



First Report on Laparoscopic Excision of Ileovesical Fistula and Laparoscopy Assisted Augmentation Ileocystoplasty in Post Radiation Carcinoma Cervix

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Abstract

Urological complication following radiotherapy for carcinoma cervix is about 2%. We present a case of ileovesical fistula which is a rare complication following radiotherapy in carcinoma cervix. Patient presented with complaints of unusual watery diarrhea for the last two weeks, five years following radiotherapy for carcinoma cervix.

Computed tomography revealed thick walled bladder with ileovesical fistula with no hydronephrosis. Cystoscopy revealed small capacity bladder with fistulous tract at dome of the bladder. 8 Fr feeding tube was kept across the fistula. This was followed by laparoscopic excision of fistulous tract. Then by a 4-cm sub-umbilical incision the ileal segment with the fistulous tract was excised. Another 10 cm of normally looking proximal ileal segment was isolated, detubularized, pushed back into the peritoneal cavity and wound closed. Reverting back to laparoscopy, augmentation-ileocystoplasty was done using 3-0 barbed sutures. To our knowledge this is the first report of Laparoscopic excision of Ileovesical fistula and Laparoscopy assisted augmentation Ileocystoplasty in post radiation carcinoma cervix.

Keywords: Laparoscopy assisted augmentation Ileocystoplasty; Laparoscopic excision of Ileovesical Fistula; Carcinoma cervix; Radiation

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Introduction

In AD 200, first colovesical fistula was described by Rufus of Epheus. Cripps in 1888 produced the first monograph on the case [1]. Ileovesical fistula is not a very common entity encountered by the urologist in the day-to-day clinical practice. Hence management of ileovesical fistulas becomes challenging.

Case Presentation

A 65-year-old female patient presented with complaints of watery diarrhea for the last two weeks with minimal or no output in urinary bag. No history of fever. Patient was diagnosed with carcinoma cervix stage II B in 2013; treated with radio and chemotherapy and was on follow up till 2016. Patient had no recurrent or active cervical carcinoma. Patient had voiding and storage LUTS, for which she was on catheter for last 2 years. No other co morbid illness. On examination patient was well preserved. Clinical examination revealed that abdomen was soft and non-tender. Bimanual examination revealed atrophic vagina. Digital rectal examination was normal. Systemic examination showed no abnormality. The provisional diagnosis was enterovesical fistula.

Bio-chemical investigation did not reveal any renal or hepatic dysfunction. Computed tomographic cystogram revealed ileovesical fistula with no hydronephrosis and thick-walled bladder (Figure 1A). Patient was counseled for either excision of fistula and augmentation ileocystoplasty with or without proximal ileostomy; or Ileal conduit diversion in case of technical difficulty. Cystoscopy revealed small capacity bladder of about 30cc with fistulous tract at dome of the bladder (Figure 1B and 1C).

Laparoscopy revealed omentum and a loop of distal ileum adherent to dome of the thick-walled bladder (Figure 1D). The proximal ileum was looking pink and supple. Omental adhesions were released and bladder was incised around the fistulous tract (Figure 2E). Ileum with the fistula was brought out through a 4 cm sub-umbilical incision. The fistula with adjacent pale, thick walled

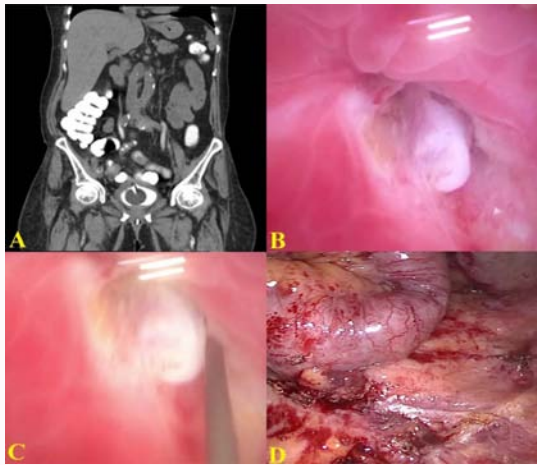


Figure 1: A) CT cystogram showing fistulous communication of bladder with ileum. B & C) Cystoscopy-Fistulous communication in the dome of the bladder. D) Laparoscopic finding revealing thick walled bladder and adherent distal ileal loop.

