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Case Report

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One In A Million: Psoas Abscess After Allograft Nephrectomy, An Unusual Presentation Of An Appendiceal Cancer

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Abstract

A 56-year-old woman with a prior allograft nephrectomy presented with recurrent right psoas abscesses. A pelvic laparotomy and appendectomy revealed a rare appendiceal goblet cell adenocarcinoma (GCA).

Keywords: Renal Transplant; Appendiceal Goblet Cell Adenocarcinoma; Psoas Abscess; Oncology

Introduction

Psoas abscess (PA) is uncommon and due to hematogenous spread or direct extension of pathogens. Herein is presented a patient with recurrent PAs after an allograft nephrectomy who was incidentally found to have a rare appendiceal tumor at laparotomy.

Clinical Case Presentation

A 56-year-old woman underwent deceased donor renal transplantation in 2009 for end stage renal disease due to focal segmental glomerulosclerosis. Due to recurrent transplant pyelonephritis, she underwent allograft nephrectomy in 2020. Between November 2021 and November 2022, she was hospitalized four times for recurrent PA (Figure 1).

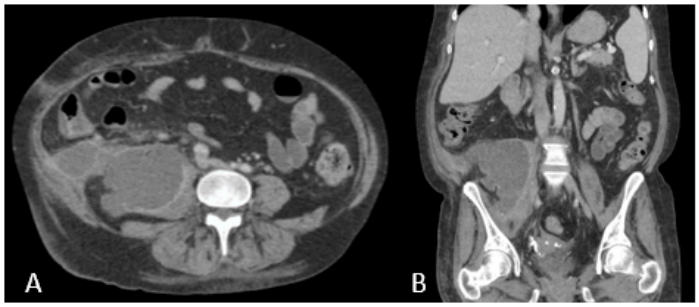

Figure 1: Axial (A) and coronal (B) slices from a computed tomography scan obtained during the patient's November 2021 hospitalization demonstrating a right psoas abscess.

During each hospitalization, she was treated with intravenous antibiotics and placement of a percutaneous drain. Cultures repeatedly grew Klebsiella pneumoniae. Cross sectional imaging

did not reveal any nidus for infection. Due to these recurrent infections, she underwent pelvic laparotomy in March 2023. The allograft bed, psoas, and surrounding bowel had severe scarring consistent with the prior infections. A scarred, tubular structure was excised from the area and sent for frozen microscopic examination. It was identified as appendix. Final pathology revealed a grade 3 appendiceal GCA with invasion through the muscularis propria into the subserosa (pT3). A robotic-assisted laparoscopic right hemicolectomy in September 2023 showed no residual malignancy. She has had no subsequent hospitalizations for PA.

Discussion

PA is an uncommon infectious process typically classified into primary and secondary types. The former involves hematogenous or lymphatic seeding such as from intravenous drug use or tuberculosis, with Staphylococcus aureus the common culprit pathogen. By contrast, secondary PA involves direct spread from adjacent structures and infectious processes, such as appendicitis, discitis, and osteomyelitis, and tends to be associated with enteric organisms. [1] Other processes that can lead to secondary PA include inflammatory bowel disease and malignancy. [2]

An English literature review revealed only 7 published cases of PA in kidney transplant recipients (Table 1). The time interval from transplant to diagnosis of PA varied from 2 months to 12 years. Proposed etiologies for PA included catheter placement for hemodialysis, prolonged hemodialysis, candiduria, and appendicular sinus. Infections associated with hemodialysis appeared to be the most common, presumably from seeding of an infected intravenous line.

Publication date	Sex	Age, years	Time from transplant	Presenting symptoms	Pathogens	Treatment	Proposed etiology
1994 [3]	F	45	2 years	Fever, abdominal and groin pain, reduced hip movement	Nocardia asteroides	Percutaneous then surgical drainage with antibiotics	Prolonged hemodialysis
1994 [4]	F	39	2 years	Fever, malaise	Mycobacterium fortuitum	Antibiotics	Not stated
2012 [5]	M	40	2 years	Reduced leg movement	Pseudomonas aeruginosa	Percutaneous drainage and antibiotics	Prolonged hemodialysis
2012 [6]	M	51	2 months	Lower back pain	Staphylococcus aureus	Percutaneous then surgical drainage with antibiotics	Hemodialysis line
2014 [7]	M	42	12 years	Fever, nausea, malaise	Candida albicans	Percutaneous drainage and antifungals followed by allograft nephrectomy	Candiduria
2015 [8]	M	58	11 years	Fever, weight loss, abdominal and groin pain, reduced hip movement	Nocardia beijingensis	Percutaneous drainage and antibiotics	Not stated
2016 [9]	M	61	10 years	Fever, abdominal pain, malaise	Enterococcus faecalis, alpha-hemolytic streptococci, Escherichia coli	Percutaneous drainage and antibiotics, appendectomy given appendicular sinus	Appendicular sinus

Table 1: Summary of literature regarding psoas abscess in kidney transplant recipients.

Pathogens cultured in the case reports included Staphylococcus aureus, Nocardia, Mycobacterium fortuitum, and enteric organisms such as Pseudomonas aeruginosa, Klebsiella, and Escherichia coli. Immunosuppression was commonly cited as increasing patient propensity to serious infections, although our patient was not on immunosuppressants at the time of her most recent recurrent PAs. As in the current case, the mainstay of treatment typically involves percutaneous drainage of the abscess and intravenous antibiotics. Surgical intervention was occasionally needed, and one patient underwent appendectomy for source control of an appendicular sinus.

The presence of an appendiceal GCA in this patient was unexpected but does not necessarily explain the delayed presentation of her PA after cessation of immunosuppression. This malignancy is exceedingly rare. A recent systematic review showed an incidence of 0.05-0.3 per 100,000 per year based on data from North American registries. [10] Only 369 cases of appendiceal GCA have been reported in the Surveillance, Epidemiology, and End Results (SEER) database from 1973-2001, with 80% occurring in Caucasian patients. [11] Median age at diagnosis is about 52 years without obvious predilection for gender, and on histology there is typically some neuroendocrine differentiation. [12]

Renal transplant patients are well known to have higher rates of malignancy and poorer outcomes once diagnosed, notably for skin cancers, renal cell carcinoma, and post-transplant lymphoproliferative disease. [13] Given the rarity of appendiceal GCA, it is not known if renal transplant status is a risk factor for this malignancy. There have not been other obvious risk factors for appendiceal GCA identified, although limited data from China show a possible association between appendiceal schistosomiasis and appendiceal GCA. [14]

Clinically, appendiceal GCA commonly presents as acute appendicitis, although a substantial minority of patients are asymptomatic at time of diagnosis. Other presenting symptoms include right lower quadrant pain, small bowel obstruction, and diarrhea, with about 10% of cases having widespread distant metastases, typically to the liver, ovaries, and the peritoneum. Chemotherapy regimens, when used, have been extrapolated from colorectal adenocarcinoma, and surgical treatment typically involves appendectomy and/or right hemicolectomy. Five-year overall survival ranges from 50-80% for loco-regional disease. [12]

Conclusion

To our knowledge, this remains the first report of an appendiceal GCA presenting with recurrent PA in a transplant recipient. Although we could not definitively link GCA to the patient's recurrent PA, this case highlights malignancy as a potential etiology for PA when it does not respond to appropriate antibiotics and drainage.

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