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Correspondence and Communications

Variation in the perioperative care of women undergoing abdominal-based microvascular breast reconstruction in the United Kingdom (The OptiFLAPP Study): A response to the authors

Dear Sir,

We read with interest the recent article by the optiFLAPP Collaborative regarding the variation in the perioperative care of women undergoing abdominal-based microvascular breast reconstruction in the United Kingdom.[1] This study highlights the importance of length of stay as an outcome measure and showed a median length of stay of 5 days, 2 days longer than the published ERAS recommendations.[1,2] The principle three areas that contribute to length of stay are flap success, drains and mobilisation. It is our view that early mobilisation is the most important determinant in reducing length of stay. Published articles from teams who have adopted ERAS pathways within their units have shown a reduction in length of stay when combined with aggressive physiotherapy regimes.[3,4]

The ERAS paper strongly recommends that early mobilisation should be encouraged within 24 hours of surgery. In our unit we have adopted all of the ERAS recommendations and modified them to develop our own enhanced recovery protocol for microsurgical breast reconstruction. This has a strong emphasis on early mobilisation with patients sitting out on the morning of day 1 with mobilising to the toilet on day 2, followed by corridor and stair assessment on day 3.

We have audited this protocol within our unit and have demonstrated a reduction in median length of stay from 7 days to 3.5 days ($p < 0.05$). This has resulted in a cost saving of 3 bed-days, estimated by our trust to be approximately £1400 per patient. We have found no increase in donor site morbidity.

We complement the optiFLAPP Collaborative on their extensive survey but would urge their future studies to include inpatient physiotherapy treatment as an important variable in both the care and outcomes of these patients.

Conflict of interest

None.

Acknowledgement

None.

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Laura J. Simpson, Will J.M. Holmes
Department of Plastic Surgery, Pinderfields Hospital, Aberford Road, Wakefield WF1 4DG, United Kingdom

E-mail address: Laura.simpson11@nhs.net (L.J. Simpson)

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A cost effectiveness analysis of paravertebral blocks in immediate breast reconstruction following mastectomy

Dear Sir,

Immediate breast reconstruction following mastectomy has seen unprecedented growth in recent years,[1] fueled by improved procedural and aesthetic outcomes. The increased popularity for immediate reconstruction and a shifting focus towards ambulatory surgery has been met by growing regulatory pressures for quality assurance, safety and patient satisfaction. Postoperative pain remains a major challenge, with 40% of patients reporting significant post-operative pain that results in prolonged recovery, hospitalization, and increased resource utilization.[2]

Paravertebral blocks (PVB's), have emerged as promising adjuncts to standard analgesic protocols, decreasing pain, length-of-stay in hospital, and opiate consumption.[3] However, studies on the economic implications of PVB's are extremely limited, specifically the trade-offs between their clinical impact and the incremental cost associated with delivering the service. One recent US study[4] demonstrated that PVB's in mastectomy patients reduced one-unit of post-operative pain score at an incremental cost of $155.00 as compared to general anaesthesia alone. The authors concluded that this additional cost was acceptable in their health care system and that US commercial payers should be persuaded to reimburse this technique based on evidence of cost-effectiveness. To date, no study has investigated whether the cost implications would be different in Canada or any other universal health care system. As such, our objective was to evaluate the cost-effectiveness[5] of PVB's for patients undergoing immediate breast reconstruction at a large tertiary-care hospital in Ottawa, Canada. We hypothesized that, in general, PVB's were not a cost effective intervention in the context of the Canadian public healthcare system. We also hypothesized that you get more bang-for-your-buck, so to speak, when PVB's are used in the context of more invasive surgeries due to the increased pain profile (i.e.: bilateral vs unilateral reconstruction, implant vs expander, and axillary dissection vs no dissection).

A hospital's-perspective cost-effectiveness analysis was performed based on a retrospective cohort study to assess whether the clinical benefit gained from a PVB outweighed its additional costs. We used generalized linear models to estimate incremental average costs, incremental difference in average post-operative pain scores and incremental cost-effectiveness ratios. We estimated the net monetary benefit (NMB) of PVB's using the difference in cost and effect between the intervention group (PVB) and the control group (non-PVB). The probability of PVB's being cost-effective was displayed over a range of willingness to pay (WTP) values, which represented the amount a hospital is willing to pay for an additional unit of pain score reduction.

Of 298 patients undergoing immediate reconstruction, 112(38%) underwent general anesthesia (GA) with standard postoperative multimodal analgesia and 186(62%) underwent preoperative ultrasound-guided PVB's in addition to GA and multimodal analgesia. The PVB group had reductions in average pain score (2.8/10 vs 3.3/10, $p = 0.002$), opiate consumption (53 units vs 63 units, $p = 0.04$) and time in PACU (1.7 h vs 2.0 h, $p = 0.002$).

PVB's were associated with an additional cost of $255.16(95%CI: −$892.41, $1232.04) and a reduction in pain score of 0.21(95%CI: −0.70, 0.24), yielding an incremental cost-effectiveness ratio (ICER) of $1188.56 per one-unit reduction in pain score (95%CI: −$26731.16, $21603.96). Subgroup analyses demonstrated that the cost-effectiveness of PVB's vary by the type of mastectomy and reconstruction the patient received. PVB were least cost-effective (incurred higher cost with worse pain outcomes) with unilateral reconstruction and when expanders were used. They were more cost effective in the context of bilateral reconstruction (ICER $788.15) and when implants were used (ICER $98.97), both significantly lower than the total ICER of $1188.56 for the overall population (Figures 1 and 2).

Taken together, the extent to which the benefit of PVB's justifies its costs, is dependent on the hospitals willingness to pay. We demonstrate that each point reduction in pain score costs the hospital multiples of $1188.56. PVB's are therefore only cost-effective if the hospital is willing to pay at least $1188.56 to reduce one unit of pain score. Furthermore, subgroup analyses suggest that PVB's may only be cost effective in certain subgroups of immediate breast reconstruction. Future studies with larger sample sizes to analyze all subgroups will be required to further elucidate such a relationship.

Conflict of interest

None.

Funding

None.

Ethics approval

REB approval was granted by the Ottawa Health Research Institute (20160428-01H).

Acknowledgment

Special thanks to Kednapa Thavorn and Sasha Van Katwyk, who were the health economists who assisted with the analysis.

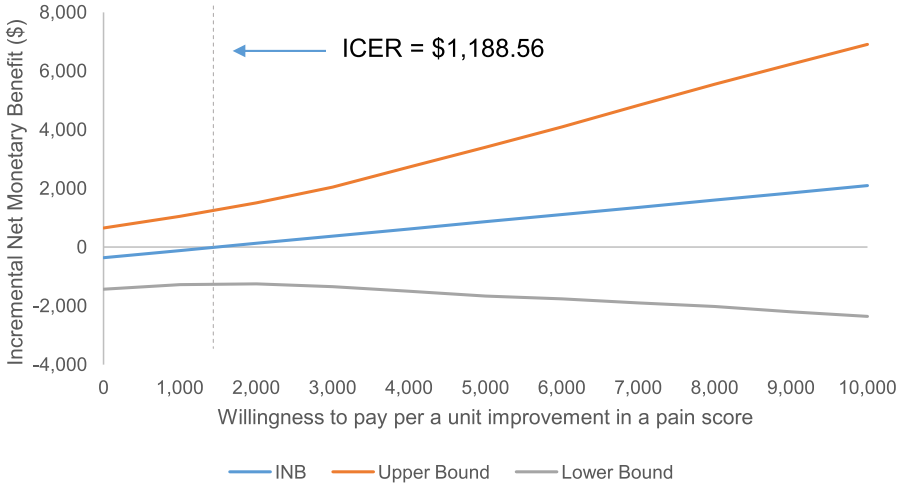

Figure 1 Net monetary benefit plot.

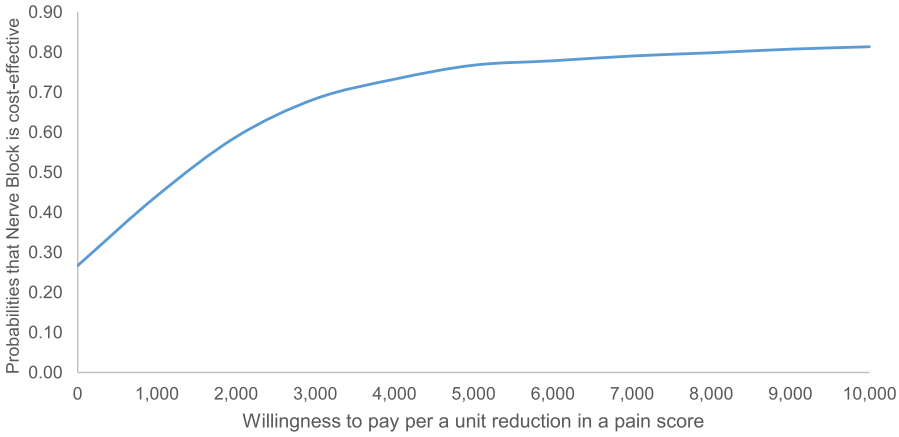

Figure 2 Cost effectiveness acceptability curve.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2019.02.022.

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Michael J. Stein
Division of Plastic and Reconstructive Surgery, University of Ottawa, Ottawa, Ontario, Canada

Angel Arnaout
Division of General Surgery, University of Ottawa, Ontario, Canada

Kednapa Thavorn
Ottawa Health Research Institute, The Ottawa Hospital, Ottawa, Ontario, Canada
School of Epidemiology and Public Health, University of Ottawa, Ontario, Canada
Institute for Clinical and Evaluative Sciences, Ottawa, Ontario, Canada

Sasha Van Katwyk
Ottawa Health Research Institute, The Ottawa Hospital, Ottawa, Ontario, Canada

Jing Zhang
Division of Plastic and Reconstructive Surgery, University of Ottawa, Ottawa, Ontario, Canada
E-mail address: micstein@toh.ca (M.J. Stein)

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Autologous breast reconstruction in patients with achondroplasia: Reconstructive and anaesthetic challenges

Dear Sir,

Patients with achondroplasia can be offered autologous breast reconstruction if managed within the setting of a multidisciplinary team with experienced surgeons and anaesthetists. Pre-operative planning and appropriate equipment and monitoring is essential.

A 51 year lady with achondroplasia (height 128 cm, weight 56 kg, BMI 33.4) presented for autologous breast reconstruction giving rise to both anaesthetic and surgical challenges.

The patient had previously undergone wide local excision and subsequent completion mastectomy following breast carcinoma two years ago (Figure 1). Her contralateral breast was a size 32D cup with grade II ptosis (Figure 1). Her anaesthetic history was unremarkable except for difficult venous access (albeit she had no previous documented intubations). Interestingly, the patient reported to have always perceived herself as 'normal' despite having achondroplasia, until the loss of her breast made her feel very 'abnormal and different.'

This patient successfully underwent a unilateral right delayed breast reconstruction with free deep inferior epigastric artery perforator flap reconstruction. Due to her stature, one of the challenges faced perioperatively was venous thromboembolism prophylaxis. The correct sized thromboelastic stockings or sequential compression device were unavailable. Therefore, we used pre-operative low molecular weight heparin, intra-operative passive limb movements and a device (Geko™, Sky Medical Technology Ltd) which works by neuromuscular electro-stimulation technology (Figure 2).[1] This device generates small electrical impulses which gently stimulate the common peroneal nerve resulting in foot dorsiflexion, emulating the process normally achieved by walking (up to 60%).[1] A paediatric-size blood pressure cuff was used and venous was access achieved using a paediatric sized cannula. She had an uncomplicated airway which was managed with conventional laryngoscopy and a size 7.0 tracheal tube.

