

Sacral Pressure Ulcer in Leriche Syndrome: A Case Report

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Summary: We experienced a case of a sacral pressure ulcer complicated with Leriche syndrome, an aortoiliac artery occlusion that has not been previously reported. In this case, the abdominal aorta below the bifurcation of the renal arteries into the bilateral common iliac arteries was occluded, and wound healing was delayed. Therefore, endovascular treatment was used for managing this condition, and wound healing was accelerated. Then, reconstructive surgery with a local flap was performed, and wound healing was achieved. In the case of delayed healing of buttock pressure ulcers, it is important to evaluate the blood flow in the iliac artery as well as the infection and nutritional status of the wound. In addition, after endovascular treatment, blood flow in the local flap is a matter of concern. If the wound healing is good, and imaging confirms that there is no restenosis at the endovascular treatment site and the perforator of the flap, reconstructive surgery can be performed safely. (*Plast Reconstr Surg Glob Open* 2021;9:e3971; doi: 10.1097/GOX.0000000000003971; Published online 29 November 2021.)

Leriche syndrome is a very peculiar and typical syndrome related to thrombotic obliteration of the end of the abdominal aorta.¹ Although no previous studies have reported on buttock pressure ulcers caused in Leriche syndrome, we believe that wound healing may be delayed due to occlusion of the iliac artery. It is also unclear whether a local flap can be safely used in reconstructive surgery, even after revascularization. We experienced a case of a sacral pressure ulcer in Leriche syndrome that was initially managed with endovascular treatment and then by reconstruction using a local flap.

CASE REPORT

A 52-year-old man with a history of cervical spinal cord injury at the C6 level had a sacral pressure ulcer that was reconstructed using a local flap 10 years ago, and cystostomy was performed for urinary management 1 year ago. He had no history of hypertension, diabetes mellitus, smoking, or hyperlipidemia.

He was admitted to the hospital for recurrence of a pressure ulcer in the sacral region 2 months earlier, which

rapidly worsened. This study was performed in accordance with the principles outlined in the Declaration of Helsinki.

On admission, the patient had a pressure ulcer with a skin defect of 3 cm and a pocket of 15 cm; he had severe infection as indicated by an elevated C-reactive protein level (19.70 mg/L) and an elevated white blood cell count (13,960/ μ L). In addition, the albumin level was 2.6 g per dL, and the patient had low nutritional status.

First, debridement of the necrotic tissue and exposed sacral surface was performed. Four days later, negative pressure wound therapy with instillation and dwelling (NPWT i-d) was performed for 15 days. Granulation was good, no biofilm was present, and magnetic resonance imaging showed no osteomyelitis in the sacral region; however, wound contraction was inadequate.

Twenty-one days after the initial debridement, the patient underwent additional debridement and stoma construction for wound management. NPWT i-d was performed for 23 days beginning the next day. His C-reactive protein level was 4.0 mg per L, white blood cell count was 7330 per μ L, infection was controlled, and albumin level had recovered to 3.0 g per dL; however, wound contraction was still inadequate.

Therefore, contrast-enhanced computed tomography (CT) was performed to clarify the cause of delayed healing. CT revealed occlusion from the abdominal aorta below the renal artery bifurcation to the bilateral common iliac arteries, and Leriche syndrome was diagnosed (Fig. 1). Endovascular treatment was performed by an endovascular physician. After thrombectomy, balloon dilation, and

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stent placement from the abdominal aorta to the bilateral common iliac arteries, blood flow was resumed.

Following endovascular treatment, NPWT was performed for 28 days, after which the wound shrank significantly. On day 46, before endovascular treatment, the size of the wound was observed to be 12 × 8 cm (Fig. 2), but on day 90, before reconstructive surgery, the size of the