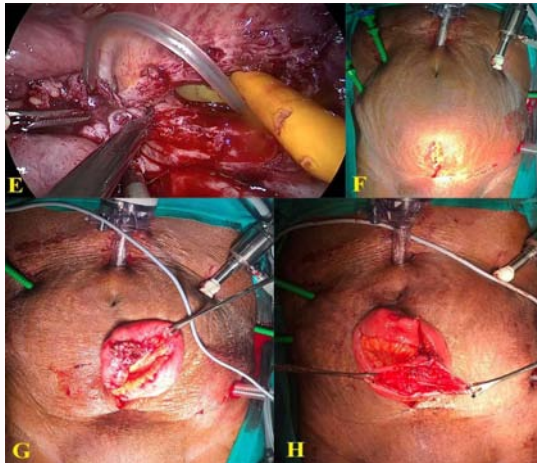


Figure 2: E) Excision of ileovesical fistula in progress (with preplaced infant feeding tube in view) and F, G & H) Sub umbilical incision made to resect fistula with adjacent ileum and isolating proximal ileum.

ileal segment (about 8 cm) was excised (Figure 2F-2H) followed by ileo-ileal anastomosis using stapler. As the bladder capacity was only 30cc and as the proximal ileum looked pink and supple with well palpable mesenteric vessels, it was decided to go ahead with augmentation ileocystoplasty. A 10 cm of proximal ileal loop was isolated, detubularized, folded upon itself in a U-shape and pushed back into the peritoneal cavity. Abdominal wound was closed. Reverting back to laparoscopy Ileocystoplasty was carried out using 3-0 barbed suture in a continuous fashion. Bladder was distended to about 100cc for assessing watertight closure (Figure 3I-3K). Omental reinforcement of the suture line was done and tube drain was placed through the flank port. Post-operative period was uneventful. Drain was removed on 11th day and the patient was discharged with urinary catheter. Follow-up Cystogram was done on 3rd week, which showed fair augmentation and no extravasation (Figure 3L). Catheter was removed at the end of four weeks and patient voided with fair stream.

Discussion

For decades, radiotherapy is an accepted treatment for cervical cancer with cure rates equal to that of surgical intervention. The

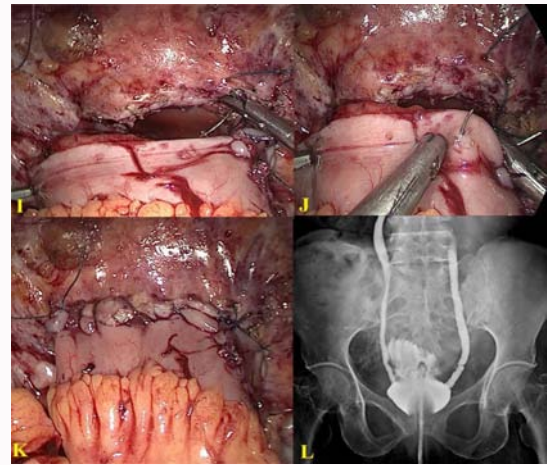


Figure 3: I & J) Augmentation ileocystoplasty. K) Bladder distended to rule out any leak. L) Cystogram reveals a fairly augmented bladder without any leak.

application of relatively high-dose radiotherapy to cervical cancer is practiced.