Following pre-operative CT angiogram a DIEP flap was raised on two medial row perforators (weight: 676 g). One of the interesting intraoperative findings was an unusually fibrous intramuscular pedicle dissection. The patient was noted to have a low arcuate line which may have contributed to this unusually fibrous dissection as the pedicle was stuck to the posterior rectus sheath below the level of the umbilicus. The right infra-mammary artery and vein were simultaneously prepared. Microsurgical arterial end to end anastomosis was performed to the IMA using a size 9/0 nylon suture and the vein was anastomosed to the IMV using

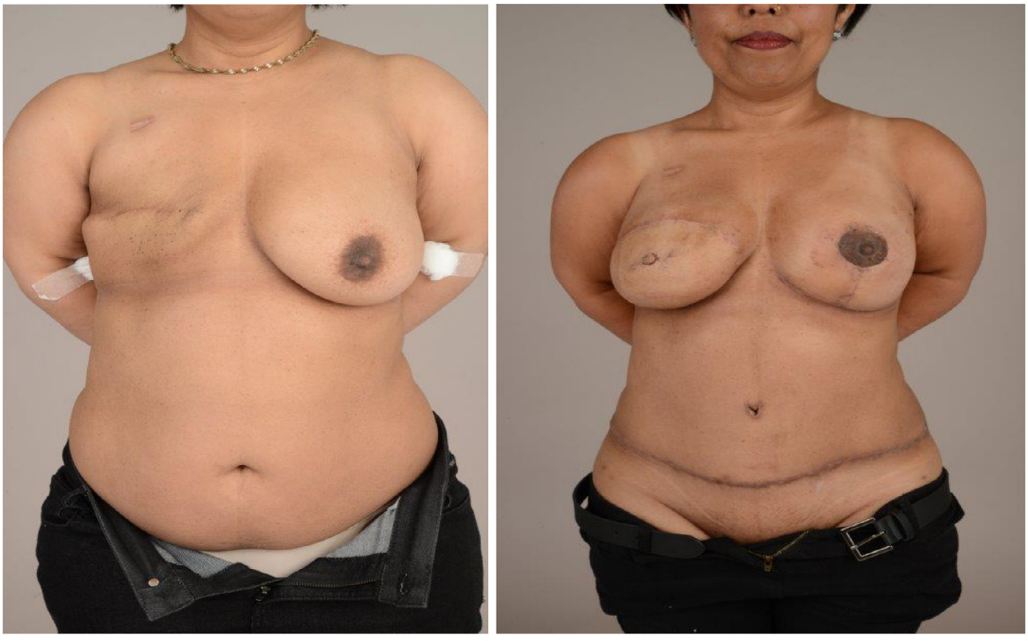

Figure 1 Pre and post-operative photograph of patient (following right nipple reconstruction and left symmetrising mastopexy with lipomodelling).

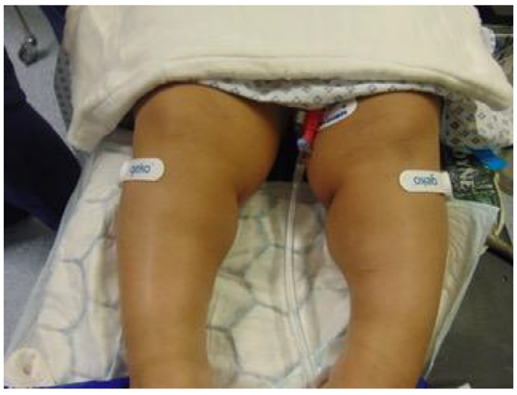

Figure 2 Geko device™ (Sky Medical Technology Ltd). This device generates small electrical impulses which gently stimulate the common peroneal nerve resulting in foot dorsiflexion, emulating the process normally achieved by walking (up to 60%).

a size 2.5 mm venous coupler (Stryker®). The flap was inset and the donor site was closed with a sub-rectus mesh, fascial closure and three layer soft-tissue closure with two suction drains. A rectus-sheath regional block was given (20 mls 0.5% Levobupivicaine) and a rectus sheath pain fuser. The patient was transferred to the ward for routine free- flap monitoring (as per routine local unit protocol). Her post-operative recovery was uneventful and she was discharged on the fourth post-operative day with one week of low molecular weight heparin to self-administer. The patient underwent subsequent right nipple reconstruction and left symmetrising mastopexy with lipomodelling.

To our knowledge, this is the first documented case of a patient with achondroplasia undergoing autologous reconstruction with a DIEP flap. As well as the potential for anatomical variations, such as in this patient with an usually low posterior rectus sheath and fibrous pedicle dissection, achondroplasia patients also present significant anaesthetic challenges. Airway management is potentially problematic due to macrocephaly, midface hypoplasia and narrow nasopharynx.[2,3] Neck manipulation is dangerous due to potential pre-existing cervicomedullary stenosis. Other problems may include restrictive lung disease, obstructive sleep apnoea, difficult venous access, hypersalivation and gastro-oesophageal reflux.[2,3] Positioning is key to DIEP surgery as the table is broken at hip level to facilitate abdominal closure. In view of our patient's stature it was vital to position her correctly, thus we did this prior to anaesthesia. Recommendations following this case include availability of paediatric sized invasive cannulae (as standard adult devices may be too long), as well as tracheal tubes sized according to patient body weight and not assuming paediatric size. Moreover, local anaesthesia delivery devices should be infused at a suitable rate based on patient body weight.

Declarations

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There are no financial disclosures or declarations.

Sources of funding

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L.L. Touil
Department of Plastic and Reconstructive Surgery, Knowsley and St Helens NHS Trust, Whiston Hospital, Warrington Road, Prescot L35 5DR, Merseyside, United Kingdom

A.K. Saggar
Department of Anaesthesiology, Knowsley and St Helens NHS Trust, Whiston Hospital, Warrington Road, Prescot L35 5DR, Merseyside, United Kingdom

R. Taghizadeh
Department of Plastic and Reconstructive Surgery, Knowsley and St Helens NHS Trust, Whiston Hospital, Warrington Road, Prescot L35 5DR, Merseyside, United Kingdom
E-mail address: leilatouil@live.co.uk (L.L. Touil)

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Association of increased body mass index and resection weights on the safety of reduction mammaplasty in the adolescent population

Dear Sir,

Macromastia is a common diagnosis that has been shown to significantly impact the quality of life in females.[1] These symptoms may include neck and back pain, kyphotic posture, headaches, dermatitis, respiratory distress and psychological difficulties.[2-4] The disproportionate psychosocial stress placed on the adolescent population is important to understand, as it is often one of the major motivating fac-

Table 1 Patient demographics for adolescent reduction mammoplasty patients.

	# of patients	Average age	Skin pattern	Pedicle technique	Duration of follow up (months)	Resolution of symptoms	SN-Nipple distance right (cm)	SN-Nipple distance left (cm)	Nipple-IMF distance right (cm)	Nipple-IMF distance left (cm)
Group 1: Patients w/ major complications up	15	16.67	Wise	Inferior	6.55	Yes (14) No (1)	34.23	33.97	17.75	17.63
Group 2: Patients w/ minor complications	5	16.8	Wise	Inferior	9.2	Yes	31.3	30.5	14.75	14.13
Group 3: Patients w/ no complications	31	16.9	Wise (30) Vertical (1)	Inferior (30) Supero-medial (1)	5.7	Yes	32.60	32.0	15.70	15.26

SN = sternal notch. IMF = infra-mammary fold.

tors for a young patient to seek breast reduction consultation. The purpose of our study was to retrospectively review our patient population of adolescent reduction mammaplasties over a 5-year period, identify risk factors associated with complications, resolution of symptoms and specific surgical techniques used.

Medical records were reviewed for all reduction mammaplasty procedures performed on adolescent patients 18 years of age or younger between January 1, 2010 and December 31, 2015. We collected data pertaining to the patient's body mass index (BMI), total resection weight, surgical technique including skin pattern and pedicle choice, preoperative anthropologic measurements, preoperative complaints, follow up time, surgical outcomes, complications, and resolution of symptoms. Results were stratified into three groups: patients with major complications (Group 1), patients with minor complications (Group 2), and a control group consisting of patients without complications (Group 3). Major complications were defined as anything requiring return to the operating room, hematoma, seroma, superficial wound dehiscence, and wound infections. Minor complications included hypertrophic scar formation, asymmetry, and excess tissue requiring a revision procedure. Pearson Correlation Coefficient was used to determine the association between these variables. The groups were compared using a two-tailed independent T-Test. Binary logistic regression analysis was also performed and applied to major complications (1) and no complications (0). Omnibus Test of Correlation Coefficients was used to determine significance.

Fifty-one patients were identified in our study with an average age of 16.8 years. Forty-three of the patients were African American and the other eight were Caucasian. Pre-operative complaints were nearly consistent among patients including: neck pain, shoulder pain, back pain, shoulder grooving from the bra strap, infra-mammary fold irritation, and impedance of physical activity. The average sternal notch-to-nipple distance for the population was 33.0 cm on the right and 32.4 cm on the left. The average nipple to infra-mammary fold distance was 16.2 on the right and 15.8 on the left. Of the fifty-one cases, fifty were performed using a wise skin pattern with an inferior pedicle reduction technique, while one utilized a vertical skin pattern with superior-medial pedicle reduction technique. The average duration of follow-up was 6.3 months. A total of twenty patients developed complications. Fifty of the fifty-one patients endorsed resolution of initial preoperative complaints (98%) (Table 1). For our sample population, the average BMI was 33.13 kg/m^2 with an average total resection weight 1847 g (Table 2).

There were fifteen cases with major complications (Group 1) all of which were due to superficial wound dehiscence. Five cases resulted in minor complications (Group 2) including hypertrophic scar and excess tissue requiring revisions. There were 31 patients that developed no complications (Group 3). Group 1 had an average age of 16.67 years, an average BMI of 36.5 kg/m^2, and an average total resection weight of 2206.6 g. Group 2 had an average age of 16.8 years, an average BMI of 31.4 kg/m^2, and an average total resection weight of 1581.2 g. Group 3 had an average age of 16.9 years, an average BMI of 31.8 kg/m^2, and an average total resection weight of 1715.6 g. The Pearson Correlation Coefficient of 0.79 indicates a strong correlation between increasing BMI and a higher total weight of resection. T-tests comparing the two groups indicated a significant difference in average total resection weight ($p = 0.033$) between Group 1 and Group 3; however BMI was not significant ($p = 0.061$). There was no significant statistical difference in average BMI (0.879) or average resection weight (0.542) between Group 2 and Group 3.

Fifteen patients were categorized as having had major complications. However, these were limited to superficial

Table 2 Average BMI and resection weight for adolescent reduction mammoplasty patients.

	Number of patients	Average BMI (kg/m^2)	Average total resection weight (g)
All Patients	51	33.13	1847
Group 1: Patients w/ major complications	15	36.5	2206.6
Group 2: Patients w/ minor complications	5	31.4	1581.2
Group 3: Patients w/ no complications	31	31.8	1715.6

wound dehiscence and were all managed with local wound care in the clinic. While the averages were higher in Group 1 compared to Group 3, our two-tailed independent sample T-test analysis indicated there was a significant difference between total resection weights but not BMI.

