Omentalization of cystic sublumbar lymph node metastases for long-term palliation of tenesmus and dysuria in a dog with anal sac adenocarcinoma

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A 13-year-old castrated male Basset Hound was examined because of a 2-week history of severe constipation and tenesmus. Several days prior to referral, the dog had developed dysuria, anorexia, and intermittent vomiting. Abdominal radiography and urethro-cystography were performed by the family veterinarian prior to referral (Fig 1 and 2). The urethra was determined to be intact, and no obstruction was found. However, a considerable narrowing could be seen in the prostatic and pelvic portions of the urethra during urethrography. A large mass in the caudal portion of the abdomen appeared to be mechanically compressing the proximal portion of the urethra and was thought to be the cause of dysuria. Because of the possibility of a neoplastic process, thoracic radiographs were obtained, but no evidence of pulmonary metastasis was evident. A urinary catheter was placed prior to referral.

Physical examination (abdominal and transrectal palpation) after referral confirmed the presence of a large mass in the caudal aspect of the dog's abdomen. The mass was fluctuant, had a smooth surface with nodular regions, and extended caudally into the dorsal and left lateral regions of the pelvic canal. Approximately 80% of the pelvic canal appeared to be obstructed. Transrectal examination also revealed a pea-sized perianal mass in the region of the left anal sac. The dog had a grade-II/VI systolic heart murmur and a long-standing history of multilocal degenerative joint disease.

No other abnormalities were detected. Differential diagnoses determined on the basis of results of physical and radiographic examinations included prostatic cyst, para-prostatic cyst, prostatic abscess, abdominal neoplasia (primary or metastatic), cystic sublumbar lymph nodes, and retroperitoneal hemorrhage or fluid. Differential diagnoses for the perianal mass were perianal adenoma and anal sac adenocarcinoma.

The dog was admitted to the hospital for further diagnostic evaluations. Results of a CBC revealed mild anemia with PCV of 34.5%. Mild hypoalbuminemia (2.54 g/dl) was detected on serum biochemical analysis; other results were within reference ranges. Abdominal ultrasonography revealed the mass to be cavitary in nature and dorsocaudal in relation to other abdominal structures (Fig 3). A decision was made to explore the abdomen to resect the mass if possible, obtain tissue for histologic evaluation, and try to achieve palliation of constipation and dysuria.

Exploratory laparotomy revealed a large loculated mass in the dorsal aspect of the caudal portion of the abdomen. The mass was located dorsal to the aorta and iliac arteries, in the region of the sublumbar lymph nodes. It extended caudally into the pelvic canal but was not associated with the prostate. Local nerves and vessels (including the aorta) were closely associated with the structure. Because of the difficulty associated with resection, it was decided that omentalization would be performed after biopsy, in an attempt to palliate the dog's clinical signs.

The mass was incised, and a large volume of dark brown serosanguineous fluid was removed by aspiration. Complete drainage was achieved with minimal contamination of the abdomen. A small amount of fluid was collected and submitted for cytologic examination and for bacteriologic culture and susceptibility testing. As revealed during ultrasonography, the mass was cystic with a thick fibrous capsule and a large cavitary center. The interior of the cyst was explored, and several regions of friable soft tissue were found attached to the cyst wall. This tissue as well as a portion of the cyst wall was biopsied and submitted for histologic evaluation. The cyst was lavaged with saline (0.9% NaCl) solution, and a portion of omentum was introduced into the remaining cavity. The omentum was sutured to the edges of the cyst incision, using 3-0 polydioxanone in a simple interrupted pattern. The abdomen was copiously lavaged with saline solution and closed routinely. During recovery, the perianal mass was aspirated. Anal sac adenocarcinoma was diagnosed via cytolog-

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ic examination of the perianal specimen. Histologic evaluation of the abdominal mass and associated tissue revealed a lymph node effaced by a malignant cystopapillary adenocarcinoma. Cytologic examination of the cystic fluid supported the diagnosis of adenocarcinoma. No prostatic tissue was identified within the specimens, and no evidence of bacterial contamination was detected.

The cystic abdominal tumor within the sublumbar lymph nodes may have arisen as a result of metastasis from the apocrine glands of the left anal sac or by local tumor extension from the anal sac (although this was not detected during transrectal examination). In retrospect, because the perianal mass was likely the primary tumor, excision of this mass at the time of surgery would have been most complete. However, because of the small size of the mass and the fact that metastases were already present, it was decided not to perform further surgery at the time of definitive diagnosis.

The dog was able to urinate and defecate normally within several hours of surgery. The dog was reexamined 2 weeks and 1 month after surgery, and no signs of tenesmus or dysuria were reported. Radiation and chemotherapy protocols were offered as possible adjuvant therapies but were declined by the owners.

