

Anal duct carcinoma: report of case and a survey of the experience of the American Osteopathic College of Proctology

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Anal duct carcinoma, also known as anal gland carcinoma or adenocarcinoma of the anal canal, is an unusual anal cancer that accounts for approximately 0.1% of all gastrointestinal cancers. Delays in diagnosis most likely account for the poor prognosis associated with this cancer. Presenting symptoms often mimic those of more common benign anorectal pathologic processes. Multimodality treatment that includes surgery, chemotherapy, and radiation therapy is often recommended. The authors describe a typical case of anal duct carcinoma and its management. They also discuss the findings of a survey of the combined experience of members of the American Osteopathic College of Proctology and review the literature.

(Key words: anal duct carcinoma, anal cancer, gastrointestinal cancer, adenocarcinoma, anorectal pathologic processes, proctology)

Anal duct carcinoma, also known as adenocarcinoma of the anal canal or anal gland carcinoma, is an extremely rare cancer. Anal carcinomas in general account for approximately 1% of all tumors of the gastrointestinal tract, and most of these are squamous cell carcinomas. Anal duct carcinoma, in turn, accounts for less than 10% of all carcinomas occurring in the anal canal.¹ The

reported 5-year survival rate ranges from less than 5% to approximately 40%.² The symptoms of this disease are similar to those of benign anal pathologic conditions (bleeding, pain, and discharge), a fact that often contributes to delayed diagnosis. The therapeutic approaches available for this cancer are drawn from fewer than 100 reported cases.² In a large survey of colon and rectal surgeons, only 16% of respondents had experience treating patients with anal duct carcinoma.² Because of the infrequency with which this highly lethal tumor is encountered, most physicians are unaware of the importance of this histopathology in determining therapeutic outcomes.

The following case report describes the presentation of anal gland carcinoma in a male patient and our experience treating him. The "Discussion" section includes findings of a survey of the combined experience of members of the American Osteopathic College of Proctology, a review of the histogenesis and

presenting symptomatology of the cancer, and a discussion of the treatment and prognosis.

Report of case

A 59-year-old man presented with a 2-month history of anal pain, burning, and change in the caliber of his stools. He had used stool softeners and topical creams for 1 month without improvement. The patient had a 2-year history of prolapsed hemorrhoids, which had spontaneously reduced and therefore required no surgical therapy. He had no previous history of colonic malignancy or surgery of the anus or colon. His past medical history included type 1 diabetes mellitus, hypertension, and coronary artery disease. Cardiac catheterization in 1997 revealed diffuse mild disease. The only remarkable finding of the physical examination was the absence of abdominal masses. Digital rectal examination disclosed edematous external skin tags, with induration of the posterior margin of the anal canal which was characterized as rubbery. He underwent rectal examination while under anesthesia, and subsequent biopsies revealed anal duct carcinoma. Computed tomography of the abdomen and pelvis and colonoscopy revealed no abnormality. Abdominal perineal resection was done. The plan had been to do the resection in conjunction with postoperative adjuvant leucovorin, 5-fluorouracil, and radiation therapy (45 Gy); however, the patient's medical comorbidities prohibited the use of adjuvant therapy. The lesion extended over 50% of the circumference of the anal canal and extended into skeletal muscle, smooth muscle, rectal mucosa, and dermis—and was staged as T3N0M0 (Figures 2 and 3). The patient died of pulmonary metastasis at 24 months postoperatively.

Discussion

Survey response

Given the rarity of this type of cancer, we mailed a survey to all members of the American Osteopathic College of Proctology regarding their experiences with anal duct carcinoma, so that we could provide a broader base of knowledge to

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The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

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supplement this case study. All surveys remained anonymous unless the responding physicians wished their identity known. Demographic data from the college were collected to include board certification in proctology and length of time in practice. Treatment options were listed, and the physicians were asked to choose the best option from a list that included local therapy, abdominal perineal resection, and combined chemotherapy and radiation therapy. Physicians were asked to estimate the 5-year survival of patients with anal duct carcinoma whom they had seen.

Of the college's membership, 33% responded to the survey. As expected, most respondents had no experience with this form of anal carcinoma. Respondents reported only five cases total. The estimated survival of the patients in these cases averaged 8 years, and all five patients were treated with multimodality therapy consisting of radiation therapy and combined-drug chemotherapy.