While there was not a significant difference in BMI between our group with complications and the group without complications, there was a strong positive correlation between BMI and average total resection weight. The latter variable did demonstrate an increased risk in wound healing, and thus perhaps both BMI and anticipated resection weight should be considered and discussed pre-operatively. Our results are consistent with previously published outcomes,[5] and further demonstrate an extremely high success rate of reduction mammoplasty in the obese adolescent population. We feel this study is important in order to better prepare physicians to answer questions regarding the safety and efficacy of surgery in this unique patient population.

Funding

None.

Conflicts of interest

None declared.

Ethical approval

The research protocol was approved our University Institutional Review Board.

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Marion Tapp, Robinder Singh, Jason P. Ulm
Division of Plastic Surgery, Medical University of South Carolina, Charleston, SC 29425, United States

Fernando A. Herrera
Division of Plastic Surgery, Medical University of South Carolina, Charleston, SC 29425, United States
Ralph H Johnson Veterans Affairs Medical Center, Charleston, SC 29425, United States
E-mail address: herreraf@musc.edu (F.A. Herrera)

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Reduction mammaplasty with superomedial pedicle technique: A literature review and retrospective analysis of 938 consecutive breast reductions☆

Dear Sir,

It was with great interest that we read the article by Baumermeister et al. "Reduction mammaplasty with superomedial pedicle technique: A literature review and retrospective analysis of 938 consecutive breast reductions".[1]

The study is the largest single institution series of patients undergoing bilateral breast reduction with a superomedial pedicle. The authors reported complication rates based on a review of medical records and investigated the association between complications and several predisposing patient characteristics such as body mass index and reduction weight. Also, the authors performed a systematic review of the literature to extract complication rates in patients who underwent breast reduction with a superomedial- or an inferior pedicle. The authors compared

☆ This work has not previously been presented, wholly or in part, at any meeting.

the retrospective analysis with the literature review to compare the two pedicles in terms of safety.

Although the study by Baumermeister et al. was well performed, we have a few remarks regarding the methodology of the study: the reported complications in their own patient population were stratified and easy to overview. Unfortunately, these stratified complications were pooled as a total complication rate to compare them with data from the literature. This may be problematic because of the large degree of variance in the types of complications reported in the studies included in the literature review, (e.g., one of the included studies reported patient dissatisfaction as a complication[2] which was not included as a complication in the authors' own patient population). For future studies we suggest that the complication rates should be clearly defined and calculated separately instead of providing a mean complication rate. This would prevent serious complications (i.e. nipple necrosis) to count the same as minor complications (i.e. minor wound dehiscence or diminished sensation of the nipple). Furthermore, it would be of great help to the reader if the authors included a measure of quality in the literature review such as the methodological index for non-randomized controlled trials (MINORS).[3-5]

We thank Baumermeister et al. for presenting a comprehensive review on the complication rates after breast reduction with superomedial- and inferior pedicles. Their findings have contributed with important knowledge to the field of breast reduction surgery.

Conflict of interest

None.

Funding

None.

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Andreas Larsen
Mathias Ørholt
Mathilde Nejrup Hemmingsen
Mikkel Herly
Peter Vester-Glowinski
Copenhagen University Hospital, Rigshospitalet, Department of Plastic Surgery and Burns, Blegdamsvej 9, 2100 København, Denmark
E-mail address: andreas.larsen@regionh.dk (A. Larsen)

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Refinements to the Yin-Yang breast reduction technique after 163 consecutive cases

Dear Sir,

Introduction

The Yin-Yang technique as originally described by the authors, introduced an innovative method of glandular resection, remodeling, and skin redraping.[1]

Characteristics of the previously described Yin-Yang technique are: (1) vertical skin pattern, (2) supero-medial pedicle (SMP) for the nipple, (3) glandular resection pattern: an S-shape on the right breast and the opposite S-shape on the left breast, and (4) a laterally based inferior pole (LBIP) dermo-glandular flap. The two flaps are sutured with a rotation advancement movement to each other and at the parasternal line to reconstitute the mammary pillars, narrow the mammary base and achieve good projection.

The original Yin-Yang technique showed good immediate postoperative results. However, long term outcomes showed that lower pole stability was not always, especially in medium and large breast hypertrophies. To avoid these uncontrollable lower pole changes, we added a Wise pattern to the originally described technique.

Methods

We performed the Yin-Yang breast reduction technique on 163 patients between 2002 and 2016. We have evaluated retrospective data from 6, 12 and 18 months post-operatively. To compare the two techniques and their outcomes, we measured the position of the inframammary fold (IMF), stretching of the vertical limbs and the

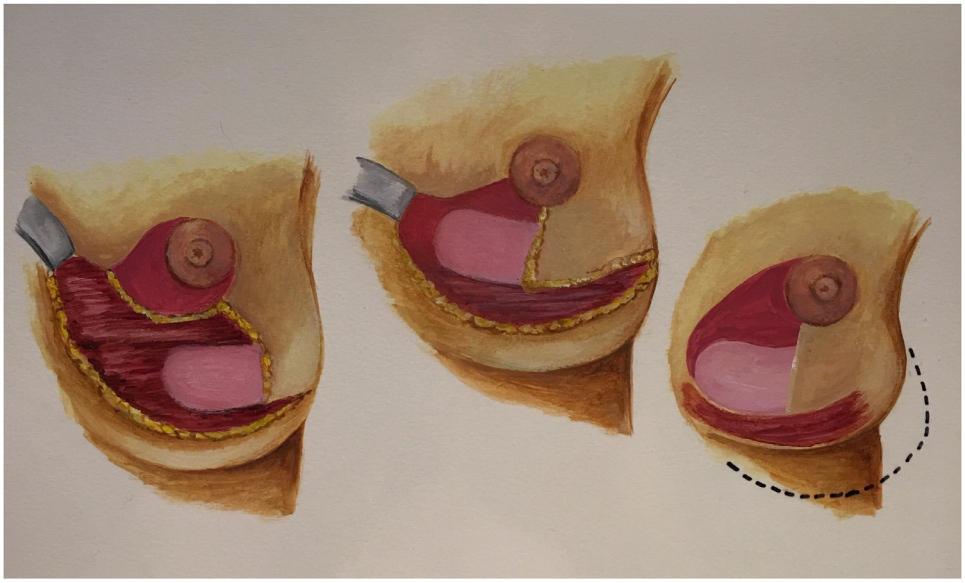

Figure 1 Two flaps are inset with opposite spiral movements, the nipple is transposed to the new position, the LBIP flap is advanced and rotated towards the parasternal line and sutured to the new inframammary fold and the LBIP dermoglandular flap is anchored medially to the pectoral fascia on the parasternal line at the level of the nipple.

mammary base width over an 18 month period. Surgical times of the two techniques were also recorded.

Surgical technique

1. Markings for the "modified" Yin-Yang breast reduction procedure are performed with the patient in a standing position (Video 1).
2. The Wise pattern is incised and the LBIP flap and the nipple SMP are sculpted by dissection through the gland until the pectoral fascia, preserving its vascular supply. During dissection, the pectoral fascia and the mammary septum are respected to protect the sensitivity and vascular supply to the nipple.
3. Glandular resection is performed in an S-shape pattern on the right breast and exact opposite S-shape on the left breast, including the axillary rolls through the same incision access.
4. The SMP and the LBIP flaps are inset with opposite spiral movements, forming the two components of the Yin-Yang symbol. The nipple is transposed to the new position with a 45 degree movement and the two breast pillars are sutured together with a spiral advancement. The LBIP flap is progressively advanced and rotated towards the parasternal line and sutured to the new inframammary fold which will be repositioned higher. The LBIP dermoglandular flap is anchored medially to the pectoral fascia on the parasternal line at the level of the nipple and then sutured with 2-0 polydioxanone (PDS) sutures to the breast pillars and the IMF, acting as a support bra for the lower pole (Figure 1).
5. The final closure is achieved joining the Wise pattern cardinal points together (Figure 2). No tension is present on the skin edges
6. A drain and a lower pole compressive dressing are used postoperatively.

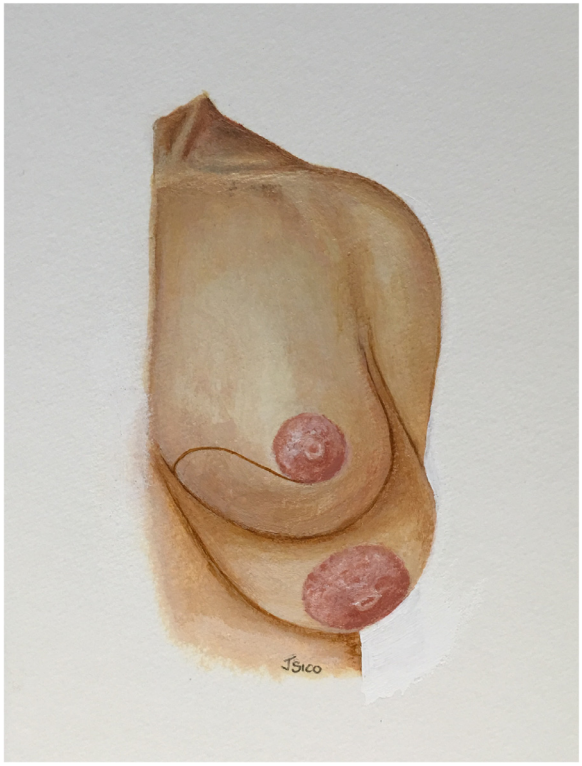

Figure 2 Comparison of pre-operative and post-operative breast shape.

Results

Seventy-nine cases were operated with the original technique described in 2011.[1] Since 2013 we have used the modified Yin-Yang technique on 84 patients, aiming to improve

outcomes. At 18 months post-operatively, the modified Yin-Yang technique resulted in a mean decrease in mammary base width of 4.73 cm (standard deviation 1.43 cm) and a mean improvement in breast projection of 3.44 cm (standard deviation 1.85 cm). Patients operated on with the "modified" Yin-Yang technique experienced greater stability of the lower pole over time when compared to the "original" technique. We have found that the modified technique allows for more control of the lower pole over time in both medium and large breast hypertrophies. The mean stretching of the vertical limbs at 18 months post-operatively has been found to be 5 cm with the "original" technique and 2 cm with the "modified" technique. Mean surgical time was 3 h and 45 min for the "original" technique and 2 h and 50 min for the "modified" technique. We did not notice any difference in the quality of scars or healing time. The number of required revisions was lower for the modified Yin-Yang technique. Using the previous technique, five out of 79 patients required revisions. Using the modified technique, only two patients required revisions in our sample of 84 patients. There were no noted complications, loss of nipple sensation, nipple seroma or partial/complete nipple loss.

Discussion

The modifications to the Yin-Yang technique have been found to provide long lasting and reliable results over time. This technique is also reproducible and not time consuming. The morphometric changes over time of the breasts operated with the "original" Yin-Yang technique showed a progressive lengthening of the vertical limbs with lower pole prolapse. By applying the Wise pattern, we noticed that the technique became more reproducible and feasible to new surgeons willing to try it. The surgical time was significantly improved as well. The morphometric changes over time of the "modified" Yin-Yang technique showed more stability of the lower pole in terms of length of the vertical limbs of the scars and the IMF position.

