

# Skin sparing saucerisation: Case report of a novel carbuncle excision technique

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## SUMMARY

**A carbuncle is a series of interconnected furuncles with multiple punctums requiring prompt surgical intervention. Saucerisation involves a wide excision of the carbuncle's necrotic center and surrounding cellulitis. While excellent at providing adequate sepsis control, the resultant cutaneous defect is often associated with prolonged healing times and unsatisfactory cosmesis. A variant of the saucerisation procedure described in the following case report which has been shown to not only provide satisfactory evacuation of infected tissue, but a cosmetically superior outcome as well. This is to the best of the authors' knowledge, the only description of this procedure in the English language literature.**

## INTRODUCTION

Skin and soft tissue infections are frequently encountered in most clinical settings. If left untreated, they could potentially result in serious, life-threatening complications. The importance of early recognition and prompt medical and/or surgical intervention cannot be overemphasized. Risk factors for soft tissue infection include trauma, and the immunosuppressive states associated with diabetes, steroids, and immunosuppressant therapy, among various other causes.

A furuncle is a painful, inflammatory subcutaneous nodule involving a hair follicle that typically follows an episode of folliculitis. A carbuncle is a series of interconnected furuncles that drain via hair follicles.<sup>1</sup> A central area of necrosis, walled off by a pseudo capsule is often surrounded by a rim of cellulitis, and the draining hair follicles usually appear as multiple openings.<sup>2</sup> Staph aureus is the most frequently encountered causative organism.

Treatment of carbuncles involves antibiotics and surgical intervention, either in the form of incision and drainage, or wide excision of the necrotic center and surrounding cellulitis, a procedure frequently termed saucerisation. We report on a variant of this commonly performed procedure.

## CASE REPORT

A 69-year-old otherwise fit and healthy male presented to our Emergency Department with a painful left thigh lesion that had been present for the past week. A carbuncle was visible at the anterior aspect of his thigh, measuring approximately 7 cm x 5 cm and actively discharging pus from several

punctums at the center of the inflammatory mass within a 3–4 cm necrotic area. The patient had a low-grade temperature of 37.7°C with a blood pressure of 130/85 mmHg, pulse rate of 87/min, and oxygen saturation of 99% on room air.

Initial blood tests revealed an elevated white blood cell count of 12 x 10<sup>9</sup>/L and a C-reactive protein level of 24 mg/L. The other blood tests, including a blood glucose level, renal profile, and liver function tests were unremarkable. He was commenced on intravenous Ampicillin/Sulbactam as empirical coverage for gram-positive cocci. A saucerisation procedure was planned for the following day.

Intraoperatively, a longitudinal elliptical incision was made over the area of inflammation to open the carbuncle. The ellipse was limited to the carbuncle's central area in order to enable removal of necrotic tissue. The intact skin overlying the inflammatory mass was not incorporated in the elliptical incision (Figure 1). The necrotic and infected tissue contained within the carbuncle was completely excised, leaving behind healthy-looking fatty tissue edges and base. The resultant cavity was packed with a betadine-soaked ribbon gauze.

The post-operative recovery was uneventful and the patient was discharged the following day with a course of oral antibiotics and instructions to undergo daily wound packing and twice daily dressing changes at a local health facility.

He was reviewed as an out-patient after a week. The wound was noted to be clean with minimal slough and there was no residual pus or lateral cavitation. The wound base and lateral edges were noted to be granulating well, and the induration had resolved. The wound swab culture results revealed Staph. aureus sensitive to the prescribed antibiotics.

The patient's dressing was changed to a normal saline and hydrocolloid one as there was very minimal slough with no evidence of ongoing inflammation.

Three weeks after the initial saucerisation, the inflammation around the wound cavity had completely resolved with no residual slough. Healthy granulation tissue was present within the base and wound edges and the patient subsequently underwent a delayed wound primary closure (Figure 2). The wound had completely healed without any evidence of residual inflammation during a subsequent visit 3 weeks later.

*This article was accepted: 24 August 2022*

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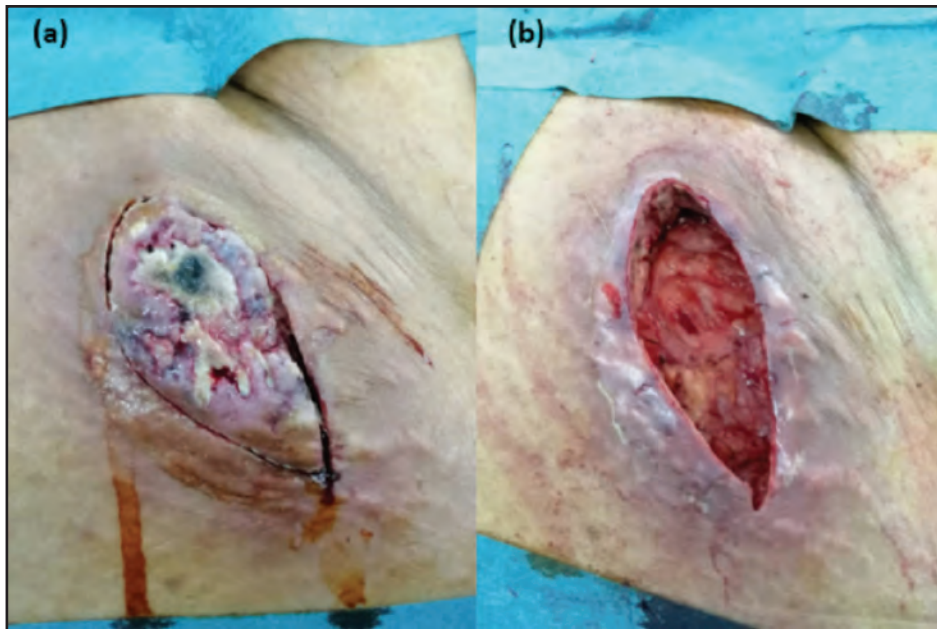


Fig. 1: (a) Elliptical incision around necrotic centre. (b) Clean base following excision of necrotic area.

