

CASE REPORT

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Adenocarcinoma in an ileal pouch after prior proctocolectomy for carcinoma in a patient with ulcerative pancolitis

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Abstract We report the first known case of pouch carcinoma in a 35-year-old female patient following proctocolectomy for adenocarcinoma in ulcerative pancolitis with backwash ileitis. Pouch cancer was diagnosed 2 years after the pelvic pouch procedure, illustrating that there might be a risk of pouch cancer in such patients. Adenocarcinoma arising in an ileoanal reservoir is rare. Two other cases have been reported: both patients concerned were believed to have developed cancer in small areas of residual remaining rectal mucosa.

Key words Case report · Ulcerative colitis · Ileoanus–pouch anastomosis · Pouch carcinoma · Adenocarcinoma

Introduction

An adenocarcinoma of the colonic mucosa can develop as a complication of ulcerative colitis or Crohn's disease [2, 3, 5]. Some 3–5% of the patients with ulcerative colitis develop this complication [9, 32], and although the risk is lower in Crohn's disease [8] than in ulcerative colitis, it is still about 20 times as high as that in the normal population. Carcinomas of the small bowel have been described in patients with Crohn's disease [6, 11, 19, 21], and ulcerative colitis [7, 16, 25]. In nine reported cases small bowel carcinomas in an ileostomy have been described in ulcerative colitis in association with backwash ileitis (Table 1). However, the development of high-grade dysplasia [12, 18] and adenocarcinoma [15, 27, 28] in an ileal pouch have been reported in two cases: both patients were believed to have developed

Table 1 Published cases of carcinoma in an ileostomy. One patient was excluded from the study, since his ileostomy tumour was most probably a metastasis from a rectal carcinoma (17).

Reference	Patient age/ sex	Years since colectomy	Follow-up
[26]	56 years/F	19	Liver metastases death after 10 months
[10]	60 years/M	6	9 Months after surgery
[24]	44 years/M	9	
[1]	45 years/F	19	
[29]	66 years/F	13	7 Years after surgery
[4]	45 years/M	23	Liver metastases, death after 4 months
[30]	69 years/M	30	
[23]	58 years/F	33	10 Months after surgery
	54 years/M	23	5 Months after surgery

cancer in residual rectal mucosa. We describe the first case of a pouch carcinoma in a patient with ulcerative colitis with marked backwash ileitis, following proctocolectomy for adenocarcinoma [13].

Case report

As a girl of about 15 years, the woman – now 35 years old – underwent colonoscopy and was diagnosed as having ulcerative pancolitis. After this apparently traumatic experience, the patient refused further follow-up examinations. At the age of 31, the patient, now in a dramatically reduced general state of health, was hospitalized for treatment of acute lower gastrointestinal bleeding and severe circulatory insufficiency.

Further diagnostic evaluation, including colonoscopy, now revealed ulcerative pancolitis with pseudopolyposis. The terminal ileum showed significant inflammatory changes. The transverse colon contained a solid polypoid tumour measuring about 6 cm in diameter.

Histological investigation revealed ulcerative pancolitis with multiple areas of low-grade and high-grade dysplasia. The terminal ileum showed marked backwash ileitis. The transverse colon contained a moderately differentiated ulcerated adenocarcinoma ("colitis carcinoma").

A proctocolectomy with partial ileoectomy and resection of the omentum was carried out, an ileal pouch constructed, and a protective ileostomy created. The surgical specimen consisted of a

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Fig. 1 High-grade dysplasia: hyperchromasia, atypical nuclei containing large nucleoli. H&E, $\times 320$