Conclusions

The modified Yin-Yang technique has shown to have better outcomes for stability of the lower pole, breast shape over time and surgical operative time. The Wise pattern allows a shorter vertical scar and avoids tension on the nipple.

Conflicts of interest

The authors have no conflicts of interests to disclose.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2019.03.005.

Reference

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Francesco Gargano, Kristie Rossi
The Institute for Advanced Reconstruction, The Plastic Surgery Center, Shrewsbury, NJ, United States

Paul Liu
Division of Plastic Surgery, The Warren Alpert Medical School of Brown University, Providence, RI, United States
E-mail address: francescogargano@hotmail.com (F. Gargano)

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Addressing the physical and psychosocial needs of young people with facial palsy: Facilitation of a single session group intervention

Dear Sir,

Facial palsy has multiple sequelae, including difficulties eating, drinking, speaking, breathing and hearing, as well as a change in appearance. Patients may also experience pain, synkinesis and difficulties with eyelid closure. Current treatment options include: injections of Botulinum Toxin A; surgery to protect the ocular surface; facial reanimation surgery and facial therapy focusing on rehabilitating function.

Facial palsy is associated with elevated levels of psychological distress, compared to other forms of visible facial difference.[1] This is possibly due to facial palsy impacting on the use of the face to express emotions, which is crucial for face-to-face communication.[2] Despite extensive anecdotal evidence for psychological and social difficulties in individuals with facial palsy, there has been limited research in this area. In particular, there is a paucity of research investigating the effectiveness of psychological interventions (e.g. Cognitive Behavioural Therapy; CBT) and facial rehabilitation interventions (e.g. Mime Therapy) in paediatric populations. Mime Therapy aims to forge a conscious link between the use of particular muscle groups and facial emotional expression,[3] while CBT helps children to identify the links between their thoughts, feelings and behaviour.

Children with facial palsy often have difficulty producing some facial expressions which represent emotions. As a result, the Oxford Facial Palsy Service designed a novel therapeutic group for children using a 'whole body approach' to communicating emotion and drawing on principles of Mime Therapy and CBT.

Parent's feelings about their child's appearance often become internalised by their child and can subsequently play a significant role in the child's perception of their own visible difference.[4] Our group therefore involved participating children's parents and carers, to support them to discuss facial palsy with their children in an open, normalising and non-shaming manner.

The objectives of the group were to:

- provide a supportive environment for children and parents to share their experiences
- increase children's confidence in discussing their facial palsy
- enable children to practice facial awareness exercises
- increase the children's understanding of emotions
- support children to consider the roles of both the face and body in expression of emotion
- provide parents with practical strategies to facilitate open communication about visible difference

The group

The 'Young Persons' Facial Palsy Group' was designed to meet the physical and psychosocial needs of children aged 4–15. The group was facilitated on four occasions, tailored to different age groups (Table 1). All groups were facilitated by a Facial Therapist and a Clinical Psychologist or Trainee Clinical Psychologist.

Each session used the same overarching protocol with specific activities adapted to the developmental level of the group:

Introductions. A warm-up game helped model friendship-building skills.

Learning about their face. A game was used to: orient children to the muscles of their face; identify their muscle movements and increase self-awareness of their own faces and regions of tension using self-massage [5].

Afternoon tea. Children and their families had the opportunity to interact and share their experiences.

Learning about feelings. This session drew on the principles of CBT to help understand the relationship between emotions, body language and behaviour.

Managing comments and questions. Children shared their experiences of managing comments and questions about visible difference and the pros and cons of different responses.

Session for parents: This session focused on the importance of discussing visible difference in an open, normalising and non-shaming manner.

Feedback

All children rated the group as 'very good' or 'good', and 12 (92.3%) of the children reported it was 'very good' or 'good' meeting other children with facial palsy (see Figure 1).

On average, parents rated the quality of the group as 9.63/10, the helpfulness in increasing their confidence and skills talking to their child about their face as 9.50/10 and the opportunity to talk to other parents as 9.63/10 (0 = not helpful; 10 = very helpful) .

This relatively inexpensive intervention allowed children to explore their understanding of facial palsy, while providing parents with an opportunity to share their experiences too. Most children reported finding it positive to meet with other children with facial palsy, which the authors predict will have had a normalising impact; helping the children to feel less 'different'.

This group highlights the importance of a multidisciplinary approach to the support of children with facial palsy, rather than focusing on functional, aesthetic and psychosocial factors as separate entities. There is a need for Facial Therapists and Clinical Psychologists to be

Table 1 Demographic information.

Group number	Number of children in group	Mean age in years (SD)	Number of family members in group	Diagnoses of children
1	4	7 (2.52)	7	1 x bilateral congenital partial facial palsy 1 x unilateral Bell's palsy 2 x unilateral congenital facial palsy
2	3	7 (2.65)	3	1 x Moebius Syndrome 1 x craniofacial macrosomia 1 x motor neurone facial palsy secondary to medullablastoma
3	4	12 (0.82)	6	1 x congenital absence of depressor anguli oris muscle 1 x unilateral facial palsy of unconfirmed origin 1 x congenital bilateral congenital facial palsy 1 x congenital unilateral facial palsy
4	2	8 (1.00)	4	1 x Myhre syndrome 1 x unilateral Bell's palsy

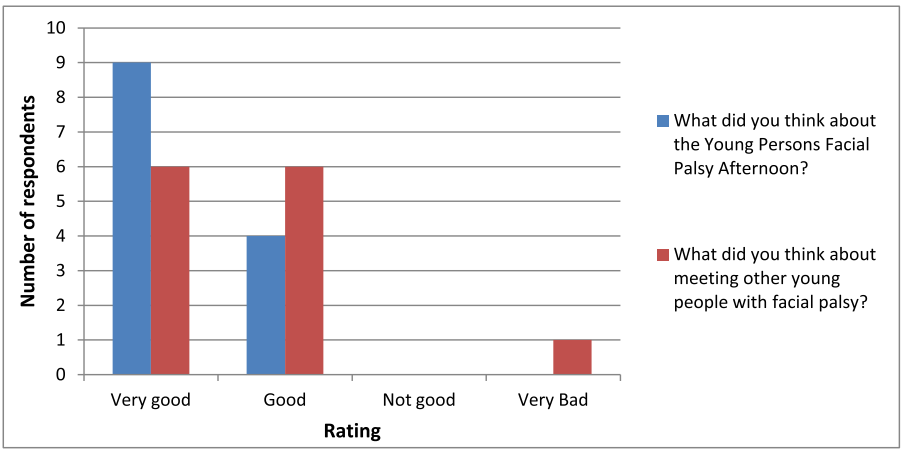

Figure 1 Child feedback on the group.

working alongside Plastic and Oculoplastic Surgeons within facial palsy services. This multi-disciplinary approach within facial palsy is not currently recognised by funding from commissioners in the NHS and the authors recommend that there is a need for a significant increase in funding to facial palsy services, in order to maximise the wellbeing of this patient group.

Conflict of interest

We declare no conflict of interest.

Funding

Oxford University Hospitals charitable funds.

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Matthew Hotton
Department of Psychological Medicine, Level 3 West Wing, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

Sarah Kilcoyne
Oxford Facial Palsy Service, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

Camilla Holden
Department of Psychological Medicine, Level 3, West Wing, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

Louise Dalton
Department of Psychological Medicine, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

Jonathan H Norris
Oxford Eye Hospital, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

David Johnson
Oxford Facial Palsy Service, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom

Correspondence to: Clinical Psychologist, Specialist Surgery Psychology Service, Russell Cairns Unit, Level 3 West Wing, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, United Kingdom
E-mail address: Matthew.Hotton@ouh.nhs.uk (M. Hotton)

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Challenging Kanavel's cardinal signs of pyogenic flexor tenosynovitis of the hand

Dear Sir,

Pyogenic flexor tenosynovitis is a well-recognized emergent closed space infection of the hand. Serious functional sequelae may ensue as a consequence of late presentation[1].

We present a case of delayed presentation of digital pyogenic flexor tenosynovitis secondary to underlying protracted carpal tunnel syndrome with dense median nerve paraesthesia masking the symptoms associated with the acute infection.

A 78 year old gentleman presented 3 weeks following a traumatic pinpoint injury to his dominant left index fingertip and nail bed with a piece of poly-twine. Incidentally, the man had bilateral carpal tunnel syndrome confirmed on nerve conduction studies, and was awaiting elective surgical decompression. Painless fusiform swelling of the index finger was noted with purulent exudate from the puncture site. The finger was held in a neutral position. Pain was absent on passive extension of the digit and on palpation along the flexor sheath. Pain was elicited on palpation of mid palmar space and over the flexor retinaculum. Marked thenar wasting was present and the man confirmed longstanding paraesthesia in the distribution of the median nerve. Bloods testing revealed a neutrophilia (11.6×10^9/L) with elevated C Reactive Protein (CRP 149 mg/L). X-ray excluded the presence of retained foreign body but suggested the presence of early osteomyelitis.

The patient proceeded to emergency exploration of the flexor sheath. Frank pus was noted along the entire length of the flexor sheath as far as the distal third of the forearm. Upon carpal tunnel release, a macerated median nerve was uncovered. Cultures from the left index finger isolated *Staphylococcus Aureus, Group G Haemolytic Streptococcus* and *Bacteroides spp*. The patient ultimately required terminalization of the index finger at the level of the distal interphalangeal joint (DIPJ) despite prolonged intravenous antibiotic therapy in accordance with sensitivities.

Delayed presentation of pyogenic flexor tenosynovitis has recognized morbidity owing to tendon necrosis and adhesion formation[1].

Kanavel described four cardinal signs of pyogenic flexor tenosynovitis in 1912[2].

(1) The affected finger is held in slight flexion.
(2) There is fusiform swelling over the affected tendon.
(3) There is tenderness over the affected tendon.
(4) There is pain on passive extension of the affected digit.

Even today these signs are recognized as primary means of clinical diagnosis, however three of the four signs are dependent on the patient having intact sensory function in the affected digit/territory[2]. In our case, only a single cardinal sign was evident (Fusiform swelling over the affected digit). This is the most common of Kanavel's signs in the diagnosis of flexor tenosynovitis[3]. The presence of a *Group G Haemolytic Streptococcusis* is also known to be associated with poorer outcomes[3]. In this case however, we feel that the delayed presentation, likely due to the lack of discomfort, was the single greatest reason for a poorer outcome.

We postulate that the presence of the patient's median nerve compression and resultant paraesthesia, has masked the usual painful clinical signs resulting in delayed presentation. The pain elicited proximal to the digit relates to a functional palmar cutaneous branch of the median nerve emerging before the median nerve enters the carpal tunnel.

No cases of median nerve compression and paraesthesia with resultant delay in presentation of flexor tenosynovitis have previously been described in the literature.

This case highlights the potential sequelae of delayed presentation of flexor tenosynovitis in the setting of median nerve compression.

Thus, we believe "Kanavel's signs should only be relied upon to exclude flexor tenosynovitis once normal sensation in the affected digit has been formally established".

Conflict of Interest

None.

Funding

None.

