

# A Case for a Local Flap as Primary Reconstruction for Hidradenocarcinoma of the Leg

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**Summary:** Hidradenocarcinomas are rare, aggressive sweat gland tumors typically occurring in the scalp and upper extremities. They have rarely been described in the lower extremity. Due to their rarity, there is little consensus on optimal adjuvant therapy for these tumors after resection. Regardless, it is important to plan tumor excision and subsequent reconstruction with adjuvant therapy in mind. This case report describes a patient for whom a local muscle flap with skin graft provided adequate wound coverage after excision of hidradenocarcinoma and negative-pressure wound therapy. The surgical site then withstood adjuvant radiation therapy. When radiation is planned to a wound bed after tumor excision, a local muscle flap is the excellent first choice over skin graft alone regardless of wound bed characteristics. (*Plast Reconstr Surg Glob Open* 2020;8:e2780; doi: [10.1097/GOX.0000000000002780](https://doi.org/10.1097/GOX.0000000000002780); Published online 18 May 2020.)

A 67-year-old man presented to our outpatient plastic surgery clinic for consult in August 2018, with a 3-month history of a painless mass on his right distal medial leg. The lesion was excised in October 2018. Dermatopathology of the excised lesion revealed hidradenocarcinoma with positive margins.

In late November 2018, the patient underwent resection with 3-cm margins to the level of the posterior compartment musculature, leaving exposed gastrocnemius tendon posteriorly. The wound was temporarily covered with a negative-pressure wound therapy system while awaiting margins. Sentinel lymph node biopsy was performed. Pathology at that time revealed an invasive, moderately differentiated carcinoma with squamous differentiation consistent with hidradenocarcinoma (Fig. 1). Special stains and immunostains performed supported the diagnosis. Margins were negative without lymphovascular invasion or invasion of the sentinel node.

The patient's oncologist recommended postoperative radiation therapy only. The patient's radiation oncologist prescribed 60 Gy of intensity-modulated radiation

therapy with image guidance administered over 30 doses 3 months after reconstruction.

In early December 2018, the patient underwent reconstruction of his right leg. Devascularized wound edges were freshened up, and the healthy-appearing fibrogranular wound bed measuring 10 × 12 × 1 cm was lightly debrided with a curette. A bipediced, right medial hemisoleus muscle flap was then advanced from the posterior leg to achieve complete wound coverage with well-vascularized tissue (Fig. 2). The exposed anterior muscle was then covered with a meshed, split-thickness skin graft harvested from the right thigh.

At 7-week follow-up, the patient enjoyed a fully healed wound notable for skin depression, scarring, and hyperpigmentation (Fig. 3). He complained of swelling in his right leg with examination significant for 2+ pitting edema, thought to be secondary to inguinal lymph node dissection. During subsequent radiation therapy, the patient experienced local dermatitis, hyperpigmentation, and edema. Topical emollients and profore wraps were applied to the leg and routinely changed to satisfactorily manage the patient's symptoms. On computed tomography scan and magnetic resonance imaging completed 6 months postoperatively, the patient remains disease-free and was content with the appearance of his healed wound.

## DISCUSSION

Hidradenocarcinomas typically occur in the scalp and upper extremities, but they have rarely been described in the lower extremity.<sup>1,2</sup> Recurrence and metastasis are common. The tumors comprise only 0.05% of all skin cancers, and there is little consensus on optimal adjuvant therapy.<sup>3,4</sup>