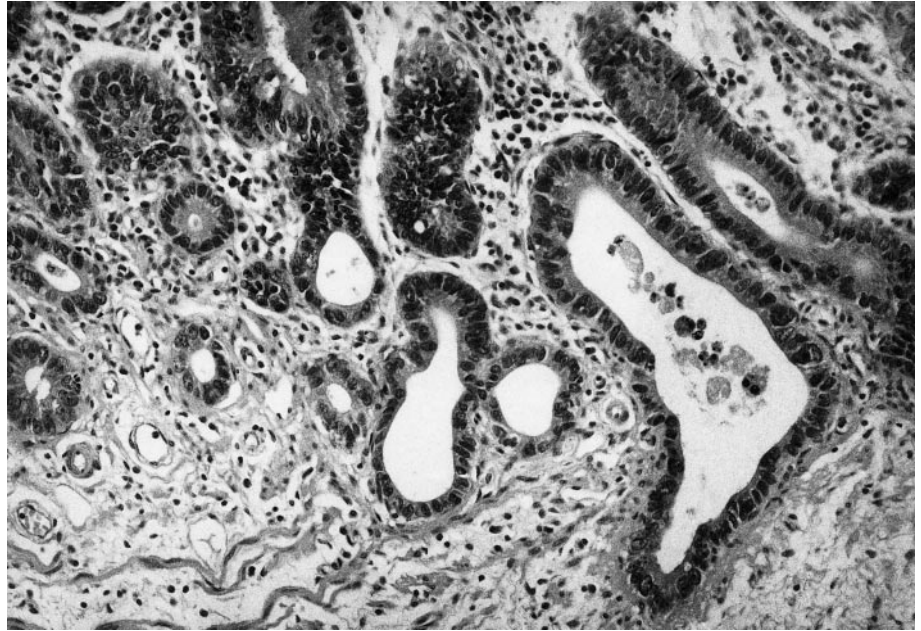
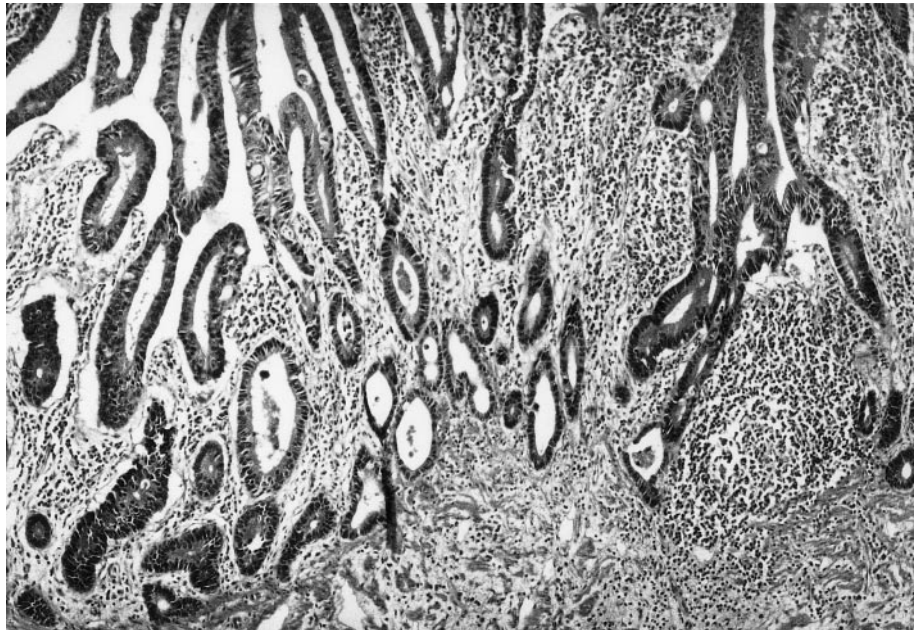


Fig. 2 Mucosal pelvic pouch operation specimen. Well-differentiated adenocarcinoma infiltrating the submucosal layer. H&E, $\times 75$



65-cm-long segment of colon (resected at a distance of 0.5 cm above the dentate line), together with a 10-cm-long segment of the terminal ileum and mesentery. In the transverse colon, a cauliflower-like tumour measuring 8×8 cm was found projecting into the lumen. Macroscopic inspection revealed that the tumour had infiltrated the adjacent fatty tissue, but had not breached the serosa. The remaining mucosa was characterized by severe inflammatory changes, in part with large ulcerations and numerous pseudopolyps, as well as multiple finely villous plaque-like elevations measuring up to 1 cm in diameter.

Histological examination of the colectomy specimen revealed ulcerative pancolitis with backwash ileitis and multifocal low-grade and high-grade dysplasia, three pT1 carcinomas, and a moderately differentiated polypoid carcinoma in the transverse colon infiltrating through the muscularis propria into the adjacent fatty tissue. There was no infiltration into lymphatic vessels, and the apical node, 8 nodes along the middle colic artery and 40 pericolic

lymph nodes were free of metastasis (pT3, G2, pN0, M0, R0). No dysplasia or tumour was found at the distal anal margin or in the ileal segment, but there was significant backwash ileitis.

Postoperatively, a short course of chemotherapy with 5-FU and ergamisole was given, which led to leucopenia and sepsis. Thereafter, no further chemotherapy was administered.

Further biopsies revealed no remaining rectal mucosa near the anal anastomosis. Two years after proctocolectomy and the construction of an ileoanal J-pouch, a second surgical procedure was performed to reconnect the protective ileostomy; soon afterwards, a fistula developed between the pouch and the gluteal region and the ileostomy had to be reconstructed. Shortly afterwards, the patient presented with intermittent copious putrid secretion from the ileal pouch, an iron deficiency anaemia, and an elevated level of the tumour marker CA 19-9 to 83 U/ml (normal: <37 U/ml).