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Joshua Michael Clements
Tomás O'Neill
Christopher Hill
Regional Plastic and Reconstructive Surgical Unit, Ulster Hospital, Upper Newtownards Road, Dundonald, Belfast BT16 1RH, Northern Ireland
E-mail address: tomas.o'neill@nhs.net (T. O'Neill)

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Head bandage after otoplasty: How long should it be worn?

Dear Sir,

Otoplasty is a surgical procedure often performed to correct prominent ears, with the goal of normalizing their shape and position. Various surgical techniques can be utilized to create the antihelical fold if it is missing and/or to reduce the conchal bowl if it is prominent.[1,2]

Although postoperative dressings are clearly important for successful outcomes following otoplastsy,[3-5] consensus is lacking with respect to the optimal bandaging period. Opinions on this subject vary greatly. Some experts advocate retaining the bandage for 7–10 days, whereas others believe it should be removed within 2 days.[1-5]

The authors retrospectively analyzed the results of otoplasty procedures performed by the senior author (R.R.) in the last 10 years.

Data attained from medical records for the period January 2008 to January 2018 were gathered and evaluated retrospectively. The study population comprised 62 consecutively treated patients who received otoplasty.

In 2013, in order to reduce patient's concern regarding the "social discomfort" of head banding the postoperative care was changed. From 2008 to 2012, the surgeon's practice was to keep the bandage in place for 7 days (group A). From 2013 onward, the bandage remained for only 48 h (group B).

Group A

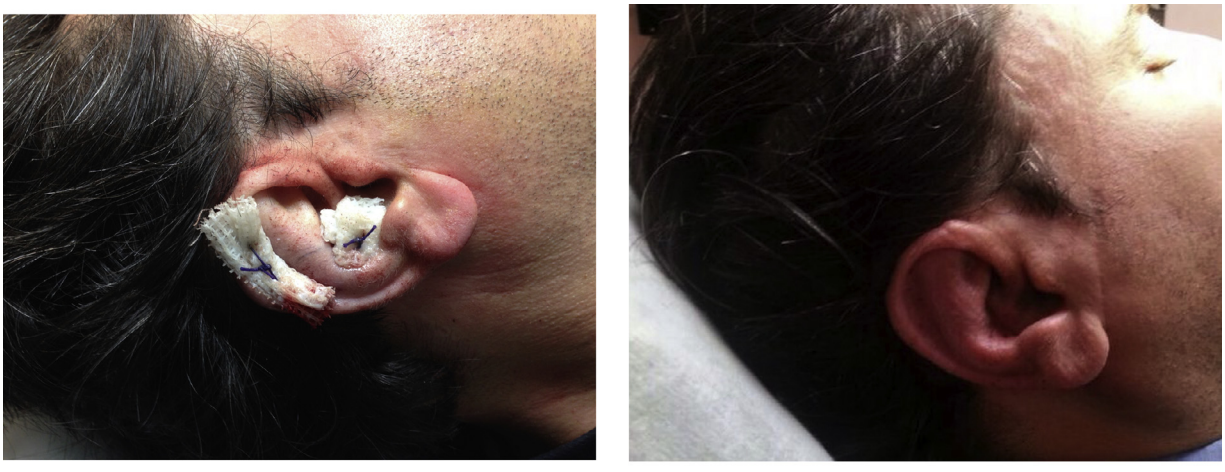
From January 2008 to December 2012, 24 patients (47 ears) underwent otoplasty (16 men, 8 women). One patient had the surgery on only 1 ear, which was performed to improve symmetry. The age range was 18–39 years (mean 25.7 years). In all cases except 1, patients were sedated and received local anesthesia. The other patient had local anesthesia only.

Immediately after the surgery, a cotton head bandage was placed and was retained for 7 days.

The original head bandage was worn for the full 7 days by 23 of the 24 patients. In the other patient, the original bandage became displaced 3 days after surgery; it was replaced and then worn for 7 additional days. No bleeding or other complications, minor or major, were recorded during follow-up, which ranged from 6 months to 2 years (mean, 10 months).

Group B

From January 2013 to January 2018, 38 patients (76 ears) underwent otoplasty (21 males, 17 females). Their age range was 9–52 years (mean, 23.9 years). Thirty-seven patients received local anesthesia and sedation, and 1 patient underwent general anesthesia. The latter patient was 9 years old and the only minor among the study population. Upon completion of the surgery, a 2-0 percutaneous suture (Vicryl; Ethicon) was placed to fix gauze containing triticum vulgare (Fitostimoline® gauze; Farmaceutici Damor S.p.A., Naples, Italy) to the area or areas undermined during surgery (i.e., concha and/or antihelix) (Figure 1A and B). A cotton wool pad that provided slight compression was placed over the percutaneous stitches, then the same head



(a) (b)

Figure 1 Patient from group B. This 42-year-old white man underwent otoplasty for prominent ears. (A) Immediately after surgery, and before placement of the head bandage, 2 pieces of gauze containing triticum vulgare were fixed with a 2-0 percutaneous suture above the area of surgical undermining (conchal bowl and antihelical fold). The gauze served as a compression device. (B) Immediately following complete removal of the head bandage and compressive gauze 48 h after surgery.

bandage of group B was applied over them. The gauze, pad and head bandage were kept in place for 48 h.

The only complication that occurred among the 38 patients in this group was the requirement for a new head bandage in 1 case. This was needed because, at the planned time of bandage removal (48 h postoperatively), slow bleeding was observed on left side. The replacement bandage was worn for another 48 h. This complication occurred in the youngest patient, the 9-year-old boy, who was the only patient who received general anesthesia. However, it did not appear that the bleeding was related to the general anesthesia. The follow-up period for this group ranged from 6 months to 2 years (mean, 12 months).

Discussion

The need to bandage ears after otoplasty, and the length of the bandage period, are debatable topics that have not been critically evaluated or reviewed. Although the value of retaining the bandage for more than 24 h postoperatively has been questioned, the practice remains routine for many surgeons.[1,2-5]

Only Bartley, in 1998, published a paper supporting a shorter duration of ear bandaging after otoplasty. He stated that 24 h of head bandaging after ear surgery should be sufficient, and assessed this practice among 52 consecutively treated patients.[2]

In the present study, the bandaging period was reduced from 7 days to 48 h. Only 1 minor complication occurred in each group, both involving the need for additional bandaging time. Neither patient experienced any sequelae secondary to the complication.

Consensus is lacking as to the appropriate duration of bandaging following otoplasty. Although there were differences in the techniques for placing bandages the results of the present case study support the hypothesis of no need of ear bandaging after otoplasty more than 48 h.

However, large randomized blinded studies are warranted before determinations can be made regarding the optimal bandaging period or the type of bandage that will best promote healing while being cosmetically acceptable to patients.

Conflict of interest

None.

Funding

None.

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Raffaele Rauso
Professor of Maxillofacial Surgery, University of Campania "Luigi Vanvitelli," Naples, Italy

Luigi Califano
Head of the Maxillofacial Surgery Unit, Federico II University, Naples, Italy

Brigida Iorio, Luigi Rugge, Fabrizio Chirico
Maxillofacial Surgery, Federico II University, Naples, Italy

Gianpaolo Tartaro
Head of the Maxillofacial Surgery Unit, University of Campania "Luigi Vanvitelli," Naples, Italy
E-mail address: luigirugge@gmail.com (L. Rugge)

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Lower eyelid defect

Dear Sir,

I read with interest about the perforator/subcutaneous pedicled propeller flap,[1] a 'useful tool for the reconstruction of lower eyelid defects'.

Am I alone in finding no material difference with the cheek island flap[2] described in this Journal (under its old name) in 1991?

Conflict of interest

I declare that I have no conflict of interest.

Funding

None.

Prior presentations

None.

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Timothy Burge
Clifton Plastic Surgery, 2 Clifton Park, Bristol BS8 3BS, United Kingdom
E-mail address: timothystuartburge@gmail.com (T. Burge)

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Clinical utility of the communicating vein in free radial artery forearm flaps: Best of both worlds

Dear Sir,

Introduction

The Free Radial Artery Forearm Flap (FRAFF) has become a workhorse in head and neck reconstruction as it provides a thin and supple, versatile skin paddle with a long pedicle. The most common cause of a failed FRAFF is venous outflow failure or thrombosis.[1]

This flap is drained by a superficial (cephalic) system and a deep (venae comitantes) system which are interconnected via the *profunda cubitalis* vein or communicating vein at the level of the cubital fossa.

Previous authors have utilized this communication between the venae comitantes and the cephalic vein by including both the deep and superficial veins in the flap harvest and performing a single anastomosis of the proximal superficial vein, thereby providing 'dual' venous drainage from the flap.[1] We, however, in this study, have included only the deep system and the cephalic vein proximal to the communicating vein, thereby preserving the distal cephalic vein, which serves as an important superficial venous outflow for the hand and forearm.

Patients and method

All consecutive patients who had undergone head and neck reconstruction with a FRAFF between March 2000 and September2017 were identified. Additionally, 18 flaps done between October 2017 to March 2018 were prospectively assessed. All surgeries were performed by the senior author (AG) at two onco-surgery centers.

Results

Patient demographics

Between March 2000 and March 2018, a total of 306 patients who had undergone FRAFF for head and neck reconstruction were identified. Of these, 243 were male (79%) and 63 were female (21%). Age varied from 23 years to 78 years.

Surgical technique

The cephalic vein was not included in the flap design. The communicating vein linking the venae comitantes to the proximal cephalic vein at the cubital fossa was identified and dissected. The cephalic vein was ligated one cm distal to the entry point of the communicating vein, leaving the distal part of the cephalic vein in-situ. The flap was islanded on the radial artery and venae comitantes along with the communicating vein and cephalic vein proximal to the communicating vein (Figure 1). In the 18 cases performed prospectively between October 2017 and March2018, length and diameter of the communicating vein, number of tributaries and length of coalesced vein was measured (Table 1). An end-to-end arterial anastomosis was carried out in the neck to the facial or superficial thyroid artery. A single end-to-side venous anastomosis was done using the larger superficial vein to the internal jugular vein. Donor sites were uniformly skin grafted.

Post-operative free flap complications: Fifteen of 306 (4.9%) flaps were re-explored for compromised flap circulation. Three flaps had arterial thrombosis and 12 had venous thrombosis. Of these 15, nine flaps could be salvaged leaving a total of six failed flaps (1.96%). Of the failed flaps, one failed because of arterial thrombosis and the rest five because of issues related to the vein.

Communicating vein anatomy

A Communicating vein linking the deep venous system to the superficial veins in the cubital fossa was present in 304 of the 306 cases. In two cases, an anatomical variation was seen with a high bifurcation point of the brachial artery. The bifurcation could not be seen even two cm above the cubital fossa. In these two cases, we divided the radial artery and venae comitantes in the cubital fossa and used them for the anastomoses.