Review of the literature

Essentially, the anal intramuscular glands are simple tubular, sometimes branched, glands that open into the anal canal via the crypts of Morgagni. Histologically, they are lined by simple or cuboidal epithelium and may penetrate the internal and external sphincter muscles as well as the subcutaneous fat. These glands are basically modified sebaceous glands, the secretions being formed from sloughed epithelium. The function of the anal glands is to produce mucus, which is conveyed via the anal ducts to the crypts for lubrication. Because these glands extend downward into the tissues and outward into the sphincter musculature, the importance of these ducts and glands with regard to the spread of infection is considerable.³

The exact histogenesis of anal duct carcinoma is debatable and may vary from case to case. One plausible theory is that the site of origin may be the transitional epithelial region superior to the dentate line in the anus, which is composed of both squamous- and mucinous-



Figure 1. Macroscopic view of anal duct carcinoma.

producing elements.^{4,5} Other theories suggest that these tumors arise from perirectal apocrine glands or from anal intramuscular glands.^{6,7}

Although a tumor mass is commonly encountered in carcinomas of the anus or rectum, anal duct carcinoma can present as an extensive induration, stricture, or fistula in the perirectal tissue—without evidence of an obvious intraluminal mucosal growth.⁸ Therefore, anal duct carcinoma can be easily confused with benign entities such as fistulas, lymphogranuloma venereum, syphilis, tuberculosis, or Crohn's disease.⁸ By the time these anal duct tumors are found, they have often destroyed their sites of origin. For this reason, definitive identification of a primary anal duct carcinoma is extremely rare. When an anal duct carcinoma is diagnosed, the primary goal should be to delineate the carcinoma as primary or as a site of metastasis. Metastatic carcinoma of the anal glands can occur by way of deposition of malignant cells from carcinomas of the anus or rectum, by way of fistulization, by direct invasion, or through implantation by way of granulation tissue.⁸

The symptoms of anal duct carcinoma are similar to those of perirectal disease in general, and such symptoms often develop against a background of chronic perirectal disease. The sensation of a perianal lump, bleeding, pain, soiling, pruritus ani, changed bowel habits, pro-

lapse, and weight loss are the most common presenting features.⁹ Patients frequently have prolonged periods of symptoms before diagnosis and treatment.

The most recent demographic information on this cancer has been presented by Jensen and colleagues⁹ in a report of 21 cases, and from Abel and associates² in a survey covering 52 reported cases. These studies, although they took place in two different countries during different time frames, present many common trends among patients with anal duct carcinoma. They suggest that the typical patient is male and approximately 55 years old. The most common presenting symptoms were anal pain, rectal bleeding, and perianal mass. Most tumors were posterior, but nearly one third were localized laterally to the anus in the ischioanal space—and half of the tumors were seen with associated fistulas. Metastasis at time of presentation varied. Abel's group reported a 13.5% rate,² whereas Jensen's group noted a significantly higher rate of 62%.⁹ The most common sites of metastasis were regional lymph nodes, liver, lung, and peritoneum.

Treatment is surgical, most commonly abdominoperineal resection. Local excision is an option if the tumor can be excised and continence retained. In terms of neoadjuvant therapy, Tarazi and Nelson¹⁰ demonstrated a good response to external beam radiation therapy followed by surgical resection in 7 of 9 patients treated. Unfortunately, most patients tend to have advanced disease at the time of presentation, making the benefits of neoadjuvant therapy particularly problematic without obvious benefit. The success of chemotherapy combined with radiation therapy in treating similar carcinomas of the anal canal has encouraged clinicians to use the two modalities adjunctly for anal gland carcinoma. However, in reports by Cabrera and colleagues¹¹ and Abel and colleagues,² adjuvant therapy (radiation, chemotherapy, or a combination of the two) had no significant favorable influence on patients'

