Abstract

Introduction
Post-surgical incision healing complications can vary in severity from mild cases needing local wound care to serious cases with multiple reoperations and a high mortality. Applying NPWT as a post-operative dressing for closed incisions has demonstrated a number of benefits.

Method
200 patients undergoing bilateral reduction mammoplasty and who were suitable for inclusion in the PICO were recruited into a prospective, randomised, intra-patient, comparative, multi-centre study (in contrast in USA, South Africa, France, and the Netherlands). Each patient was treated with both PICO and standard care for up to 14 days to enable a within patient comparison. Follow-up assessments were carried out to evaluate the differences in incision healing complications between PICO and standard care to 21, 36, 90 and 180 days post surgery (Primary Endpoint). Healing complications were defined as delayed healing (infection or not closed by 7 days), or occurrence of dehiscence or infection within 21 days. Differences in scar quality, and aesthetic appearance were also assessed using the The Patient and Observer Scar Assessment Scale (POSAS) and The Visual Analogue Scale (VAS) at 42 and 90 days.

Results
Significantly fewer overall healing complications had occurred by 21 days post surgery when treated with PICO compared to standard care (16.2% vs 26.4%, p<0.001). C.I 2.0% to 9.2%. Treatment with PICO resulted in significantly fewer incidences of dehiscence compared to standard care (15.2% vs 35.2%, p<0.01) by day 21 (p<0.01). Scar quality as measured by the VAS and POSAS scoring systems was shown to be significantly better on PICO treatment than Standard Care, both at the 42 and 90 day assessment (p<0.001).

Conclusion
Treatment of closed surgical incisions with a NPWT system in the form of PICO leads to a statistically significant reduction in incision healing complications, in particular a significant reduction in post-surgical dehiscence and a statistically significant improvement in scar quality within the first 3 months after the procedure.

Purpose of the Study
To assess the efficacy of the Single-Use Negative Pressure Wound Therapy (NPWT) system (PICO) to reduce post-operative complications after reduction mammoplasty and to assess the aesthetic appearance and quality of the resulting scar.

Materials and Methods

**Fig 1.** Within patient difference VAS score (PICO – SC)

**Table 1.** Scar type at follow up assessment

**Fig 2.** Within patient difference POSAS score (PICO – SC)

Clinical case example

Patient’s medical history:
35 year old female, status post bilateral reduction mammoplasty.

Treatment objective:
Minimal reduction mammoplasty with Superomedial Pedicle technique - 2024 g.

Outcome:
35 year old female, status post bilateral Superomedial Pedicle technique mammoplasty. No complications noted. Overall, there was a subjective feeling that the PICO treated side was healing better compared.

Conclusion
Treatment of closed surgical incisions with a NPWT - system in the form of PICO leads to a statistically significant reduction in incision healing complications (particularly dehiscence) and a significant improvement in scar quality.