Discussion

Although FRAFF is associated with a high success rate, the most common cause of failure is inadequate venous drainage.[2] Utilizing the superficial system alone, while technically simpler, requires the flap to be designed more radially with increase in dissection time and a higher incidence of radial nerve injury.[3] Also the superficial vein may not always drain the flap territory. The deep radial

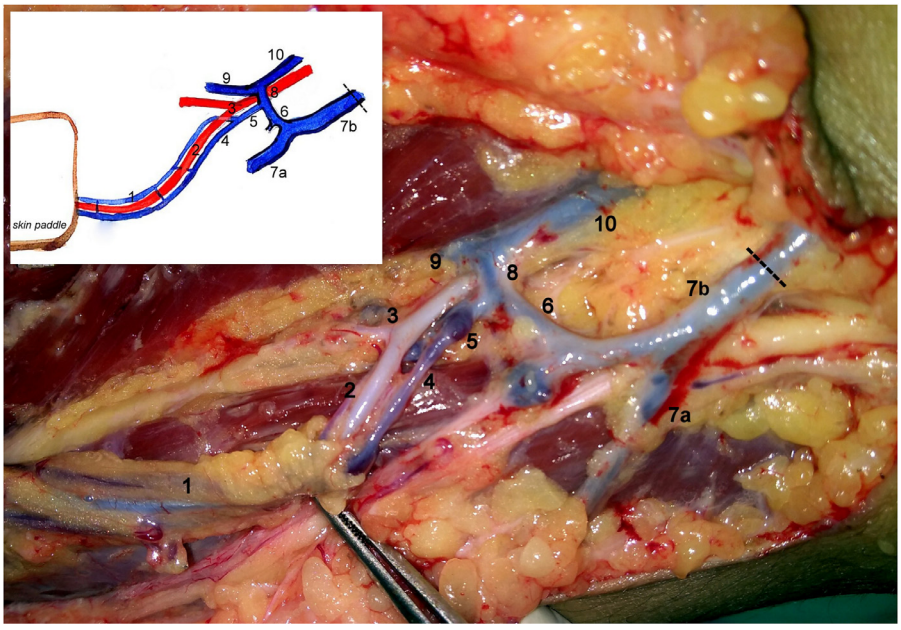

Figure 1 Anatomy of the communicating vein. *Inset:* schematic representation 1. Flap pedicle 2. Radial artery 3. Bifurcation point of brachial artery 4. Radial venae comitantes 5. Coalesced vein 6. Communicating vein 7a. Cephalic vein distal to communicating vein 7b. Proximal Cephalic vein 8. Coalesced vein to brachial vein 9. from ulnar venae comitantes 10. Brachial vein. Dashed line indicates the site of venous anastomosis on the Cephalic vein.

Table 1 Anatomical study of the communicating vein (CV).

Sl no.	Length of CV (cm)	External diameter of CV (mm)	No of tributaries to CV	Dominant drainage channel of CV	Length of coalesced vein (cm)
1	2.0	9	2	Cephalic	<0.5
2	0.8	7	2	Median cubital	<0.5
3	1.2	6	1	Cephalic	<0.5
4	1.5	10	1	Cephalic	<0.5
5	2.4	9	1	Cephalic	1
6	2.0	8	2	Cephalic	1
7	2.4	8	2	Cephalic	<0.5
8	1.5	11	0	Cephalic	0.8
9	1.8	10	1	Cephalic	1.5
10	1.6	5	2	Median cubital	<0.5
11	1.4	8	2	Cephalic	<0.5
12	1.5	7	2	Cephalic	1
13	2.2	8	2	Cephalic	<0.5
14	0.8	7	3	Median Cubital	<0.5
15	1.4	12	2	Median Cubital	<0.5
16	0.8	10	1	Cephalic	0.7
17	2.0	7	1	Cephalic	<0.5
18	1.2	6	2	Cephalic	<0.5

venae comitantes on the other hand has twice the volume of drainage per unit time compared to the superficial vein,[4] but is marred by a narrow caliber and thin walls, contributing to a difficult venous anastomosis and vessel mismatch.

The communicating vein connecting the deep venous system to the superficial veins is almost always present and is valveless. Tahara et al. noticed its presence in 187 out of 188 cases of forearm flaps.[5] In our series, it was absent in two out of 306 cases. It allows flow of blood from the dominant but small calibered deep venous system to the superficial venous system of thick walled large caliber veins. Exploiting the drainage passage of the venae comitantes via the communicating vein into the cephalic vein gives us the best of both worlds i.e., taking the dominant deep venous system along with the large caliber of the superficial system. Finally, in contradistinction to previous studies, by not harvesting the distal cephalic vein, an important superficial

venous outflow channel of the hand and forearm is preserved, which could possibly lead to decrease donor site edema and morbidity.

Financial disclosure statement

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Conflict of interest

No

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Anupam Golash, Sudipta Bera, B.S. Bhaviya
Department of Plastic Surgery, Calcutta Medical Research Institute, 7/2 Diamond Harbour Road, Kolkata 700027, West Bengal, India

Aditya V. Kanoi
Department of Reconstructive surgery, Narayana Superspeciality Hospital, Howrah, West Bengal, India

Ashwin A. Pai
Department of Plastic Surgery, Calcutta Medical Research Institute, 7/2 Diamond Harbour Road, Kolkata 700027, West Bengal, India

Abhijit Golash
Calcutta Medical College, Kolkata, West Bengal, India
E-mail address: sudiptacnmc@gmail.com (S. Bera)

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The implications of cosmetic tourism on tertiary plastic surgery services; The need for a national reporting database☆

Dear Sir,

Cosmetic surgery is becoming increasing popular in the UK. However, despite the stringent measures of improving cosmetic standards in the UK through the healthcare commissions and General Medical Council (GMC), satisfactory results, patients are choosing to receive cosmetic procedures abroad. The major attraction for the patient is the overall cost of cosmetic procedure is cheaper aboard. For example, the Guardian online in 2014 reported that a rhinoplasty procedure would cost £847 aboard compared the UK rate of £3557.[1] The rise in cosmetic tourism has also been fueled by cheap airfare, low cost insurance and rising advertisement about the opportunities for cosmetic procedures abroad on public media.[2-5] For patients travelling abroad for cosmetic procedures, the aftercare may be limited due to time and expenses incurred by the patient.[3] Hence, the cost of the post-operative cosmetic procedures has become a burden of the patient's home country.[4,5] However, despite the realization of this burden only few studies have evaluated the costs of such complications. We aimed to identify and assess the costs of patients representing to a busy tertiary center with complications from aesthetic procedures abroad and estimate their costs to the NHS health-care-system. Between 2015 and 2017 all patients presenting as emergency cases or as GP referrals to the plastic surgery department at Royal Free Hospital in London, UK who had complications arising from cosmetic surgery outside the UK were identified prospectively.

The study identified 21 female patients during the study period. The mean age was 38.9 years (range 25–59 years). The primary cosmetic procedures were performed in several countries. Ten procedures were performed in Europe, three in North America, three in South America, four in Africa and one in Asia. In this series all patients had a body contouring procedure. The most common procedure was breast augmentation (38%) (Table 1). There were several different types of complication with the highest being infection (50%) (Table 1). The complications varied from needing conservative management to surgical intervention.

The majority entered the NHS by presenting directly to the Royal Free Hospital A&E department (38%). The second most common route into the NHS was by external referrals to the on-call plastic surgery team (28%). In total for all the 21 patients there were 9 emergency presentations to

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Table 1 List of all the types of cosmetic procedures observed in the cohort and the types of complications in the cohort.

Type of procedures		Types of complications	
Breast Augmentation	38% ($n=9$)	Infection	50% ($n=13$)
Abdominoplasty	24% ($n=5$)	Wound Dehiscence	15% ($n=4$)
Abdominoplasty + Liposuction + Fat Transfer	10% ($n=2$)	Pain	12% ($n=3$)
Breast Reduction	10% ($n=2$)	Nipple Necrosis	12% ($n=3$)
Abdominoplasty + Liposuction	5% ($n=1$)	Implant Rupture	4% ($n=1$)
Brachyplasty	5% ($n=1$)	Poor Outcome	4% ($n=1$)
Gluteal Implants	5% ($n=1$)	Nerve Injury	4% ($n=1$)
Lower body lift	5% ($n=1$)		

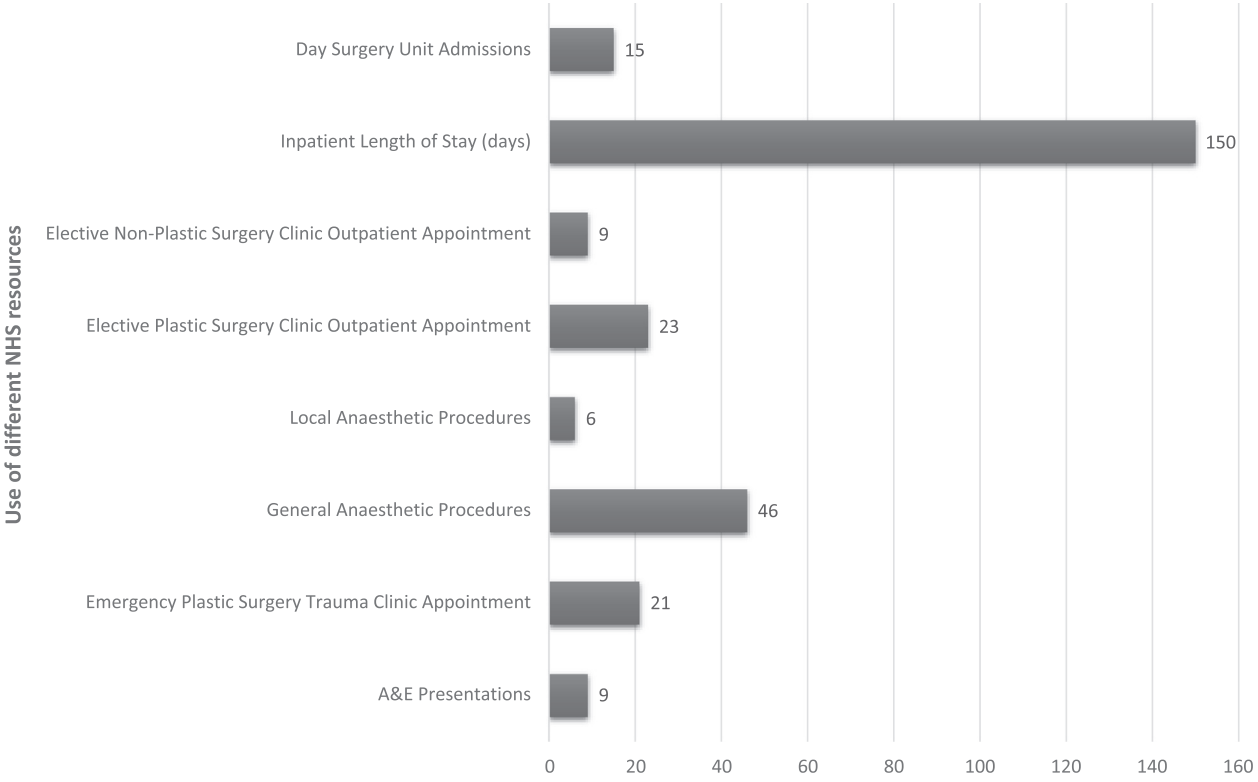

Figure 1 Diagram to illustrate the wide use of NHS resources from cosmetic procedures performed abroad.

A&E (£1127.07), 21 emergency trauma outpatient clinic appointments (£2629.83), 23 elective plastic outpatient appointments (£2880.29) and 9 elective non-plastic surgery outpatient appointments (£1127.07). Surgical intervention for these patients included 46 procedures under general anaesthesia, accumulating to over 67 h of operating time (£177,773.47) and 6 procedures under local anaesthesia, accumulating to 3 h (£7647.25). There were a total of 150 days of inpatient hospital stay (£97,272) (Figure 1). The total cost of hospital was £290,456.98 with an average of £13,800 for each patient. The highest cost was for a patient with complications post abdominoplasty, which reached £61,676.