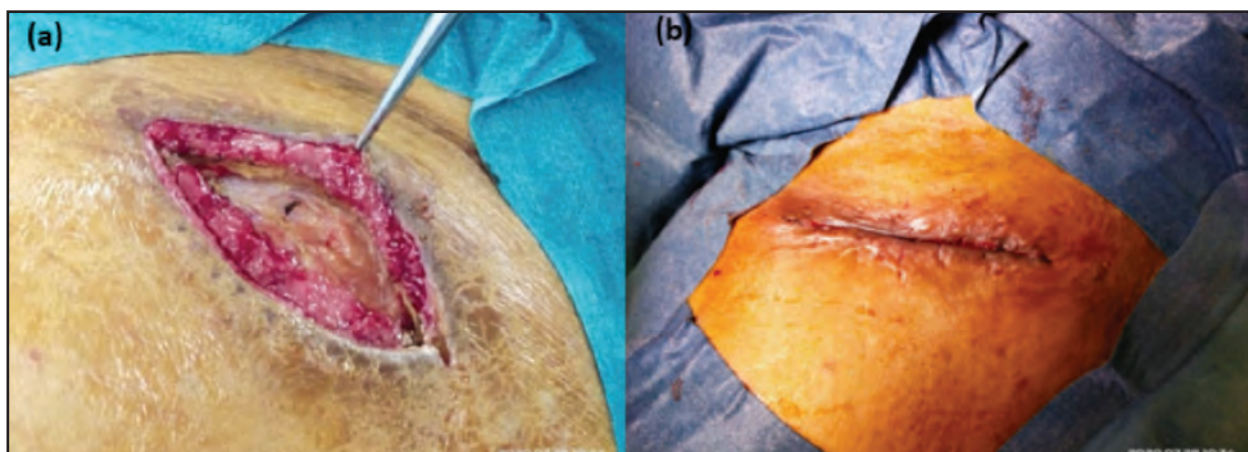


Fig. 2: (a) Skin flaps raised to enable tissue mobilisation. (b) Closure with a continuous absorbable suture.

## DISCUSSION

The age-old carbuncle treatment of saucerisation has stood the test of time in providing adequate sepsis control and prevention of early recurrence. A wide excision performed at saucerisation with meticulous removal of all necrotic and infected tissue is key to complete carbuncle eradication.

Such a practice usually will result in a large cutaneous defect which often requires weeks or months to heal by secondary intention. The frequent visits to health facilities, prolonged dressing periods, and pain and discomfort, are often associated with significant impairment in quality of life or function. Patients with carbuncles usually have underlying co-morbidities like diabetes mellitus and organ failure. This makes early closure of the defect by means of skin graft or flap less favorable, as they are often associated with infection-related complications and poor healing.

Other treatment approaches have been described, often with the primary aim of achieving cosmetically superior outcomes, or sepsis control in carbuncles located in anatomically challenging regions. Iyer et al. saw the practice of carbuncle excision and split skin grafting of the resultant defect as a single-stage procedure associated with a modest 66% success rate.<sup>3</sup>

Ngui et al. described the practice of individual punctum rupture, with minimal debridement and irrigation with an antibiotic-based solution for carbuncles of the lip and face.<sup>4</sup>

This case has demonstrated the ability to achieve early wound closure, allowing healing by primary intention with a resultant cosmetically acceptable outcome in carbuncle treatment. This is achieved by limiting one's saucerisation margins to only the necrotic skin, preserving all normal overlying skin. The carbuncle which is normally located in

the dermis and subcutaneous tissues is excised by undermining the overlying healthy skin. The normal skin is preserved, and the resultant post-operative cavity is dressed to ensure adequate infection control, ensuring no residual infected or non-viable tissue. A delayed primary closure is performed once the cavity is clean and has started granulating.

The key elements of this technique are:

- i) Complete removal of all infected tissue, but limiting the margins of the excised ellipse to necrotic skin only, and the depth of the excision to the most superficial layer of healthy subcutaneous fat
- ii) Preservation of healthy, non-necrotic skin.
- iii) Whenever possible, minimizing tension on the wound by excising the skin ellipse along Langer's lines
- iv) Regular dressings ensure adequate infected tissue removal, allowing early formation of granulation tissue.
- v) Delayed primary closure at the earliest available opportunity reduces the amount of scarring and tissue contraction, allowing a technically easier and cosmetically superior wound closure.

This technique heralds the prospect of faster carbuncle wound healing, and to the best of the authors' experience, can be used to excise most carbuncles on the trunk and the extremities, with larger defects possibly requiring flap coverage. The use of this technique in other specialized regions such as the face raises an interesting thought; the prospects of which could potentially be evaluated by means of larger case series. This is of particular clinical importance

as most carbuncles tend to occur in areas with a thick subcutaneous layer, and cutaneous lesions on the face tend to prompt early presentations to health services.

The full range of clinical utility heralded by this technique can only be evaluated by further research, in addition to its limitations and the technical expertise required to achieve as consistent a surgical outcome as possible.

## CONCLUSION

This described excision technique demonstrates the feasibility of combining adequate sepsis control with superior cosmesis, and its ability to be applied to most anatomical regions is testament to its full range of clinical utility. This is to the best of the authors' knowledge, the only description of this procedure in the English language literature.

## REFERENCES

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