Since its first description by Quillen et al in 1978, the latissimus dorsi (LD) muscle flap is relied on for several indications, including head and neck reconstruction. When pedicled, it has been shown to be instrumental in patients who require salvage surgery, especially with compromised neck vessels.

Commonly used in practice for its inherent advantages, it is unusual for pedicled LD flaps to fail. Previous reports attributed poor vascularity or inappropriate flap design as causes of partial necrosis, whereas kinking or compression of the pedicle around the clavicle was found to cause total necrosis. Venous thrombosis has not yet been described as a potential cause for failure in pedicled LD flaps.

We want to gather awareness of a complication we encountered when a complete failure of a pedicled LD flap for neck coverage occurred due to subclavian vein thrombosis after insertion of a peripherally inserted central catheter (PICC) line.

CASE REPORT

A 66-year-old patient diagnosed with a parotid adenocarcinoma stage T4N1M0 was operated on for a combined mandibullectomy and neck dissection (zones Ia, Ib, IIa, IIb, III, and IV) with total parotidectomy. The procedure also involved a facial nerve decompression and mastoidectomy, resulting in a deficit ranging from the midcheek to the lower neck.

Intraoperative consultation for wound coverage was performed. A decision was made to reconstruct the skin and soft tissue of the right neck with soft tissue advancement and a musculocutaneous pedicled LD flap. The muscle and a skin paddle of 8 cm × 9 cm were harvested on the thoracodorsal artery and vein, which were dissected across the axilla and brachial plexus to the level of the clavicle. The flap was tunneled through the axilla and was inset on the neck, with careful placement of the pedicle to avoid kinking around the clavicle. No intraoperative complications occurred, and adequate perfusion of the flap was confirmed by a pink color of the skin paddle and capillary refill at 2 seconds.

Due to postoperative edema and failure of extubation, the patient was admitted to the intensive care unit. Because of difficulty with the insertion of peripheral catheters, a PICC line was administered by radiologists on the ipsilateral arm through the basilic vein, traveling via the axillary vein, subclavian vein, and superior vena cava.

On the third postoperative day, the flap demonstrated signs of venous congestion with a darker skin color and a rapid capillary refill (Fig. 1). Return to the operating room for exploration of the pedicle revealed slow but present venous flow on Doppler, without any kinks or external compression from hematomas and surrounding structures.

Intravenous heparin was started along with leeches to help with the venous congestion, albeit several transfu-
sions required for the replacement of blood losses. Medical management was continued for 3 days until a venous Doppler ultrasound demonstrated the lack of outflow of the subclavian vein. Re-exploration was performed on postoperative day 6 demonstrating thrombosis of the subclavian vein extending into the thoracodorsal pedicle to the LD flap (Fig. 2). In the context of extensive thrombosis and significant bleeding from the flap edges/leeching, a decision was made to remove the LD flap and opt for wound coverage with a retroauricular flap and negative pressure wound therapy. A second stage skin graft was performed 2 weeks later.

**DISCUSSION**

Because of the timing of venous congestion and no other plausible explanation for the extensive thrombosis down to the subclavian vein, we believe that this failure was a result of the PICC line insertion. In a large meta-analysis, Saber et al. identified 425 catheter-related thrombosis events in 5,636 patients (7.5%), with an increased risk associated with PICC lines. Subclavian vein thrombosis is a known complication of PICC line insertions and is the reason for the one observed in our case. Some common causes of thrombosis secondary to PICC line insertions include catheter malposition, an overly large catheter diameter, and catheter infection from the skin or other site. It is unknown if the pedicled LD draining with gravity further exacerbated the risk of PICC line-associated thrombosis on the ipsilateral side.

In terms of LD flap outcomes, an average of 85% complete success has been reported in the literature, with venous thrombosis being a well-known complication in free flaps only. To our knowledge, only one study made a distinction between free and pedicled LD flaps, stating the rate of failure due to venous thrombosis to be at 11.4% (4/35) and 0% (0/30), respectively. It is indeed unusual to experience such a complication without any external force applied on a pedicled vein. In our case, there was no local hematoma or kinking of the pedicle that could explain the venous occlusion.

**SUMMARY**

This case is the first to describe a failed LD flap due to a subclavian vein thrombosis secondary to an ipsilateral PICC line insertion. We believe that it is important for surgeons performing pedicled LD flaps, whether for head and neck reconstruction or for breast reconstruction, to enforce contralateral placement of central catheters by medical colleagues when necessary.

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