This study has highlighted that cosmetic tourism is a burden on the plastic surgery resources of the NHS health care system. It is a unique study as the data was collected prospectively. Over a 2-year period our hospital encountered a loss of approximately £13,500 per patient. Adabi et al. identified 42 patients over a 36-month period receiving treatment for aesthetic procedures in a tertiary US hospital as £14,061 per patient.[3] Livingstone et al. identified 12 patients reporting to an Australian secondary referral hospital over a 1-year period at a cost of £7752.24.[4] Miyagi et al. analysed 19 patients over a 3-year period to a UK hospital, showed a mean cost of £6360 per patient.[5] It is clear in all studies that the cost relating to cosmetic tourisms is substantial and interestingly within the same range. In addition to the financial cost, the surgical time and in patient bed stay would have prevented other cases to be performed. Our hospital is a tertiary center for hand trauma, performing daily hand trauma lists of approximately 5 patients depending on the severity of each individual case. For example in the same operative time period of the 21 patients identified in this study our

hospital could have completed approximately 40 hand relate dcases.

We feel one strategy to overcome the burden of cosmetic tourism would be creation of a national healthcare databases that reports the complications of cosmetic tourism abroad. The data generated from the studies could then provide the GMC and healthcare commission objective evidence, which could be used to create a strategy to overcome this burden on the NHS could be formulated. The literature clearly highlights that cosmetic tourism is not a UK dilemma, with several countries being affected. Hence, the creation of a national database could be implemented several health care systems and allow for the comparisons to be made on a global scale.

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A.H. Sadr, A. Pau
Plastic and Reconstructive Surgery Department, Royal Free Hospital, London, United Kingdom

M.F. Griffin, P.E. Butler
Plastic and Reconstructive Surgery Department, Royal Free Hospital, London, United Kingdom
Division of Surgery and Interventional Science, University College London (UCL), London, United Kingdom
Charles Wolfson Centre for Reconstructive Surgery, Royal Free Hospital, London, United Kingdom

A. Mosahebi
Plastic and Reconstructive Surgery Department, Royal Free Hospital, London, United Kingdom
Division of Surgery and Interventional Science, University College London (UCL), London, United Kingdom
E-mail address: amirsadr@nhs.net (A.H. Sadr)

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Cost-utility of reduction mammoplasty in Brazilian public service using BREAST-Q®

Dear Sir,

Mammary hypertrophy (MH) is defined as an increase of the mammary gland beyond the physiological limits that is not related to pregnancy, inflammation, injury or hemorrhage. As a consequence of this, the patient may present functional alterations related to posture and circulation, respiratory and spinal curvature alterations with consequent associated pain and even submammary dermatitis.[1]

There is small number of significant research in the literature on the prevalence of MH. It can be attributed to: the lack of awareness of the majority of women regarding the symptoms related to the large mammary volume and the neglect of the public organs on MH as cause of morbidity and its impacts on society.[2] This type of study is fundamental for the Unified Health System (UHS) since, in this way, it is possible to establish a cost-effectiveness relationship between the patient's healing process and the health actions performed.

The analysis of healthcare costs is even more prominent nowadays, when we have both a shortage of resources and an increase in healthcare spending, related to population growth and aging, as well as the higher prevalence of chronic diseases.[2] In Brazil, healthcare economics had a recent development and it is, currently, in a consolidation phase. Economic evaluation in this area can generate good results, by considering variables such as cost, effectiveness, and quality of services rendered.[2]

In this study, we observed that the values invested in the propaedeutics of the pathologies related to breast hypertrophy exceeded the expenses associated with reduction mammoplasty (RM) (Table 1). Musculoskeletal pains are prevalent complaints in HM patients who attend the plastic surgery outpatient clinic. These patients go a long way through the UHS, undergoing many consultations in all healthcare sectors, including primary, secondary and even tertiary care, with elective and emergency consultations. In most cases, follow-up using a high-cost propaedeutic method is required, such as computerized tomography (CT) or magnetic resonance imaging (MRI). Medications and physiotherapy are also frequently indicated.[3] Thus, MR is considered an effective measure in the treatment of spinal pain in symptomatic MH patients. The surgical treatment of MH through RM aims not only to correct physical alterations, but also to alleviate other negative psychosocial disorders, such as difficulty in the selection of clothes, social isolation, changes in body perception, restriction of physical activities and increase of the duration of the withdrawal from work activities due to pain.[4]

This prospective cohort study included 83 MH patients treated at the Plastic Surgery Service of the University

Table 1 Summary of estimated annual costs of the clinical follow-up of patients with symptomatic MH.

	Unitary value	Quantity	Subtotal value
Medical consultations	R$ 11.00 US$ 2.85	14 (first consultation and one return with: general practitioner, physician of the Program Family Health (PFH), orthopedist, rheumatologist, specialist in pain). One visit to emergency physician every 3 months	R$ 154.00 US$ 39.85
Radiographs	R$ 8.00 US$ 2.07	8 (both scapulae, cervical, thoracic, lumbosacral, basal, and both lower limbs)	R$ 64.00 US$ 16.56
Laboratory tests	Non applicable - variable	NA	R$ 285.00 US$ 73.76
CT	R$ 90.00 US$ 23.29	3 (cervical, thoracic, lumbosacral)	R$ 270.00 US$ 69.88
MRI	R$ 300.00 US$ 77.64	3 (cervical, thoracic, lumbosacral)	R$ 900.00 US$ 232.92
Total annual cost			**R$ 1674.00** **US$ 433.23**

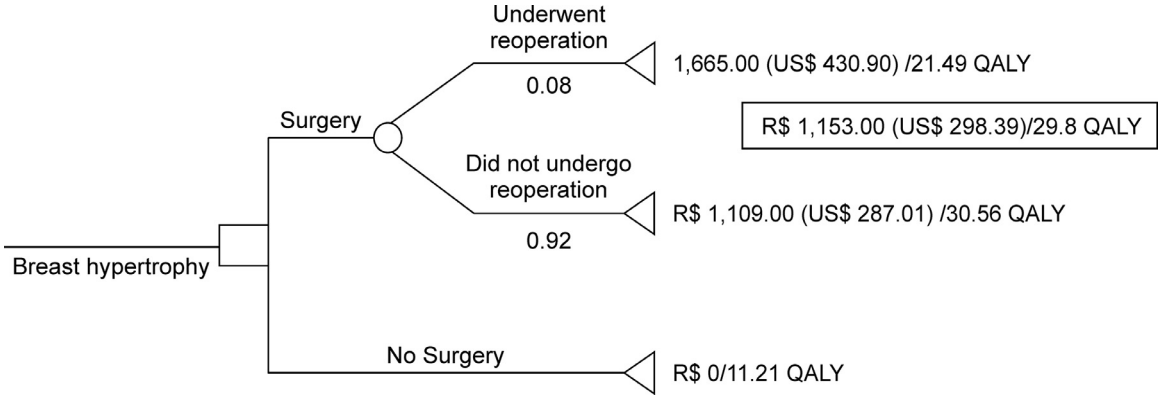

Figure 1 Decision Tree - Costs of reduction mammoplasty and cost-effectiveness/ Quality of Adjusted Life Years.

Hospital of the Federal University of Juiz de Fora, belonging to the UHS. The duration was pre-limited to 2 years. We had a loss of four patients (4.8%), which was due to patients' lack of economic resources for the follow-up consultations, which we considered a great difficulty in prospective studies. Another important limitation is the lack of published information about the real cost of healthcare to MH patients who did not undergo surgical treatment and keep a long and chronic medical follow-up

A QALY study (quality-adjusted life years) allows us to relate the quantity and quality of life (QoL) gained through a given intervention, thus, it provides us with the possibility of assuming the usefulness of a given health intervention. This study used the BREAST-Q® data obtained in the preoperative period and found that the QALY was 11.21 in non-operated patients. This value is much lower than that of the operated patients, showing the importance of RM, corroborating previous research, such as the study of Tykka et al.[1,5]

The analysis of cost-effectiveness is described in the Decision Tree (Figure 1). In patients who were admitted for surgery and who evolved without complications, the cost-effectiveness ratio was US$ 287.01/30.56 QALY; in patients with reoperations, this amount was US$ 430.90/21.49 QALY. The weighted mean of all patients who underwent surgery, without considering postoperative evolution, revealed a cost-effectiveness ratio of US$ 298.39/29.8 QALY.

Despite the smaller "n," the results we reached are expressive and could influence the guidelines of UHS, regarding MH treatment, which take RM as an esthetic procedure, independent of breast size, and limits the number of surgeries that could be performed. Notably, after the surgery, this population will no longer be a part of the physiotherapy services, won't take long leave from work due to back pain, depression, etc., thus reducing the government's huge spending on disease. Despite all operational difficulties of a public service, MR was very important in the QoL gain, patients were satisfied with their surgical results and with the quality of healthcare service provided by the institution.

Conflict of interest statement

None.

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Marília de Pádua Dornelas Corrêa, Marilho Tadeu Dornelas
Federal University of Juiz de Fora, Rua José Lourenço Kelmer, s/n – Campus Universitário, 20 - São Pedro, Juiz de Fora, Minas Gerais 36036-900, Brazil
Federal University of Juiz de Fora - Faculty of Medicina, Av. Eugênio do Nascimento, s/n - Dom Bosco, Juiz de Fora, Minas Gerais CEP 36038-330, Brazil
Plastic Center Clinic, Rua Dom Vicoso, 20 - Passos, Juiz de Fora, Minas Gerais CEP 36026-390, Brazil

Pedro Henrique Rodrigues Cruz, Paula Valente da Silva, Nathália Villarins Pedrosa
Federal University of Juiz de Fora, Rua José Lourenço Kelmer, s/n – Campus Universitário, 20 - São Pedro, Juiz de Fora, Minas Gerais 36036-900, Brazil

Yuri Miranda de Oliveira
Federal University of Juiz de Fora - Faculty of Medicina, Av. Eugênio do Nascimento, s/n - Dom Bosco, Juiz de Fora, Minas Gerais CEP 36038-330, Brazil

Laura Dornelas Corrêa
School of Medical Sciences and Health of Juiz de Fora, Alameda Salvaterra, Juiz de Fora, Minas Gerais 36033-003, Brazil

Alfredo Chaoubah
Federal University of Juiz de Fora, Rua José Lourenço Kelmer, s/n – Campus Universitário, 20 - São Pedro, Juiz de Fora, Minas Gerais 36036-900, Brazil
E-mail addresses: marilia.dornelasc@gmail.com, recepcao@plasticcenter.med.br (M.d.P.D. Corrêa)

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Unilateral cleft lip repair: A 'cut as you go' approach to the anatomical subunit approximation technique

Dear Sir,

Fisher's description of unilateral cleft lip repair,[1] by applying the principles of anatomical subunits to provide optimal scar placement, relies upon preoperative measurements made by the surgeon on the lip prior to the first incision. In cases where pre-surgical orthodontics (PSO) or nasoalveolar modelling (NAM) have been used to bring the alveolar segments into alignment, these precise measurements work well. However, in cases where PSO or NAM have not been used, any resulting lesser alveolar segment collapse leads to anteroposterior and lateral displacements that have to be taken into account alongside lip length discrepancy. Releasing any tethering of the lip, and the upper lip frenum in particular, will lengthen the lip significantly as the manoeuvres are performed, requiring some adjustment of the surgical markings intraoperatively. Previous techniques, such as Millard's rotation-advancement repairs, have been lauded for their 'cut as you go' approach. We describe an approach to unilateral cleft lip repair that results in approximation of anatomical subunits along the optimal line of repair, as advocated by Fisher, whilst maintaining the ability to cut as you go as the repair proceeds.

