Risk factors for fistula formation in patients with cervical cancer treated with radiation therapy include postradiation biopsy

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Objective: The aim of this study was to review our institutional experience with patients with cervical cancer treated with radiation therapy (RT) to determine risk factors associated with fistula development.

A retrospective review was performed evaluating 495 patients treated for cervical cancer with surgery, chemotherapy, or radiation therapy at our institution between 1997 and 2010. Of the subset of patients treated with curative-intent radiation therapy, with or without chemotherapy, 24 were diagnosed with a fistula either at presentation, as a result of treatment, or in association with recurrent tumor.

Results: The median duration of follow-up was 55 months. Of the 24 patients who developed fistulas, two had enterovaginal fistulas, seven had vesicovaginal fistulas, eight had rectovaginal fistulas, and seven developed both vesicovaginal and rectovaginal fistulas. Six fistulas were present at the time of diagnosis, 12 were treatment related, and six were due to recurrent disease. The median age was 46; 58.3% of patients were smokers, 75% were white/Caucasian and 25% were African-American. All patients had bulky tumors, with 83.3% presenting with FIGO stage III/IV disease. High-grade histology and lymphovascular space invasion were present in 50 and 66.7%, respectively. The median radiation dose delivered to point A was 84 Gy, the median rectal dose was 66.8 Gy, and the median bladder dose was 70.25 Gy. Factors predictive of development of a fistula on multivariate analysis were high rectal dose > 70 Gy ($P = 0.022$), advancing tumor stage ($P = 0.0009$), and African-American race ($P = 0.033$). Among the 12 patients who developed a treatment-related fistula, nine (75%) underwent a negative biopsy preceding fistula development by a median 4.65 months. The median interval between treatment completion and development of fistula differed depending on whether the fistula was due to treatment toxicity, 13.1 months, or recurrent disease, 8.5 months.

Conclusions: Risk factors for fistula development identified in this series are similar to those reported in other published series. However, what is striking in our data is the frequency of biopsies prior to fistula development in patients with no tumor. Seventy-five percent of the patients who developed a toxicity-related fistula underwent a biopsy with no cancer seen within the six months preceding their fistula. Caution should therefore be taken when performing biopsies postradiation in patients with cervical cancer.