CASE REPORT

47. Reconstruction of a Large Lumbar Carcinoma Defect Using a Subtype III Keystone Flap: Case Report

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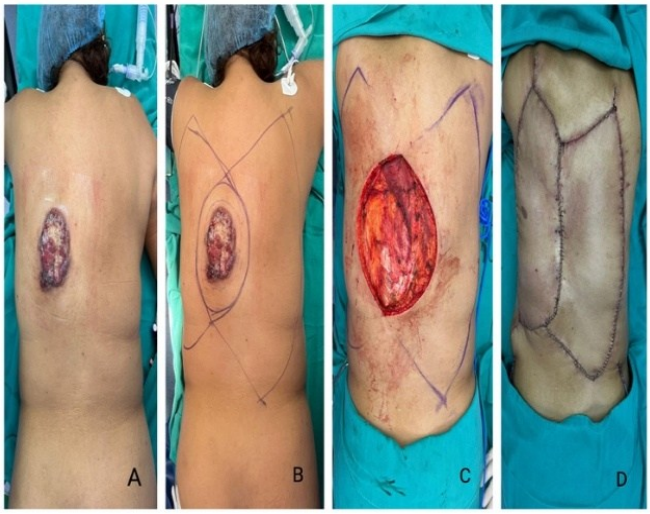
https://www.youtube.com/watch?v=4rJ3DHWeKRs&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=6&t=12678s

Background: Extensive cutaneous defects of the back following oncologic resection pose significant reconstructive challenges. Traditional techniques such as grafts, rotational or free flaps may involve prolonged operative times, donor-site morbidity, or microvascular complexity. The Keystone perforator island flap, is a fasciocutaneous trapezoidal flap based on vascular perforators that allows tension-free redistribution of local tissue. Its subtype III design, employing paired opposing flaps, is particularly suited for large dorsal defects.

The Case: A 66-year-old female, without significant past medical history, presented with a progressively enlarging exophytic mass in the lumbar region over a two-year period, associated with pain and malodor discharge. Clinical evaluation revealed an irregular, firm lesion with whitish discharge. The mass was completely resected with wide oncologic margins, resulting in a 22 × 16 cm cutaneous defect. Reconstruction was performed using a subtype III Keystone flap, designed with opposing trapezoidal fasciocutaneous flaps advanced in V-Y fashion. No preoperative Doppler was required due to predictable dorsal perforator anatomy. Closure was achieved without tension, and bilateral suction drains were placed. The patient was discharged after three days with no complications. Histopathology reported a poorly differentiated adenocarcinoma with comedo necrosis, lymphovascular invasion, frequent mitoses, and negative margins. At six-month follow-up, complete wound healing was observed, with no recurrence, functional limitation, or esthetic compromise.

Conclusion: The Keystone flap provides a versatile, technically accessible, and reliable method for reconstructing extensive back defects after oncologic resection. In this case, a subtype III design allowed effective closure with excellent functional and cosmetic outcomes, avoiding the need for microsurgical techniques. This case supports the Keystone flap as a valuable option for dorsal reconstruction in settings requiring efficient and safe locoregional solutions.

Figure 1. Surgical Reconstruction Panel: Back Defect Excision and Flap Coverage.



Legend: Intraoperative sequence of a subtype III Keystone flap for reconstruction of a large lumbar defect. (A) Preoperative view showing an exophytic carcinoma lesion in the lumbar region. (B) Surgical planning with trapezoidal flap markings on both sides of the tumor. (C) Wide oncologic resection leaving a 22 × 16 cm defect. (D) Immediate postoperative result after closure with a subtype III Keystone flap, demonstrating tension-free closure and satisfactory coverage.

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