Medial lip markings are performed in the same manner described by Fisher. Vermillion height deficiency on the medial lip can be addressed by importing a laterally based vermillion triangle from the lateral lip. This can be marked prior to the initial incision. Any vertical height deficiency in the cutaneous medial lip is augmented with a laterally based triangle above the white roll as described by Noordhoff.[2] In Fisher's original description, the height of this triangle is determined preoperatively from the difference between the cleft and non-cleft philtral columns. In our approach, measurements are not necessary pre-operatively because a large laterally based triangle is preserved along the lateral point of closure. This triangle should be made as large as possible along the whole length of the lateral lip above the cutaneous roll (Figure 1).

Key landmarks are then apposed; namely the nostril sill, cutaneous roll and vermillion border. At this point any discrepancies in the heights of the medial and lateral lip elements are then assessed. If a discrepancy in the height of the lip skin persists, a back cut is made on the medial lip immediately above the cutaneous roll. This incision is extended until the Cupid's bow becomes level. The gap created by this incision gives the height of the lateral lip triangular flap required to equalise the lip height. Armed with this measurement and the exact position of where the flap is required allows reduction of the triangle above the cutaneous roll on the lateral element to be performed to leave an equilateral triangle, which augments the medial lip height (Figure 2).

Figure 1 Large laterally based triangles marked along the lesser segment cleft skin and vermillion (arrows). These are not determined by pre-operative measurement but rather made as large as possible to preserve tissue that may be required when the lip closes around the plane of the alveolus (this movement is increased in cases of lesser segment collapse).

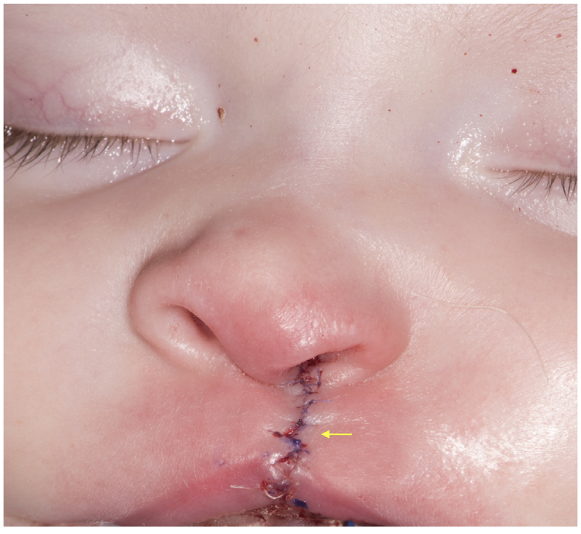

Figure 2 The superior triangle on the lateral lip element is shown at inset reduced to exactly match the defect that results from the back cut in the medial lip element (arrow). This manoeuvre results in precise matching of the lip heights. A similar procedure is then undertaken to match the vermillion heights. Note in this case a back cut at the level of the wet-dry boarder was not required to match vermillion height and therefore the vermillion triangle was excised and discarded.

In the same way as for the cutaneous lip, the lateral vermillion flap is initially preserved larger than anticipated. If there is a discrepancy in the vermillion an incision is made along the wet/dry junction until the heights are correctly aligned. The excessive vermillion flap is then trimmed to fit the dimensions and position of the defect exactly. The senior author has found, with this technique, that there is often no discrepancy and the vermillion flap is not required and can be discarded.

Fisher's technique for closure of the unilateral cleft lip by approximating the subunits of the lip has been widely praised and internationally accepted. It provides very satisfying post-operative results, which seem to be robust in the long term. The senior author was impressed by the ability of the technique to achieve an optimal line of repair and thus disguise the scar as best as possible between subunits but, as described by Fisher, the technique relies on the use of PSO or NAM.

Worldwide, the use of PSO/NAM often polarises opinion. Sommerlad recently reported interim results of a randomised controlled trial comparing the results in patients with and without the use of PSO. This demonstrated no difference in functional or aesthetic outcomes at five or ten years.[3] Systematic reviews of the literature have also failed to demonstrate significant long-term benefits.[4,5] However, its proponents can still point to the short-term benefits of improving the alignment of alveolar arch segments in order to aid cleft closure. In this situation, preoperative measurements serve to equalise the medial and lateral lip heights.

The presence of lesser segment collapse presents quite a different situation in the absence of PSO/NAM. Despite measurements that theoretically provide for correction of lip height asymmetry, the addition of anteroposterior and lateral width displacement can make closure of the lip more difficult as the lip elements need to pass around the alveolar arch. Subsequently, markings need adjustment intra-operatively to provide equalisation of the lip height. Using the principles of 'cut as you go', the preservation of large triangles on the lateral lip provides the extra tissue needed as the lip is closed.

Financial disclosure and products

We have no financial interests to declare.

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Alex J Davies
Department of Plastic Surgery, Bristol Royal Hospital for Children, Upper Maudlin Street, Bristol BS2 8BJ, United Kingdom

Nigel SG Mercer
Department of Plastic Surgery, Bristol Royal Hospital for Children, Upper Maudlin Street, Bristol BS2 8BJ, United Kingdom
South West Cleft Service, University of Bristol Dental Hospital, Lower Maudlin Street, Bristol BS2 1LY, United Kingdom
E-mail address: alex.davies@doctors.org.uk (A.J. Davies)

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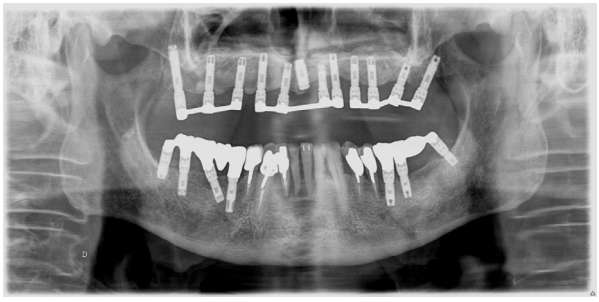

Figure 1 Paul Tessier's last dental panoramic radiography, in 2005. This figure best reflects the new *Homo masticans* with a total 19 implants placed from 1987 to 2005 (a record). Both maxillary bones were reconstructed using cranial grafts. Notice the two pterygoid implants placed in 1990. Two further implants were added after this radiography was taken (41 and 42).

Self-experimentation or how Paul Tessier became *Homo masticans*

Dear Sir,

Paul Tessier (1917–2008) was a world renown and charismatic surgeon, the father of craniofacial surgery encompassing ENT, neurosurgery, orbital, maxillofacial and plastic surgery. Tessier was a pioneer developing new surgical techniques after lengthy studies of malformed skulls and self-criticism during surgery. He spent hours studying Crouzon malformations and other cranial malformations, amassing a vast cranium collection enabling him to devise new reconstructive techniques (the Tessier collection is currently preserved in Amiens, France). Whether operating in his hospital in Paris or abroad (mostly the United-States or England), each procedure would be studied, criticized and commented to try and improve the outcome. Like so many before him, he was also eager to experiment on himself given the opportunity.

Per-Ingvar Brånemark (1929–2014), a Swedish physician, described clinical outcomes of his dental titanium implants in 1977. Starting out with very poor clinical results, he progressively improved his technique modifying implant design and surgical strategy but his breakthrough remained controversial throughout the following decade.[1] Regardless of the widespread skepticism, Tessier sent his student (our co-author) JFT in 1983 to Göteborg in Sweden to learn from Brånemark, thus probably foreseeing his own future needs. Tessier often cancelled his own dental appointments due to overloaded surgery schedules. His dental condition was deteriorating and the underlying bone thinning.

In 1987, JFT placed the first five implants in Tessier's maxillary bone. In 1990 and 1991, Tessier successfully self-experimented, placing two 20-mm pterygoid implants (for posterior bone support) and reconstructing both maxillary sinus floors using two cranial grafts (providing low-resorbable cortical bone). From 1987 to 2005, JFT performed a total of 12 procedures, placing a record number of 22 implants and three cranial grafts. Tessier was proud of the result and would frequently joke with his students about his mild cranial deformity (harvested sites were not reconstructed) exclaiming, falsely annoyed, "*Regardez ce que Tulasne m'a fait!*" (Look what Tulasne did to me!). He also showed off his own dental panoramic radiography (Figure 1) to students or peers in meetings, calling himself the first *Homo masticans*.

It is widely acknowledged that self-experimentation cannot be considered as an alternative to evidence-based medicine or as a way to bypass ethics committees. Self-experimentation lacks objectivity, statistical validity and comparativeness to establish any undisputed medical knowledge.[2–4]

It can also be dangerous and sometimes lethal. One of the all-too-many examples is Joseph Toynbee (1815–1866) who, in the field of otology, shared Tessier's pioneering mind and was also renown for his collection of anatomical studies. Experimenting on tinnitus, his dead body was found in his consulting room with cotton over his face and a strong smell of chloroform. Next to him a blank page entitled "Experiments on the effect of chloroform combined with hydrocyanic acid".[5]

Rather than providing factual evidence, self-experimentation is a personal statement which then may pave the way for more conventional studies. The investigator can seek adventure or first-hand experience,[2] but heroism and defiance chiefly transpire, as personal risks are taken to prove a point and persuade a sometimes reluctant audience that something is possible . One of the best-known examples is Werner Forssmann (1904–1979) who won the Nobel prize in 1956 for intravenously catheterizing his own heart in 1929. Ignoring his superior who believed intrusion in the heart would be fatal, he covertly recorded the presence of the catheter in his right atrium on X-ray. He was dismissed and had to change specialty to urology to continue his medical practice until he received worldwide appraisal decades later.[2]

Overall, an astonishing twelve Nobel prize winners self-experimented, of which seven were rewarded specifically for self-experimental work.[4] This tends to show that self-experiments, if not methodologically valid, have a psychological impact adding a dramatic (almost self-sacrificial) dimension to a medical feat.

As on the battlefield, heroic endeavors seldom suffice even if they are successful, but it is they that are remembered and that galvanize others. Like many before him, Tessier attempted new techniques on himself establishing a benchmark in his discipline, thus inciting his students to trust and improve implantology. *Homo masticans* helped gather momentum.

Conflict of interest

None.

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Ethics

Signed consent was obtained from Tessier's family.

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François Simon
Department of Pediatric Otolaryngology, AP-HP, Hôpital Necker-Enfants Malades, 149 rue de Sèvres, 75015 Paris, France
Université Paris Descartes, Sorbonne Paris Cité, Paris, France

Jean-François Tulasne
Private Practice, 26 avenue Kléber, 75116 Paris, France

Roman Hossein Khonsari
Université Paris Descartes, Sorbonne Paris Cité, Paris, France
Department of Pediatric Maxillo-Facial Surgery, AP-HP, Hôpital Necker-Enfants Malades, 149 rue de Sèvres, 75015 Paris, France
E-mail address: f.simon@aphp.fr (F. Simon)

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