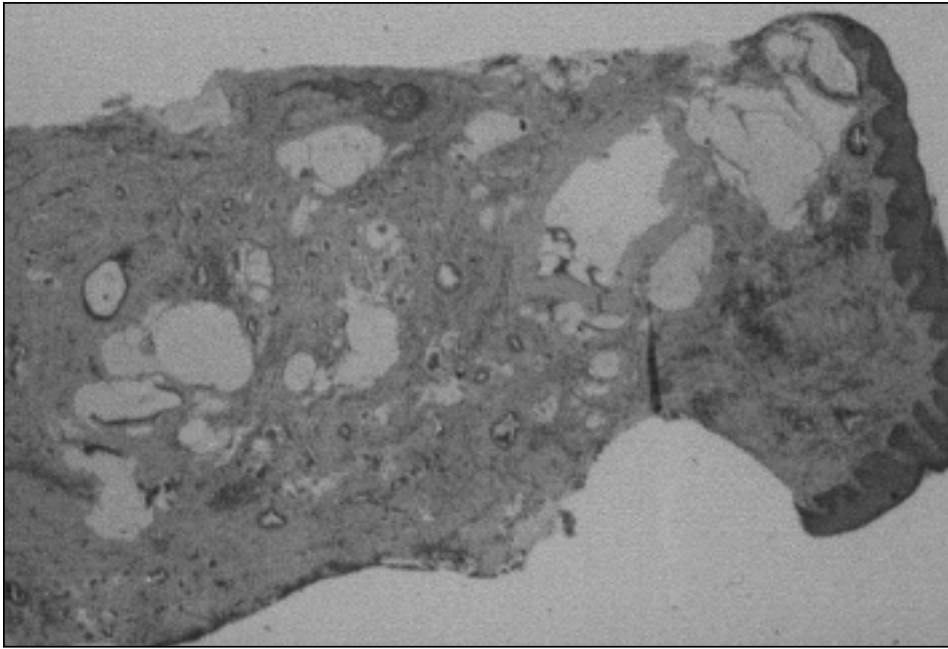


Figure 2. Hematoxylin-eosin–stained section of anal duct carcinoma (original magnification $\times 20$).

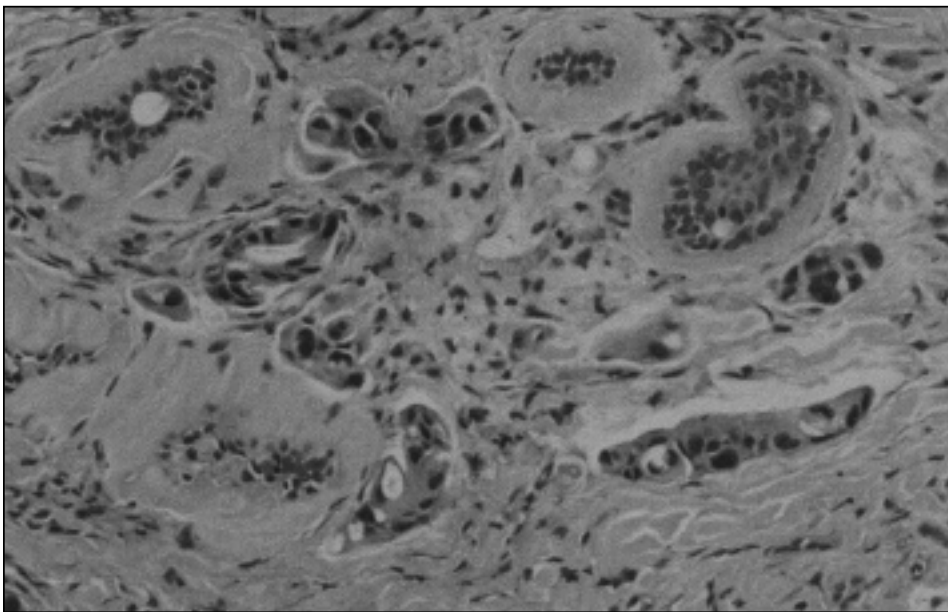


Figure 3. Hematoxylin-eosin–stained section of anal duct carcinoma (original magnification $\times 400$).

outcomes. Although such practices are not entirely discouraged, the role and benefit of neoadjuvant and adjuvant therapy for anal duct carcinoma remains unclear, particularly because the infrequency of the disease makes assessments of treatment efficacy difficult. Most patients with this disease will receive some

form of adjuvant therapy, however.

The overall survival of patients with anal duct carcinoma remains poor despite aggressive surgical and adjuvant therapy. In the 21 cases reported by Jensen and associates,⁹ the 5-year survival rate was 4.8%. Reports by Beahrs and Wilson¹² (6 cases) and Merlini and Eckert¹³ (9 cases)

demonstrate survival rates of 16% and 17%, respectively. Abel and associates² report a 5-year survival rate of 93%; however, these figures are skewed because only 15 patients of the 52 reported cases were followed up for 5 years. Overall, the 5-year survival rate for anal gland carcinoma should be considered to be less than 20%.¹

Once diagnosed, anal gland carcinoma becomes a disease best managed surgically. However, the primary care physician—not a surgeon or proctologist—will almost always be the first physician to encounter the early symptoms of this neoplasm. Anal duct carcinoma is a masquerader, and because of this, delay in diagnosis is common. Physicians often presume, based on medical histories, that patients with anal duct carcinoma actually have other more benign forms of perirectal pathologic processes. If patients fail to respond appropriately to medical treatment for the presumed benign disease, the physician should suspect a more malignant pathologic process and make an early referral to a specialist.

Comment

Anal duct carcinoma (anal gland carcinoma or adenocarcinoma of the anal canal) is an extremely rare disease, yet a highly fatal one. The key to survival is early consideration of malignancy. The healthcare provider must have a high index of clinical suspicion when assessing perianal disease.

With early diagnosis, abdominoperineal resection followed by adjuvant radiation therapy and chemotherapy may give the patient the best chance for survival. Granted, this disease remains largely obscure. But with each additional case report, the collective information on this disease is broadened. The one constant in all cases

reported to date is that the earlier the diagnosis, the better the chance of survival.

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