

# Neutral Plasma Coagulation (NPC) – A Preliminary Report on a New Technique for Post-Bariatric Corrective Abdominoplasty

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## Background

Post-bariatric corrective abdominoplasty has become increasingly popular with the development of laparoscopic bariatric surgery and obesity. Due to the extensive dissection involved in this surgery, 6 to 33% of the patients experience postoperative complications such as seroma and hematoma. These may in turn induce healing problems such as wound dehiscence or skin necrosis. Drains are usually left in place for a while after the surgery but these drains may further increase the risk of infection and, above all, the length of hospital stay.

Current coagulation techniques involve electrosurgery and standard sutures applied to local bleeders. Recently a new coagulation device using neutral argon plasma has been introduced by Plasma Surgical Limited. The PlasmaJet™ utilizes the high energy of pure plasma (ionised gas) to desiccate tissue and create a low penetrating, homogeneous and complete sealing of small blood vessels and lymphatics. Applied to the entire dissection surface in large paint-stroke movements, this new technology may help reduce fluid collections in abdominoplasty patients.

## Objectives

Evaluate the effect of neutral plasma coagulation on the drains' output and complication rate in post-bariatric corrective abdominoplasty patients.

## Materials and Methods

Between November 2004 and April 2005, 14 bariatric patients operated for corrective abdominoplasty in the Department of Digestive Surgery, Nice University Hospital, France, were treated with the PlasmaJet™. At the end of the surgery, the entire subcutaneous surface of the abdominal flap and the fascia of the abdominal wall were "painted" with the PlasmaJet™ set at 40% power. Two drains were left in place after the surgery until the daily output decreased below 30cc. All patients wore an elastic waistband according to the standard hospital procedure.

## Results

Overall drain output was significantly reduced when compared to the experience in the department for this procedure. Several patients were discharged one or two days earlier than the normal hospital stay. No subcutaneous collections or infections were experienced.

## Conclusion

The PlasmaJet™ proved safe and efficacious in the hemostasis and lymphostasis of post-bariatric corrective abdominoplasty procedures. The device was easy to use and required little training of the surgeons and OR staff. A trend toward less complications, reduced drain output, and shorter hospital stay has been observed.

Neutral Plasma Coagulation appears as a promising alternative to current coagulation techniques in the treatment of post-bariatric abdominoplasty patients. A controlled, randomised study is ongoing to confirm the potential benefits of this new technology.

*Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.*

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