



## Audit

# Rectal infiltration by prostatic adenocarcinoma: report on six patients and review of the literature

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**Aims:** To describe the outcome of six patients with rectal infiltration by prostatic adenocarcinoma and review the literature for 1966–2002.

**Patients and Methods:** Six patients were identified from prospectively maintained records of a colorectal surgeon and the case records reviewed retrospectively. Information on these patients was collated with that on patients reported in the literature. The Medline database was searched from the years 1966–2002 using the keywords: adenocarcinoma, carcinoma, colon, metastasis, prostate, rectum.

**Results and Conclusions:** Autopsy studies have indicated that rectal involvement by prostatic adenocarcinoma occurs in 4% of patients (range, 1–12%). The rectal infiltration took the form of an anterior rectal mass with or without ulceration in 52%, an annular stricture in 45%, and separate metastasis in 3%. In 40% of patients, a preceding history of prostatic adenocarcinoma was elicited at the time of gastrointestinal presentation, while in 60% it was not elicited. In the study group, 26% of patients underwent surgery; the most commonly performed procedure was a defunctioning colostomy (18%) to alleviate symptoms of large bowel obstruction. Five patients underwent rectal resection because the pre-operative diagnosis was suspected to be primary rectal adenocarcinoma. The median survival was 15 months (95% confidence interval 14–16 months). Survival beyond 30 months was rare.

**Key words:** Adenocarcinoma – Prostate – Colon – Metastasis – Rectum

Autopsy studies of patients with adenocarcinoma of the prostate have indicated that the rectum is locally infiltrated in up to 9% of subjects studied.<sup>1–4</sup> The low frequency of this occurrence, given the anatomical proximity of the two organs, has been considered to be due to Denonvilliers' fascia acting as a barrier to local spread.<sup>4–6</sup> We report on six patients who presented with carcinoma of the prostate infiltrating the rectum and review the literature.

## Patients and Methods

Patients were identified from the prospectively maintained records of a single colorectal surgeon during the years 1990–2002 and the case notes reviewed retrospectively. Local infiltration of the rectum by adenocarcinoma of the prostate was observed in six patients (Table 1). In only two patients was the diagnosis suspected to be prostatic adenocarcinoma at the time of gastrointestinal presentation. Histological

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Table 1 Summary of case series

Age (years)	65	73	75	78	80	94
GI presentation	Constipation Narrow stool	Rectal bleeding Abdominal pain	Abdominal pain Constipation	Rectal bleeding Rectal pain Narrow stool	Diarrhoea Passage of faecal matter per catheter (rectovesical fistula)	Urgency of defaecation Incontinence
Duration of GI symptoms	6 weeks	48 h	4 weeks	8 weeks	12 days	4 weeks
Time from diagnosis (months)	107	12	0	18	93	40
Skeletal metastases	Yes	Yes	No	Yes	Yes	Yes
Prostatic treatment	Orchidectomy TURP	Goserelin TURP	Goserelin	Goserelin TURP	Orchidectomy TURP	Goserelin
GI treatment	Loop sigmoid colostomy	None	None	Radiotherapy	None	End sigmoid colostomy
Follow-up from GI treatment	*21 months	*8 days	Well at 8 months	*9 months	*1 month	*11 months

\*Died. GI, gastrointestinal; TURP, transurethral resection of the prostate.

confirmation of the prostatic origin of the adenocarcinoma was confirmed with immunohistochemical staining for prostate specific antigen. For the purposes of the review, the Medline database was searched for the years 1966–2002. The bibliographies of retrieved articles were employed in addition.

## Results

The patients reported illustrate a number of important points. First, rectal infiltrations by prostatic adenocarcinoma, while an uncommon problem, was encountered on average in one patient every two years, in a busy colorectal practice. Second, in one patient, no preceding history of prostatic adenocarcinoma was elicited. In such patients, diagnostic confusion may occur, resulting in treatment for primary rectal rather than primary prostatic pathology and inappropriate colorectal resection. Third, palliative colostomy was required

for two patients – in one to alleviate symptoms of large bowel obstruction, in the other, to alleviate symptoms of faecal incontinence due to sphincter infiltration. For this reason, a loop colostomy was employed in the former and an end colostomy in the latter. Finally, rectal involvement by prostatic adenocarcinoma in these patients was indicative of advanced disease, the longest survival was 21 months. All but one had evidence of skeletal metastases. This further undermines the importance of avoiding inappropriate colorectal resection in these patients.

## Discussion

For the purposes of this discussion, the six patients reported above were amalgamated with all patients reported in the literature. In some instances, data sets were incomplete. This accounts for the different sample size for several of the variables.

