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**“Incidence of Fat Necrosis Associated with Compromised
Subdermal Plexus of DIEP Flaps for Breast Reconstruction”**

Abstract

Introduction

The deep inferior epigastric perforator flap (DIEP) is a major workhorse in autologous breast reconstruction. However, despite advancements in flap optimization, fat necrosis (FN) remains a problematic complication for both the patient and the surgeon, and rates are estimated to range from 6-17.4%.¹ The pathophysiology of FN implicates compromised vascular supply and drainage of the flap. Anatomic studies of the blood supply to abdominal fat revealed two sources: perforating blood vessels from a deep subcutaneous plexus and the subdermal plexus.² In certain types of reconstruction flaps may be almost completely deepithelialized, and thus the subdermal plexus incidentally compromised. The purpose of this study was to evaluate the clinical incidence of FN after de-epithelialization and excision of the subdermal plexus within completely buried flaps used for breast reconstruction.

Methods

We performed a multi-center, multi-surgeon retrospective study of all DIEP flaps used for breast reconstruction. The primary outcome measured was the incidence of fat necrosis within completely buried and deepithelialized flaps relative to flaps that were not completely buried, and thus maintained at least part of their subdermal plexus. Patients were excluded from the study if breast reconstruction was performed with stacked flaps, if there was inadequate follow-up time, or if hybrid breast reconstruction with a flap and implant/expander was performed.

Results

129 patients were included in the completely deepithelialized flap group and 446 patients were included in the non-completely deepithelialized flap group. The incidence of fat necrosis was similar between the two study groups (17 or 13.2% in completely buried versus 56 or 12.5% in non-completely buried flaps, p value 0.94). The number of perforators included in each flap dissection ranged from 1-3. Follow-up time for patients was at least 3 months.

Conclusion

In conclusion, the subdermal plexus may not play a significant role in contributing to the vascular supply of abdominally-based free flap breast reconstruction, and complete flap de-epithelialization would appear to be a reasonable technique to pursue without fear of adverse consequences.