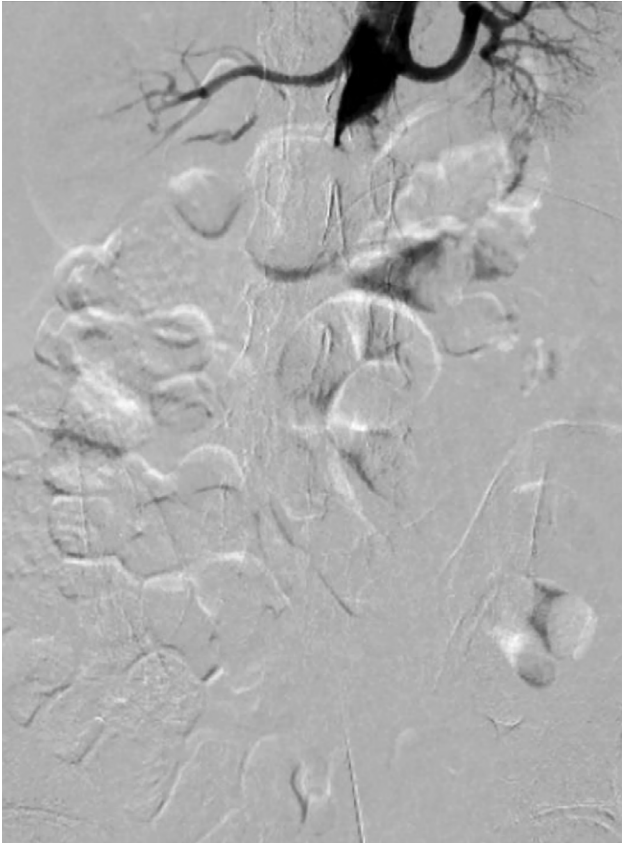


Fig. 1. Angiography before endovascular treatment for occlusion of the abdominal aorta below the bifurcation of the renal artery to the iliac artery.



Fig. 2. Appearance before endovascular treatment on day 46.

wound was observed to have considerably reduced to 6 × 4.5 cm (Fig. 3).

Reconstructive surgery was performed 90 days after the first debridement. Before performing reconstructive surgery, CT was used to confirm that there was no restenosis in the area where endovascular treatment was performed, and ultrasonography was used to confirm reliable perforators of the left superior gluteal artery. In the reconstructive surgery, after debridement, the left superior gluteal artery flap was designed. An 11 cm × 6 cm flap was elevated. The flap was rotated 90 degrees and the defect was covered.

Postoperatively, a hematoma developed, but healed without additional surgical treatment. No recurrence of the pressure ulcer was observed at 15 months after reconstructive surgery (Fig. 4).

DISCUSSION

Leriche syndrome is an aortoiliac occlusive disease in which arterial occlusion begins in the abdominal aorta below the bifurcation of the renal artery, and it is limited



Fig. 3. Appearance before reconstructive surgery on day 90.



Fig. 4. Appearance at 15 months after reconstructive surgery.

to the area around the bifurcation of the common iliac artery. Patients are usually young adults, mostly men, with symptoms such as intermittent claudication, impotence, and decreased or absent femoral pulse.¹ Leriche syndrome is caused by atherosclerosis. Modifiable risk factors for atherosclerosis include hypertension, diabetes mellitus, tobacco, and hyperlipidemia.²

In this case, the diagnosis of Leriche syndrome was delayed because the patient did not present with typical symptoms (eg, impotence or intermittent claudication) due to a cervical spinal cord injury, and there was no history of risk factors for atherosclerosis. Blood flow is commonly assessed in foot ulcers, but rarely in pressure ulcers of the buttocks. However, when the healing of buttock pressure ulcers is delayed, as observed in this case, evaluating blood flow in the iliac artery can be useful, along with the evaluation of general factors such as wound infection and low nutritional status.

In the past, bypass surgery was the main revascularization treatment for Leriche syndrome, but endovascular treatment has also become available recently.³⁻⁷ Bypass surgery provides good long-term patency, but its disadvantages include serious perioperative complications. Conversely, although endovascular treatment is minimally invasive, its disadvantages include stent restenosis, and long-term follow-up is required because of the lower long-term patency rates compared with those of bypass surgery.^{6,7} We chose endovascular treatment because the patient had a stoma and cystic fistula, and bypass surgery is associated with a high risk of wound infection.

In Leriche syndrome, only one case has been reported in which reconstruction of the buttock or perineum was performed.⁸ Therefore, the success of local flaps even after endovascular treatment is often unclear. In the present case, good granulation and marked wound contraction after endovascular revascularization were observed. Furthermore, CT before reconstructive surgery confirmed the absence of restenosis in the area managed with endovascular treatment, whereas ultrasonography showed reliable perforators of the left superior gluteal artery. Therefore, it was determined that reconstructive surgery with flaps using these perforators could be safely performed.

CONCLUSIONS

We experienced a case of a sacral pressure ulcer complicated by Leriche syndrome. Although wound healing was delayed due to occlusion of the iliac artery, endovascular treatment accelerated wound healing, and reconstruction was possible using a local flap.

Wound infection and a low nutritional status are common causes for the delayed healing of buttock pressure ulcers; however, evaluating the blood flow in the iliac artery is also important for ensuring appropriate healing. In addition, after endovascular treatment, local flaps are often indistinct. If the wound is healing well, there is no restenosis at the site of endovascular treatment, and the perforator of the flap can be reliably identified, safe reconstruction with a local flap is possible.

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