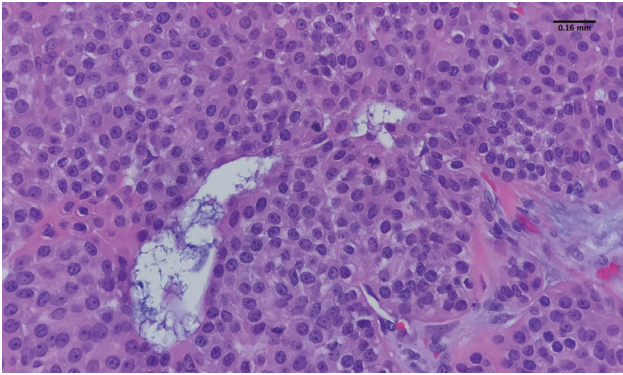
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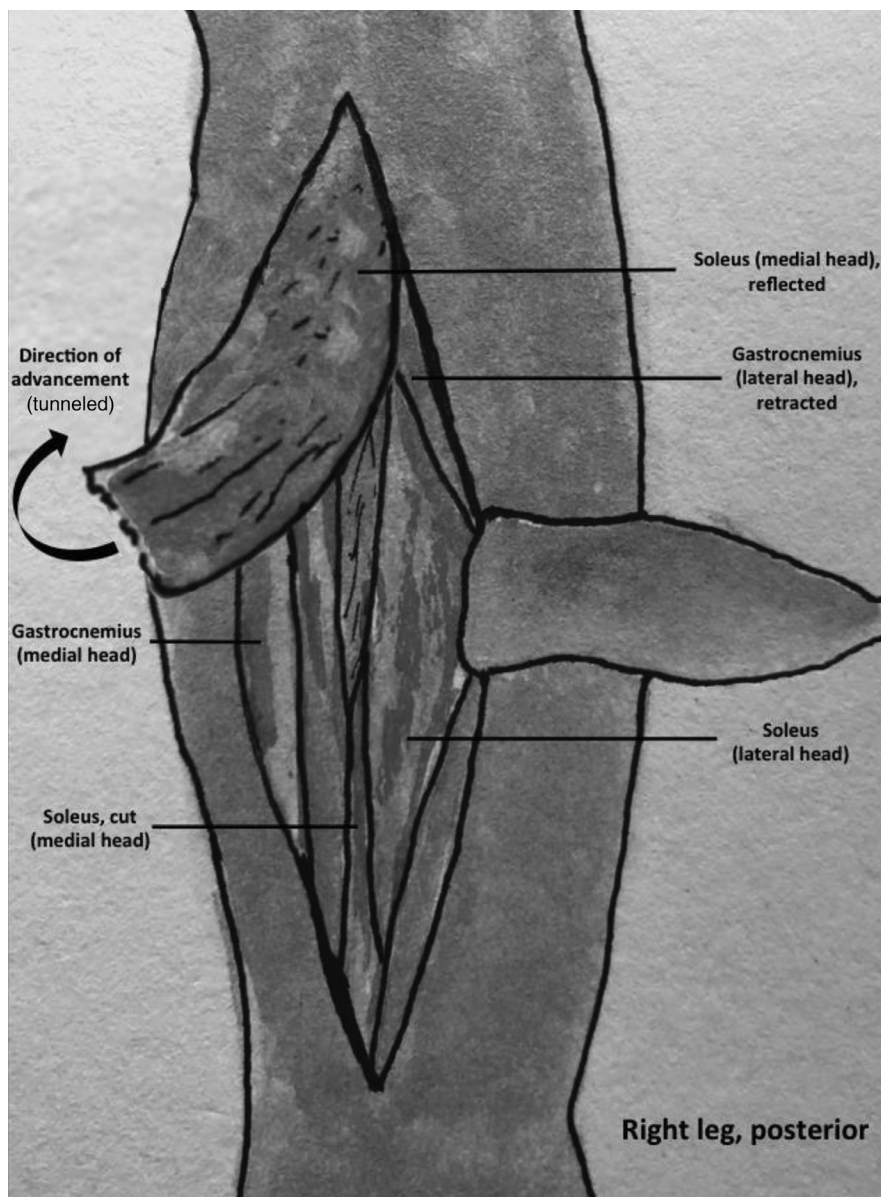
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**Fig. 1.** A microscopic image of the excised skin lesion from the distal right lower extremity under hematoxylin and eosin stain (magnification,  $\times 400$ ).

Despite chemotherapy and radiation, outcomes are commonly poor.<sup>5,6</sup> The diagnosis of this patient is unexpected, considering that other benign soft tissue masses such as lipomas, epidermoid cysts, furuncles, and even malignant squamous cell carcinomas, basal cell carcinomas, and other malignant adnexal carcinomas are more likely.<sup>7</sup>

Reconstruction of large ablative defects like this one should be planned with consideration given to future oncologic therapy. The possibility of postoperative radiation must, therefore, be incorporated into the planning of initial reconstruction, and more robust but more invasive options may be safer than less invasive but less durable choices. This is particularly important in an anatomically ungenerous donor area like the leg, where challenging defects often require microvascular free tissue transfer. We hypothesized that a local muscle flap would provide an adequate vascular