However adjacent organs, such as the bladder, ureter, and rectum, are subject to treatment side effects of varying severity [2]. Urological complication following radiotherapy is 2% to 3% [3]. Radiation sequela to adjacent ileum is known (like stricture or adhesion) but ileovesical fistula is very rare [3,4,5]. Other causes of ileovesical fistula are bowel diseases like Crohn disease, colorectal carcinoma and diverticulitis, infection, and trauma (external penetrating trauma, as well as iatrogenic surgical trauma) [6].

Irradiation induced injury to bowel can manifest as acute or delayed (up to 35 years). Histopathologic findings in chronic radiation-related intestinal damage are obliterative endarteritis of the small vessels in the intestinal wall, lymphoid atrophy, lymphatic dilation; progressive vascular sclerosis resulting in mucosal atrophy. Scar tissue replaces the submucosal tissue and chronic mucosal ulceration may result in fistula formation and hemorrhage [7].

Chronic phase of radiation cystitis-vascular changes include vascular endothelial hyperplasia, vascular occlusion and perivascular fibrosis. Tissue injury occurs as a result of vascular changes causing tissue hypo vascularity, hypocellularity and tissue hypoxia. Smooth muscle is replaced by fibroblasts, resulting in fibrosis as well as decreased bladder compliance and capacity. Impaired healing results in mucosal ulceration, hemorrhage, perforation and fistula formation [8].

Patient may present with symptoms like pneumaturia (50% to 70%), fecaluria, urinary tract infection, fever with chills, abdominal pain, nonspecific gastrointestinal symptoms, hematuria, orchitis, and urine per rectum. In our case patient had unusual watery diarrhea. Fistula occurs on the dome of the bladder (62%); posterior wall (28.5%) and in the trigone (9.5%) [1]. In our case fistula was in the dome of the bladder.

Investigations, which can be done to identify the fistula, are computed tomography (53%), cystoscopy (48%), and barium study (38%) [6]. In our case computer tomographic cystogram revealed Ileovesical fistula (Figure 1 and 2).

Treatment of ileovesical fistula depends upon the underlying

existing malignancy and performance status. If the malignancy is cured and performance status is good, then definitive treatment can be offered. Surgery includes removal of the fistula, primary closure of the bladder if the capacity is near normal. If bladder capacity is small, augmentation cystoplasty is a viable option as in our case. If performance status is poor or if there are technical difficulties, ileal conduit and primary re-anastomosis of the bowel after resection of the involved bowel segment is preferable. Staged approach is removal of the fistula, closure of the involved organs, (bladder and bowel) and creation of a temporary proximal diverting ileostomy. Ileostomy can be closed later [3]. Charles Levenback et al. [10] from the University of Texas described three options for the management of ileovesical fistula—isolation; diversion or resection. In our case, the patient's general condition was good; bowel loops were healthy and hence primary resection and augmentation cystoplasty was carried out.

Keita Fujikawa et al. had two cases in total of two hundred and seventy-one patients treated with radiotherapy for cervical cancer, which were treated conservatively [3,11].

Mervyn Deitel and Toan B reported one case among fifty-seven patients of different malignancies including carcinoma cervix treated by radiotherapy treated by ileocolic bypass [12].

Satoshi Watanabe and associates had three cases among eight patients who had ileovesical fistula associated with radiation exposure treated by ileocolic bypass [2].

Jaroslava Zoubek et al. had nine cases out of eleven patients with small capacity bladder following radiotherapy for carcinoma cervix out of which five patients underwent augmentation cystoplasty [13].

In Jian Wang, et al. described Laparoscopy for radiation enteropathy [14]; however laparoscopic resection of ileovesical fistula with laparoscopy assisted augmentation cystoplasty was not described.

Conclusion

Radiotherapy is an accepted treatment for cervical cancer having cure rates equal to that of surgical intervention. Ileovesical fistula is one of the rare complications following radiation. To our knowledge this is the first successful report of laparoscopic resection of ileovesical fistula with laparoscopy assisted augmentation cystoplasty.

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