

Ileo-Cavernosal Fistula after Radiotherapy: A Case Report and Review of the Literature

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INTRODUCTION

Fistula is an abnormal connection between two hollow spaces that are lined with epithelial cells. Fistulas are usually caused by injury or surgery, but radiation, infection or inflammation may also result in fistula formation. There are quite a few different types of fistula in human body. Gastrointestinal tract fistulas (GIF) may have various clinical presentation, etiology, and morbidity. Because definitions can be various on the literature Perry and colleagues recommends to categorize GIF into two groups as congenital and acquired GIF. Acquired GIF can be classified as external or cutaneous if they connect with the skin or internal if they involve other organ systems including genitourinary system.⁽¹⁾

Here we present an extremely unusual case of an internal gastrointestinal fistula -ileo- penile corpus cavernosum fistula, developing after External Beam Radiation Therapy (EBRT). To the best of our knowledge, this is the first report in the literature demonstrating an ileo-corpus cavernosum fistula after EBRT.

CASE REPORT

A 67-year-old man who had undergone radical cystectomy with ileal loop one year ago due to muscle invasive bladder carcinoma (MIBC) was referred to our clinic with a complaint of common ache in his hips and suprapubic region. He did not report any trauma. He had a chronic kidney disease background preoperatively. His blood urea nitrogen and creatinine levels were 13 md/dL and 2.5 mg/dL, respectively. Other hematological examination and

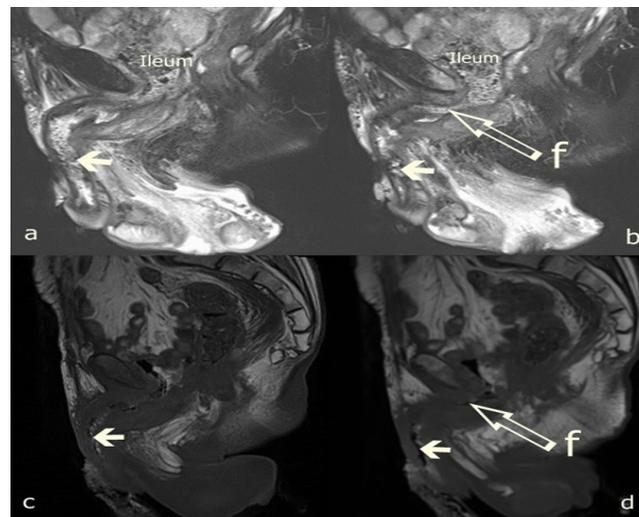


Figure. Sagittal fat-sat T2 weighted (a, b) and sagittal T1 weighted images (c, d) show fistula (f) between ileum and penile corpus cavernosum. Penile corpus cavernosum contains stool and air (arrowheads).

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biochemical profile was within normal limits. Imaging studies showed no recurrence or soft tissue metastasis. Bone scintigraphy revealed multiple metastatic lesions on pubic bone. Radiotherapy (RT) was given to pelvic area to relieve his pain. Total dose of 3000 cGy (300cGy × 10 fractions) external beam radiotherapy (EBRT) was administered. EBRT was well tolerated and patient's pain started to regress. Two months later patient applied to our clinic again with swelling and pain in his penis. Magnetic resonance imaging (MRI) detected a fistula between ileum and penile cavernosal body (**Figure**). Then patient hospitalized, oral intake was stopped and parenteral nutrition was started. Infectious diseases treatment was began with vancomycin and meropenem administration. Surgery decided but patient's general condition didn't permit us to take him to surgery. He eventually died because of sepsis.

DISCUSSION

RT proved itself at palliation of painful bone metastases with a 60%-80% likelihood of providing relief for localized pain.⁽²⁾ But after administration of RT especially to pelvic region, adjacent organs including gastrointestinal system may be injured. The most common complications of gastrointestinal system injuries are obstruction, hemorrhage, strictures, and fistulas. Few reports of internal GIF caused by RT were reported. Levenback and colleagues described anenterovesical fistula following RT for gynecologic cancer.⁽³⁾ Lewinshtein and colleagues described recto-cavernosal fistula after radiation for rectal cancer.⁽⁴⁾ Recurrent disease and prior surgery are the most common reason of fistulization in these cases. Our patient had both risks. Besides, some other reports described urethro-carvernosal fistulas, mostly caused by blunt trauma, penile fracture and following shunt surgery for priapism.⁽⁵⁻⁷⁾ But none of them are related to RT. No other corpus cavernosum related fistula has been reported. Although fistulas can be demonstrated by conventional radiography or contrast-enhanced studies, today the advanced techniques and increased availability, has become cross sectional imaging modalities more popular. But it should be kept in mind that each fistula type has unique form and imaging studies may vary depending on fistula type.⁽¹⁾ In this case we showed the fistula tract by contrast enhanced MRI (**Figure**). In generally GIF management includes localization and describing the fistula's anatomy, nutritional support, detection and treatment of sepsis, and deciding to proper treatment. But the optimum management of a radiation induced fistula is unsettled yet. Because "Radiation Induced Fistula" term includes varying group of patients having different types of fistula anatomy, bowel properties, co-morbidity history and severity of radiation exposure. Therefore whether radiation-induced fistula requires repair at fistula site or a more aggressive approach such as permanent urinary diversion is unknown, and each patient should be evaluated on a case by case basis.⁽⁸⁾ Because this is the first report of ileo-cavernosal fistula and penile corpus cavernosum is a highly vascularized tissue, we therefore assumed and treated our case as an intestino-arterial fistula. There are only three cases showing intestino-arterial fistula following urinary diversion. In these cases, sepsis was an inevitable result and represented the

primary source of morbidity. Patients didn't survive at all.⁽⁹⁾ As soon as the diagnosis of fistula made by MRI we started to give total parenteral nutrition and proper antibiotics. Surgery was decided but patient got worse and we couldn't perform it. We think that either diversion or fistulectomy would be beneficial to the patient.

CONCLUSIONS

EBRT is the mainstay for the treatment of painful bone metastases including pelvic malignancies. Although the early and late complications of EBRT are acceptable, clinical follow-up must absolutely be performed to make early diagnosis and treatment of radiation therapy complications. Even the slightest symptom that may indicate a fistula should be carefully examined and the initial principle of care should be controlling and eradicating underlying sepsis followed by surgery if needed.

CONFLICTS OF INTEREST

None declared.

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