Table 2 Frequency of rectal involvement by prostatic adenocarcinoma

Author	Type of study	Number of subjects studied	Number with rectal involvement (%)
Graves & Miltzer (1935) <sup>1</sup>	Clinical/autopsy	120	5 (4%)
Kickham (1936) <sup>2</sup>	Autopsy	132	12 (9%)
Young (1945) <sup>8</sup>	Clinical	800	12 (1%)
Arnheim (1948) <sup>3</sup>	Autopsy	176	1 (1%)
Franks (1956) <sup>4</sup>	Autopsy	53	5 (9%)
Winter (1957) <sup>9</sup>	Clinical	225	26 (12%)
Becker (1965) <sup>10</sup>	Clinical	334	11 (3%)
Gengler <i>et al.</i> (1975) <sup>11</sup>	Clinical	257	8 (3%)
Lasser (1978) <sup>12</sup>	Clinical	161	5 (3%)
<b>Total</b>		<b>2258</b>	<b>85 (4%)</b>

Table 3 Distribution of type of rectosigmoid infiltration in 152 patients reported in the literature

Type of infiltration	Number (%)
Type I (anterior rectal mass)	49 (32%)
Type II (annular rectal stricture)	68 (45%)
Type III (ulcerating anterior rectal mass)	31 (20%)
Type IV (separate metastasis to rectosigmoid)	4 (3%)

Combined data from literature.<sup>4,9-33</sup>

In 1903, Hartmann reported on a 60-year-old male patient who presented with symptoms of increasing constipation, diarrhoea and perineal pain.<sup>7</sup> Rectal examination revealed the presence of a stenosing rectal tumour that precluded digital examination proximally. Tumour biopsy histology revealed features of prostatic adenocarcinoma. The patient had a defunctioning colostomy fashioned and survived for 6 months, before succumbing from disease progression.<sup>7</sup>

#### Frequency and classification

Nine studies have examined the frequency of rectal involvement by prostatic adenocarcinoma and indicated that a mean of 4% of patients (range, 1–12%) have been affected (Table 2).<sup>1-4,8-12</sup> The form of rectosigmoid involvement was categorised by Lazarus in 1935 into the following three types: type I – an anterior rectal mass; type II – an annular rectal stricture; and type III – an ulcerating anterior rectal mass.<sup>13</sup> In 1957, Winter<sup>9</sup> added a type IV to the above classification to denote separate metastasis to the rectosigmoid. Table 3 summarises the frequency with which the four types have been reported in the literature.

#### Presentation

The clinical presentation of patients reported in the literature is summarised in Table 4. The mean and median age of affected individuals ( $n = 82$ ) was 72 years (range, 39–94 years). A preceding history of prostatic adenocarcinoma was elicited in 36 of the 73 patients, the diagnosis having been established within the preceding 12 months in 7 patients (10%), 13–36 months earlier in 20 patients (27%) and more than 36 months earlier in 9 patients (12%). In the remaining 37 patients (51%), the diagnosis of prostatic adenocarcinoma was made at the time of the gastrointestinal presentation. At the time of the gastrointestinal presentation, bony metastases were present in 32 (42%) of 77 individuals.

#### Treatment

Surgery was required in 41/155 patients (26%; Table 5). The most common procedure performed was a defunctioning

Table 4 Presenting features in 107 patients

Symptom	Number of patients*
Constipation	55
Abdominal pain	26
Rectal bleeding	21
Diarrhoea	23
Asymptomatic	14
Tenesmus	14
Weight loss	15
Perineal pain	13
Distension	9
Faecal incontinence	4
Vomiting	2
Pneumaturia	2
Passage of urine per rectum	2
Passage of semen per rectum	1
Anaemia	1

\*Note that some patients experienced more than one symptom. Combined data from literature.<sup>5,7,11-13,16-37</sup>

Table 5 Operative intervention among 41 patients from a reported total of 155 patients

Procedure	Number of patients
Defunctioning colostomy	28
Abdomino-perineal excision of the rectum	4
Rectal dilatation	3
Pelvic exenteration	2
*Right hemicolectomy	1
Anterior resection	1
Jejunotransverse bypass + colostomy	1
Ileal conduit formation	1

\*For caecal metastasis. Combined data from literature.<sup>1,3,5,7,9-13,15-37</sup>

colostomy for large bowel obstruction (28/155, 18%). Of note, four patients underwent abdomino-perineal excision of the rectum and one patient underwent anterior resection of the rectum, because the pre-operative diagnosis was suspected to be rectal carcinoma.

In general terms, treatment appears to have been on a case-by-case basis. Patients with acute or incipient large bowel obstruction were managed by defunctioning colostomy and anti-androgen therapy postoperatively. The remaining patients were managed by either radiotherapy, anti-androgen therapy (medical or surgical orchidectomy), or a combination of these.

#### Outcome

Given the limitations of author bias, a symptomatic improvement was noted in 20/26 (77%) patients who

received radiotherapy and in 43/49 patients (91%) who received anti-androgen therapy (either medical or surgical). The median survival for the 86 patients with outcome data reported was 15 months (95% confidence interval 14–16 months) and the mean survival, 19 months (95% confidence interval 14–23 months). Survival beyond 30 months was rare.

## Conclusions

Infiltration of the rectosigmoid occurs in 4% of patients with prostatic adenocarcinoma. The most frequent presenting symptoms were constipation, abdominal pain, rectal bleeding and diarrhoea, symptoms identical to those seen with carcinoma of the rectum. Only 40% of patients reported in the literature were known to have adenocarcinoma of the prostate. A high index of suspicion is required if inappropriate resection is to be avoided. One-fifth of patients required colostomy in order to alleviate the symptoms of large bowel obstruction. Treatment with external beam radiotherapy and anti-androgen therapy resulted in symptomatic improvements in over three-quarters of patients. Rectal infiltration by adenocarcinoma of the prostate was a marker of advanced disease, few patients survived more than 30 months.

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