Intestinoscopy revealed mild patchy pouchitis and an actively secreting fistula located just above the ileo-anal anastomosis. A

Table 2 Published cases of carcinoma or high grade dysplasia in an ileal pouch

Reference	Age/sex	Diagnosis	Age at first diagnosis (years)	Age at pouch-operation (years)	High grade dysplasia or carcinoma
[28]	59/M	Ulcerative colitis	24	56	Rectal-cuff carcinoma involving pouch 3 years after surgery
[15]	33/F	Familial adenomatous polyposis	25	25	Carcinoma 8 years after surgery
[12, 18]	43/M	Ulcerative colitis	19	32	High-grade dysplasia 10 after surgery
Present case	35/F	Ulcerative colitis	15	33	Carcinoma 2 years after surgery
All patients			19.3±3.7 ^a	40.3±11 ^a	5 years after surgery

^a Excluding patient described in [15]

contrast medium X-ray exploration of the fistula was impaired by profuse bleeding from the fistula, so that complete exploration of the latter was not possible. Multiple biopsies were obtained from the pouch, and revealed evidence of a moderately differentiated tubular adeno-carcinoma.

The patient agreed to have the ileal pouch removed and the fistula completely resected. The resected ileal pouch tissue, together with samples of tissue from the lateral floor of the pelvis and from the coccyx, revealed pouchitis of the ulcerative colitis type and large areas of low-grade and high-grade dysplasia in the mucosa of the pouch (see Fig. 1), with continuous transition to a moderately differentiated adenocarcinoma (see Fig. 2), infiltrating through the muscularis propria into non-peritonealized perimuscular tissue. The tumour was located near the bottom of the side-to-side pouch anastomosis. In the soft tissue obtained from the wall of the pelvis, the floor of the pelvis and the region of the coccyx, metastases of a moderately differentiated adenocarcinoma were found. It was evident both macroscopically and microscopically that they were not removed completely (pT3, G2, pNx, M1(PER), R2b).

Immunohistochemistry to detect p53 protein overexpression showed that the tumour, adjacent dysplastic mucosa and tumour-free colonized pouch mucosa were negative.

Discussion

This is the first case of an adenocarcinoma developing in an ileal pouch of a patient with ulcerative pancolitis and backwash ileitis after an earlier proctocolectomy to treat an advanced adenocarcinoma. There is a case report by Stern [27] of a patient with ulcerative colitis who had rectal cuff carcinoma involving the ileoanal pouch anastomosis, and thus it is possible that the lesion in the pouch is a metastasis or a recurrent tumour. It seems more likely, however, that our case was one of a primary tumour in the pouch: a prior adenocarcinoma in the transverse colon had been treated by total proctocolectomy with tumour-free resection lines, and the primary tumour had neither invaded the lymphatic vessels nor given rise to lymph node metastases. Biopsy specimens obtained from the anal anastomosis were tumour-free. Furthermore, the pouch specimen contained low-grade and high-grade dysplastic lesion in continuity with the adenocarcinoma. The carcinoma is located 6 cm above the neoplasia-free anal margin and does not reach the serosa.

The lack of p53 overexpression in the tumour, adjacent dysplastic mucosa and colonized pouch mucosa is not very surprising, since in the literature an overexpression of p53 protein is only described for 60–80% of tumours in ulcerative colitis [14].

In our patient, the carcinoma developed in the J-pouch just 2 years after the colectomy (Table 2). In other publications to date, ileostomy or pouch carcinomas have not developed until an average of 19±3.7 years (range: 6–33 years) after colectomy, or 5±3.6 years (range: 2–10 years) after construction of the pouch. In view of the short interval between the construction of the pouch and the appearance of the carcinoma in our patient, the likelihood of dysplasia and a carcinoma developing in the pouch must perhaps be more seriously considered than has so far been the case. Despite the low incidence of the disease and the frequently poor patient compliance, regular endoscopic follow-up examinations with biopsies taken from suspicious-looking or ulcerated mucosa of the ileostomy or pouch are recommended.

Pouchitis of the ulcerative colitis type is a new complication [20, 22, 31] of ulcerative colitis in patients with a pouch–anus anastomosis, and it is possible that it should be regarded as a precancerous condition even without the presence of backwash ileitis.

In contrast to the recommendations made in the earlier literature [13], the use of inflammatory terminal ileum with backwash ileitis to construct the pouch should be avoided to reduce the risk of possible dysplasia [12] and carcinoma developing in the ileostomy or pouch. But further prospective studies are needed to clarify whether patients with ileoanus-pouch anastomosis with or without prior colorectal adenocarcinoma in ulcerative colitis with backwash ileitis or pouchitis should undergo regular endoscopic follow-up with biopsies.

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