Reevaluation of the dog by the family veterinarian at approximately 3-month intervals was used to monitor the dog’s progress. Physical examinations and serum biochemical analyses were performed. The dog became hypercalcemic approximately 1 year after surgery, which was attributed to a paraneoplastic effect of the anal sac adenocarcinoma. The perianal mass, however, had not appreciably enlarged and was not causing local obstruction as may have been anticipated. Treatment with prednisone (1 mg/kg [0.45 mg/lb] of body weight, PO, q 24 h) and etidronate disodium (10 mg/kg [4.5 mg/lb], PO, q 24 h) was used to treat hypercalcemia after initial treatment with prednisone and IV administration of fluids alone proved unsuccessful. Intermittent diuresis via IV administration of fluids was required to help keep blood calcium concentration controlled during medical treatment. As blood calcium concentration increased over time, administration of prednisone was continued, and the dosage of etidronate disodium was gradually increased during a 6-month period to a final dose of 20 mg/kg [9.1 mg/lb], PO, q 12 h). Although the dog’s medical condition continued to worsen, constipation and dysuria did not return after the initial surgery. The dog died from respiratory failure 18 months after surgery.

A postmortem examination was performed. The omentum was found adhered to the sublumbar lymph node region where it had been sutured. Multiple masses were in the caudal portion of the abdomen in the region of the sublumbar lymph nodes, but no recurrence of the large cyst was identified. Diffuse lesions were seen throughout the lungs and were later diagnosed as metastatic adenocarcinoma via histologic evaluation. It is likely that these lesions eventually led to the dog’s death. Several other specimens were examined, but only the lungs and the sublumbar lymph nodes were affected by metastases.

Apocrine gland adenocarcinoma of the anal sac is a malignant tumor that commonly invades surround-
ing soft tissues and commonly metastasizes to other regions of the body. Metastasis can develop early in the disease and most commonly affects the sublumbar and iliac lymph nodes. Dogs affected with this form of adenocarcinoma are often referred to veterinarians for problems unrelated to the primary perianal mass. Common clinical signs include tenesmus and dyschezia attributable to sublumbar lymphadenopathy. Excision of the primary tumor is commonly performed, but resection of sublumbar nodal metastases can be difficult. The size, friable nature, vascularity, and invasive intra pelvic and intra-abdominal growth of these metastatic tumors may sometimes preclude surgery. In 1 study, complications associated with excision of sublumbar lymph nodes caused death in one third of dogs, with an additional one third developing transient urinary incontinence. Overall, dogs with anal sac adenocarcinoma that had evidence of metastasis before surgery have a reported median survival time of 6 months if surgical complications are not encountered.

For the dog of this report, the diagnosis of metastatic sublumbar adenocarcinoma had not been confirmed prior to the time of surgery but was suspected. The decision to pursue abdominal surgery was based on the ultrasonographic finding of cavitation, and severe constipation and dysuria. The presence of a cavitated mass made evacuation and drainage a possibility. Because the risks associated with attempted resection of the mass were great and because excision, even if achieved, was likely not curative, establishing a definitive diagnosis through biopsy and palliating the dog’s clinical signs via cystic drainage were the goals of surgical treatment.

A variety of drainage techniques for nonresectable cystic abdominal masses have been described. Ventral marsupialization has been used successfully for drainage of prostatic cysts. Because the mass in the dog reported here was located dorsally in the abdomen, ventral marsupialization could not be performed. Another described method of prostatic cyst drainage is via insertion of ventrally oriented Penrose drains. Penrose drains would have provided temporary drainage of this cyst, but it was believed that recurrence of a fluid-filled cavity was likely. Another treatment option was to create a large stoma to allow drainage of cyst contents into the abdomen. However, even large stomas can spontaneously seal and lead to cyst recurrence.

The omentum is an extremely versatile organ that has been used historically for a wide variety of surgical applications. Omentum can be used to reconstruct body wall defects, support grafted tissue, reinforce gastrointestinal and urogenital tract repairs, fill dead space, and resolve chronically infected loci. The organ is adaptable in many applications, because it adheres to traumatized tissues, is highly vascularized, and can promote angiogenesis. Because of an excellent lymphatic supply, the omentum can help drain effusions and provides local immunologic support.

Within the last decade, the omentum has been applied as a physiologic drain (through omentalization) to resolve continuously secreting fluid-filled abdominal lesions without walloping them off from the rest of the abdomen. Omentalization was initially used by White and Williams in the treatment of prostatic abscesses and has since proven useful in draining prostatic retention cysts, perinephric pseudocysts, and pancreatic pseudocysts. Partial resection and omentalization has been successful in providing long-term resolution of cyst secretory function in situations where complete resection was not possible.

For the dog reported here, omentalization was thought to be the best technique for providing a continuous method of drainage of the abdominal mass. Omentalization was a palliative alternative to aggressive resection. Although the omentum would presumably not have been of benefit for treating adenocarcinoma, once sutured into place it could serve as a drain for local fluid production. We speculated that omentalization would lower the probability of recurring fluid accumulation within the cystic mass (versus simple intra-abdominal marsupialization alone) and thereby prevent reexpansion as well as recurrence of tenesmus and dysuria.

Despite a diagnosis of adenocarcinoma, the dog’s clinical signs were palliated for 18 months after the initial surgery. Omentalization appeared to be a successful procedure in prolonging a good quality of life for this patient.

References