



A Nephrocutaneous Fistula Presenting as a Chronic Back Wound

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Abstract

Renal replacement lipomatosis is a rare condition that when arises usually presents as back or flank pain, dysuria, or an abdominal mass. We present a case of renal replacement lipomatosis that presented instead as a chronic back wound. Given that this pathology is readily treated with surgical intervention when performed in a timely manner, it is important to consider this as a possible diagnosis when chronic back wounds deviate from the expected time course of healing.

Keywords: Renal replacement lipomatosis; Chronic wound; Nephrolithiasis

Introduction

Renal replacement lipomatosis (RRL) is the deposition of adipose tissue in place of renal parenchyma. As this condition usually occurs in the presence of local chronic inflammatory states, approximately 70% of RRL are associated with calculous disease [1]. Previously reports document dysuria, hematuria, flank/abdominal pain, or abdominal mass as the initial stimulus leading to a diagnosis of RRL. We present a documented case of RRL that manifested instead as a recurrent back wound secondary to a nephro-cutaneous fistula. In the work-up of a recurrent flank wound without an obvious source, it is important to consider RRL as a possible etiology given that surgical intervention is the only potential cure.

Case Presentation

An 85-year-old female presented for evaluation of a chronic wound over the left back. On initial presentation in 1992, physical exam was thought to be consistent with epidermoid cyst formation after which time excision and primary closure were performed. Repeat excisions at this site were performed on five separate occasions between 1992 and 2011 by the patient's primary care physician, dermatologist, and surgical oncologist only to result in recurrence within 3-5 years after each excision. Pathology of these lesions demonstrated inflammatory tissue. Non-operative management with use of dressing changes failed each time.

Physical exam demonstrated a 1-cm wound over the left mid-back with granulation tissue at the base of a 5 cm deep tract (Figure 1). Due to concern for a fistula as the cause of delayed healing, a computed tomography (CT) scan was performed (Figure 2). Creatinine was .8. The scan demonstrated almost complete lipomatous replacement of the left kidney with a large stag horn calculus present along side a nephrocutaneous fistula. Originating from the remnant left kidney was a fistula tract through the paraspinous muscle and into the subcutaneous space consistent with the wound noted on physical exam.

A diagnosis of renal replacement lipomatosis was made. Based on the etiology of the recurrent wound, the patient underwent open radical left nephrectomy with excision of the nephro-cutaneous fistula tract. The previous fistula tract was closed with a paraspinous muscle advancement flap to reinforce the closure. The excised, remnant kidney is seen in Figure 3. Pathologic examination showed an end-stage kidney with extensive replacement of the renal parenchyma with scar, chronic inflammation, dystrophic calcification, and lipomatous changes with thyroidization of the residual kidney parenchyma without neoplastic change. Her post-operative course was complicated by a psoas abscess presenting at six months post-operative and centered on a retained stone in the operative bed. This was treated with percutaneous drainage, targeted intravenous antibiotic therapy, and wound care via her nephrectomy incision. The site of the previous fistula remained well-healed.

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Figure 1: A wound over the left mid-portion of the back that is approximately one centimeter in diameter is evident on physical exam. Serous fluid was easily expressed from this wound cavity which extended into the subcutaneous and deeper tissues by approximately five centimeters.



Figure 3: The excised kidney demonstrates evidence of parenchymal atrophy due to the substitution of fat for renal parenchyma. A kidney stone is visible within the specimen.

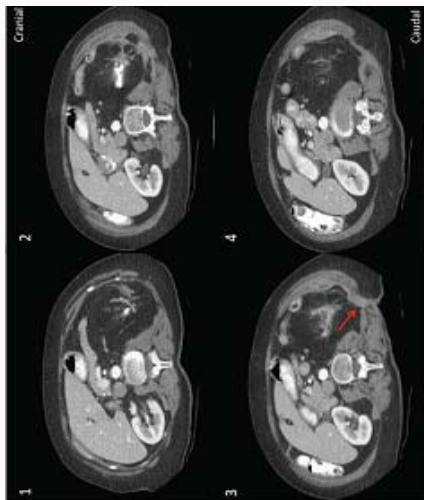


Figure 2: CT scan of the abdomen and pelvis demonstrates multiple fistulous tracts extending from the lipomatous kidney through the perinephric space and into the subcutaneous tissue of the lumbar region. There is complete replacement of the left kidney with lipomatous tissue. The right kidney is normal.

Discussion

Renal replacement lipomatosis (RRL) is a degenerative process within the kidney that worsens in severity as the kidney becomes atrophic due to replacement of parenchyma by increasing amounts of adipose tissue [2]. The rarity of this disease process makes this a very difficult diagnosis to make. First described by Brown et al in 1861, RRL most commonly occurs in patients between fifty to seventy years of age. Patients may present with symptoms such as flank pain, weight loss, hematuria, and a palpable mass on exam [2]. Often associated with unilateral hydronephrosis, calculous disease, and frequent urinary tract infections, we can now add recurrent back wounds and nephro-cutaneous fistula formation to this list of associated complications [3].

Given the nonspecific symptomatology common to this disease process, imaging studies are of utmost importance should this diagnosis be suspected. Both CT and MRI are valuable studies,

although CT is the more commonly employed in such settings [4-7]. While a broad differential diagnosis including angiomyolipoma, xanthomatous pyelonephritis, renal lipoma, and liposarcoma is necessary given the rarity of RRL, CT scan can clearly differentiate these conditions from one another [1,5,8]. Microscopic findings include proliferation of the renal parenchyma with large adipocytes and inflammatory cells. On gross examination, the kidney and perinephric space will be engulfed by tough, fibrous fatty tissue.

Unilateral nephrectomy is the standard of care in such cases given that the affected kidney is usually non-functional by the time the diagnosis of RRL is made [9]. In cases of concomitant nephrocutaneous fistula formation in the setting of RRL, we advise complete excision of the fistula with closure performed in an immediate fashion [10]. Following excision, we believe that local muscle flap coverage of the resultant defect will decrease the risk of fistula recurrence. Both paraspinous muscle flaps and latissimus dorsi flaps are standard reconstructive tools that should be considered. Thus, it must be acknowledged that immediate surgical intervention with a robust closure are required to optimize the likelihood of successful long-term resolution.

Conclusion

Renal replacement lipomatosis should be considered not only in patients presenting with abdominal pain, a flank mass, or dysuria in a setting of frequent urinary tract infections or kidney stones, but also in patients who present with chronic wounds of the flank region. Although a rare finding, consideration of this diagnosis is imperative in those cases deemed unresponsive to previous management strategies. CT scan is easily able to delineate RRL from other disease processes making early diagnosis and treatment possible, thus minimizing the emotional impact that such a disease process may have on patients suffering from this difficult yet readily treatable disease process.

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