

# **Topical Nitroglycerin Ointment Reduces Mastectomy Flap Necrosis in Immediate Autologous Breast Reconstruction**

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## **BACKGROUND:**

Mastectomy flap necrosis is a common complication of immediate breast reconstruction that greatly impacts patient satisfaction and cosmetic outcomes. Topical nitroglycerin ointment, at low cost and with negligible side effects, has been shown to significantly decrease the rate of mastectomy flap necrosis in immediate implant-based breast reconstruction. However, the utility of nitroglycerin ointment has not been studied in immediate autologous reconstruction.

## **METHODS:**

After obtaining IRB approval, a retrospective cohort study of all patients undergoing immediate free flap breast reconstruction by a single reconstructive surgeon and a single institution between April 2019 and December 2019 was performed. Patients were divided into two cohorts: those receiving 30mg of topical nitroglycerin ointment to each breast at the conclusion of the operation (September 2019-December 2019) and those who did not (April 2019-August 2019). Patients routinely underwent intraoperative SPY angiography and mastectomy skin flaps were debrided intraoperatively based on imaging. Independent demographic variables were analyzed and dependent outcome variables included mastectomy skin flap necrosis, headache, and hypotension requiring removal of ointment.

## **RESULTS:**

A total of nine patients (14 breasts) were included in the nitroglycerin cohort and a total of 12 patients (16 breasts) were included in the control group. There was no significant difference in patient demographics, medical comorbidities, or mastectomy weight between cohorts. There was no significant difference in the use of SPY angiography between cohorts. The rate of mastectomy flap necrosis decreased from 62.5% in the control group to 21.4% in the group that received nitroglycerin ointment ( $p=0.023$ ). The rate of full thickness necrosis requiring debridement decreased from 50% to 7.1% ( $p=0.01$ ). There were no documented adverse events associated with nitroglycerin use.

## **CONCLUSIONS:**

Topical nitroglycerin ointment significantly decreases the rate of mastectomy flap necrosis in patients undergoing immediate autologous breast reconstruction without significant adverse effects.