in many developing countries. The most widely accepted staging system for tumors of the cervix is that of the International Federation of Gynecologists and Obstetricians (FIGO) This staging system divides invasive tumors into four stages. Squamous cell carcinoma of the cervix spreads principally by lymphatics and less commonly through blood vessels. Ureteral obstruction caused either by tumor invasion of the ureteral wall or by compression due to tumor in periureteral lymphatics leads to hydroureret, hydronephrosis and hydronephrotic renal atrophy, pyelonephritis, and loss of renal function. Obstruction of both ureters results in uremia and is a leading cause of death. Hematogenous dissemination is the least common metastatic pathway of cervical carcinoma. Poorly differentiated tumors and aggressive cell types such as neuroendocrine tumors are known to spread by hematogenous route. The pattern of metastasis in cervical cancer is well established. The most frequent sites for those who develop distant metastasis include lungs (21%), lumbar and thoracic spine (16%), and para-aortic lymph nodes (7%). The median survival of this population is between 12 and 24 weeks, with the majority of relapses occurring within 2 years of initial presentation. Metastasis to the kidney is extremely rare with <10 previously reported cases.

CASE REPORT

A 50-year-old female was admitted to the surgery ward with pain in the right lumbar region. Ultrasonography (USG) of the abdomen showed right-sided hydronephrosis with no obvious calculus. Serum creatinine was 1.8 mg/dl. Urine examination was normal. Tc-99m DTPA diuretic
renal study showed glomerular filtration rate (ml/min) 7.83, differential (DIFF) function 23.7%. Right kidney showed markedly impaired parenchymal function. We received right-sided nephrectomy specimen measuring 9 cm × 5 cm × 4 cm [Figure 1a]. Capsule was thickened and adherent to kidney. Capsule could not strip off easily. On cutting open, corticomedullary distinction was not possible. Pelvicalyceal system was dilated. Multiple widely spaced grayish-white areas with yellow foci were noted. Microscopic examination of the kidney sections showed glomeruli, tubules, and interstitium. Some of the glomeruli showed sclerosis and periglomerular fibrosis. Some tubules were cystically dilated and some were atrophic with thyroidization at places [Figure 1b] A few tubules showed pus cell casts in it. Interstitium showed dense acute and chronic inflammatory cell infiltrate. The pelvic lining was flattened and showed ulceration at places. Sections from capsule and perinephric adipose tissue showed thickened capsule and multiple foci of tumor which was infiltrating into perinephric fat [Figure 1c and d]. Tumor cells were seen arranged in solid nests and islands. Individual tumor cells were round to polygonal with moderate to scanty cytoplasm, hyperchromatic and pleomorphic nuclei with prominent nucleoli. At places, individual cell keratinization was seen. Occasional mitotic figures were also noted. Surrounding stroma showed desmoplastic reaction and moderate chronic inflammatory cell infiltrate. At places, tumor was infiltrating the renal parenchyma [Figure 1e]. Also seen were many lymphovascular emboli in the sections studied. Multiple sections from pelvicalyceal system were given did not show squamous metaplasia or dysplasia [Figure 1f]. We reviewed history of the patient. The patient was a known case of poorly differentiated squamous cell carcinoma of cervix (Stage IIb) and had received treatment 1½ years back for the same. The patient received external beam radiation therapy to pelvic region with radical intent with cobalt 60 gamma rays by AP and PA fields to a dose of 50 Gy/25# delivered for 1 month. The patient also received five cycles of concurrent injection cisplatin weekly. The patient tolerated the treatment well. Blood urea (60 mg/dl) and serum creatinine (1.1 mg/dl) were normal at the time of completion of treatment. On USG, both the kidneys and ureters were normal in appearance. With this history and normal pelvic lining, we gave the report as end-stage renal disease due to pyelonephritis with multiple metastasis of squamous cell carcinoma in the capsule and perinephric fat.

DISCUSSION

Obstructive renal failure due to ureteral involvement is a known complication of metastatic cervical carcinoma, but metastasis to renal parenchyma is a rare occurrence. In one autopsy series study, renal metastasis was analyzed in patients who succumbed to various malignancies. In another study, less than 2% of solid tumors showed renal metastasis. Most renal metastases were silent. Less than 20% had microscopic hematuria and only 5% developed renal failure.

Involvement of ureter by carcinoma cervix is considered as Stage III by the FIGO. When renal metastasis is observed as seen in the present case by meticulous histopathological examination, a higher stage is (Stage IV) given.

Figure 1: (a) Hydronephrotic kidney with capsular thickening and cortical atrophy. (b) Pyelonephritis (H and E, ×100). (c) Capsular thickening with multiple tumor deposits (H and E, ×100). (d) Capsular thickening with multiple tumor deposits (H and E, ×100). (e) Extension of tumor in renal parenchyma (H and E, ×100). (f) Flattened pelvic lining without dysplasia (H and E, ×100)
In our case, nephrectomy was done for end-stage renal disease. The thickened areas in capsule as well renal parenchyma showed tumor metastasis, which mimicked pus flakes grossly. Thorough sampling of grossly abnormal appearing areas in the kidney is mandatory when there is history of carcinoma elsewhere to rule out the presence of renal metastasis. In keeping with most of the previously reported cases, this patient developed metastasis to kidney 18 months after her diagnosis of Stage IIb. The longest documented period between initial presentation and metastasis was 9 years. Earlier case reports on the subject have described patients presenting with loin pain and fever, in which it is also difficult to differentiate between renal abscess and malignancy.

This patient in spite of receiving adjuvant systemic chemotherapy developed distant metastasis. This warrants further evaluation of treatment guidelines and effective follow-up of patients with invasive cervical cancer.

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Conflicts of interest
There are no conflicts of interest.

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