**Fig. 2.** An illustration of right medial soleus flap advancement.

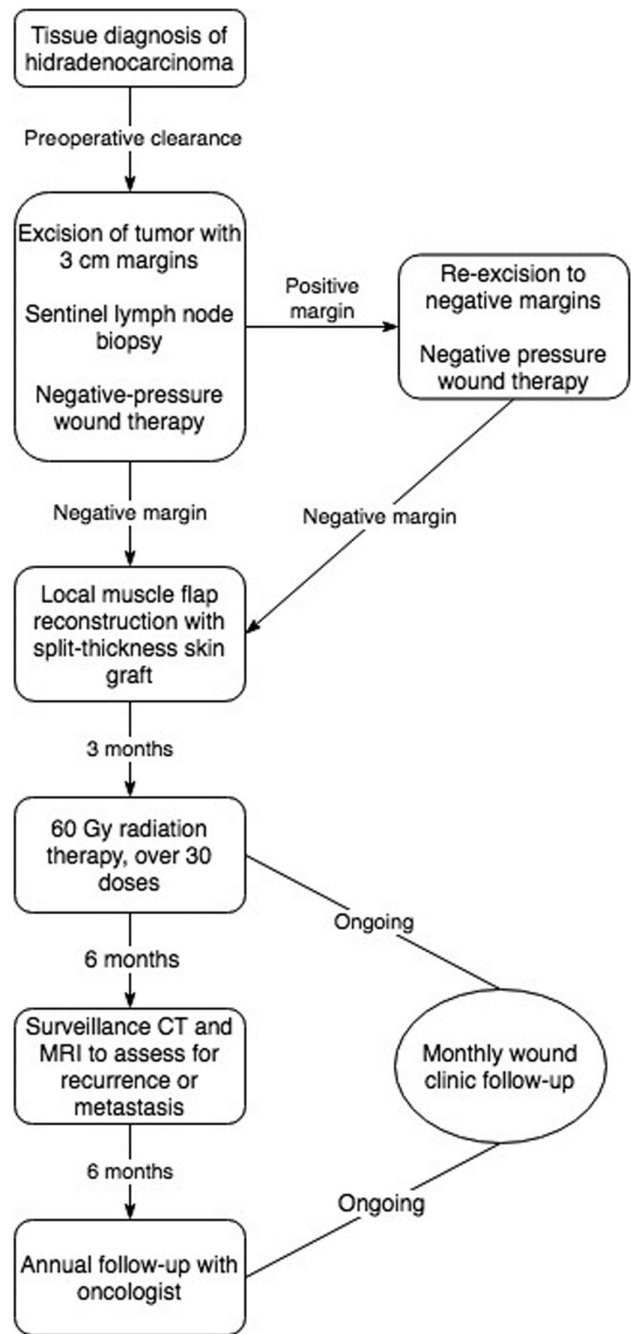


**Fig. 3.** Surgical site in the right medial leg 7 weeks after soleus flap and skin graft reconstruction.

bed for wound healing with minimal donor site morbidity. This reserves more invasive options for salvage reconstruction if needed in the future, considering that hidradenocarcinomas are at high risk for recurrence and metastasis.

On the other hand, a local flap was chosen over complete coverage with a skin graft for 2 reasons. First, exposed tendon at the base of a defect was a suboptimal wound bed due to relatively poor perfusion, particularly for a graft reliant on plasmatic imbibition to survive. Second, the microvascular injury caused by radiation therapy obliterates wound bed perfusion and can cause sloughing of even an apparently well taken graft. The benefits of “climbing the reconstructive ladder” with the simplest solution first must be balanced with the risk of reconstructive failure following irradiation, requiring a much more invasive salvage operation. Proceeding directly to an option in between may be the correct choice.

The authors suggest that for a patient with biopsy-proven hidradenocarcinoma, the lesion should be excised with 3-cm margins and a surgical oncologist should conduct a sentinel lymph node biopsy.<sup>9</sup> Negative-pressure wound therapy is a safe and acceptable temporizing measure while awaiting pathology.<sup>10</sup> If negative for nodal disease, immediate reconstruction should be carried out with a local muscle flap. Monthly follow-up is recommended to follow wound healing and monitor recurrence within the first year. Twelve weeks after surgery, the patient should undergo high-dose radiation therapy to the wound bed to



**Fig. 4.** Suggested therapeutic algorithm for the treatment of hidradenocarcinoma of the leg. CT indicates computed tomography; MRI, magnetic resonance imaging.

prevent recurrence, especially when positive margins are present. A plastic surgeon or specialized wound care team should follow the patient during therapy to monitor for complications (Fig. 4).

### SUMMARY

There is little consensus on an optimal treatment plan for hidradenocarcinomas due to their rarity. Adjuvant therapies administered for these tumors complicate



reconstructive options. Using local muscle flaps is the desirable acceptable choice for lower extremity reconstruction after a wide local excision of a hidradenocarcinoma with planned adjuvant radiation therapy and reserve free tissue transfer for further operations if necessary.

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