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Correspondence and Communications

Review of quality of online resources for breast implant associated anaplastic large cell lymphoma

Dear Sir,

Breast Implant-associated Anaplastic Large Cell Lymphoma (BIA-ALCL) is an uncommon T-cell lymphoma, first reported in 1997, is now an emerging and compelling medical challenge. Although the disease appears to be related to textured implants, its exact pathogenesis is incompletely understood. The true incidence remains unclear as it varies worldwide, and is estimated to be up to 0.311 cases per 1000 person-years.[1] In addition, the true number of patients with implants globally is unknown, meaning many individuals are potentially at risk of developing this condition.

Information about this condition found on the internet can be emotionally charged, using terms such as "dying," "lawsuits," "devastating consequences," and "shame".[2] Although not directly studied, there is a hypothesis that such information could lead to confusion and fear amongst patients who have undergone reconstructive surgery or are considering undergoing breast augmentation surgery. A portion of these patients have already experienced significant life-altering events, such as the treatment of breast cancer. With over 50% of the EU population seeking health information online,[3] it is important that good quality, reliable information is available to patients on the internet. Our study aims to assess the quality and readability of health information on BIA-ALCL available on the internet.

The first 200 search results returned by google.com searching *"breast implant cancer"* were analysed. This single string lay search aimed to capture a typical patient search and, and no other search engines were used as Google is the most popular search engine for accessing online health information.[4] The exclusion criteria for these websites were non-functioning links, websites containing $\leq$1 sentence about BIA-ALCL, and journal articles $>$15 years old. Websites were classified according to type and assessed according to standard health information quality (HIQ) parameters including the JAMA score and the DISCERN score. The JAMA score is based upon four standards medical information online should uphold; clear description of 'authorship', 'attribution' and referencing, 'disclosure' including website ownership and 'currency' outlining dates of posting and updating. A JAMA Score of is $\geq$3 an accepted indicator of a good quality online website resource.[5] The DISCERN tool was used to determine the quality of websites based on 16 questions to calculate this score, with a maximum score of 80, and higher scores indicating higher quality.

Website readability was assessed using indices such as the percentage complex words, and Fleisch-Kincaid Reading Ease, which is based on a score of 0–100, with a higher score indicating easier readability. The Coleman-Liau index approximates the U.S. grade level thought necessary to comprehend the text. The average monthly users of the site domain were evaluated using websiteiq.com. Types of websites included were commercial, news, professional, government, non-profit, health portal, scientific journal, and other. Data was tabulated and analysed using Microsoft Excel and SPSS v.26.

From the first 200 search results, 105 were eligible for inclusion. The majority of these, 50.5%, were from news sources, followed by healthcare providers (13.3%), non-profit organisations (11.4%), health portals (6.7%) and commercial providers (5.7%). Only 34.3% had a JAMA Score $\geq$3. Due to 50.5% of the results coming from news sources, the quality and readability of this information was compared with the other search results. These results are displayed in Table 1.

Further specific quality points were defined based on the presence of the following information on the sites: symptoms of BIA-ALCL, treatment, incidence, implant type, what to do next, time of onset, and diagnostic tests. The median number of quality points mentioned for news sources was 2, while other sites mentioned 4 ($p < 0.004$). Types of implant linked with BIA-ALCL was the most frequently mentioned quality point (81.9%), followed by symptoms (53.3%) and what to do next if there is a concern about BIA-ALCL (42.9%). The least frequently mentioned were time of onset of BIA-ALCL from implant insertion (26.7%) and diagnostic tests (12.4%). The median monthly average visitors for the domain was 2,555,786 for news sources and 178,841 for others ($p < 0.001$).

These results demonstrate the majority of information available to patients online regarding BIA-ALCL is unregulated, not distributed by healthcare providers and often lacking relevant and accurate information. Content creators should be aware of the influence the Internet has on patients' perception of health conditions and the importance of disseminating comprehensive, accurate, up-to-date and understandable information. News sources are the most prevalent source of information accessible, and are reaching wider audiences, though quality of health information from these sources is unreliable.

Table 1 Information quality and readability of news sources vs. other sources.

	News Sources	Other	
Information Quality			
Median JAMA Score	2	2.5	$p = 0.002$
DISCERN Score	32	44.5	$P < 0.001$
Readability			
Median Fleisch-Kincaid Reading Ease	61.7	54.7	$p = 0.014$
Median Coleman-Liau	13.1	14.2	$p = 0.018$
Median% Complex words	14.8%	16.8%	$p = 0.025$

In conclusion, easily accessible online health information to support patient decision-making regarding BIA-ALCL is of poor quality and difficult to read. It is recommended that professional bodies and medical professionals in the plastic surgery community seek to ensure that good quality, accurate and readable information is easily accessible to patients concerned about BIA-ALCL. In the meantime, clinicians should identify a reliable online resource for the condition in their own practice and guide patients towards this.

Declaration of Competing Interest

The authors have no conflict of interest to declare

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Reliable free flaps using the microscopic parachute end-to-side technique in severe extremity injuries

Dear Sir,

In free-flap transfer, end-to-side (ETS) anastomosis has many advantages compared with end-to-end anastomosis including preservation of peripheral circulation, less possibility of vessel spasm, and ease of adjusting for vessel mismatch.[1,2] However, most surgeons report that ETS anastomosis is a more difficult technique,[1,3,4] and there is no standard technique for free-flap transfer.

Cardiovascular and vascular surgeons generally use the parachute ETS technique for various types of bypass surgery,[5] we hypothesized that this could be used to provide a simpler and more reliable ETS technique for free-flap transfer. We aimed to modify this technique to make it applicable to small vessels under microscopy. Here we describe a microscopic parachute ETS (MPETS) technique for free-flap transfer that was modified from the ETS technique commonly used by cardiovascular surgeons.

The MPETS technique is illustrated in Figure 1 (See Supplemental Online Video). We used a special double-needle microsuture for the MPETS technique, made from polyvinylidene fluoride (Asflex; Crownjun Kono Co. Ltd., Tokyo, Japan). Although the MPETS technique in theory can be performed in a number of orientations, to simplify the procedure we placed both the recipient and donor vessels parallel to each other. First, the donor vessel is cut and widened with microscissors, then a longitudinal wide-slit vesselotomy is performed in the recipient vessel using a microknife and microscissors. Anastomosis begins at the heel with the parachute technique. The donor vessel is tethered at the heel with about five parallel suture strands: the assistant must not tangle these. The donor vessel is drawn into the heel of the recipient vessel by gently pulling up the ends of the sutures. After suturing the heel of the vessels using the parachute technique, the posterior wall is closed with a continuous running suture with up to two or three sutures

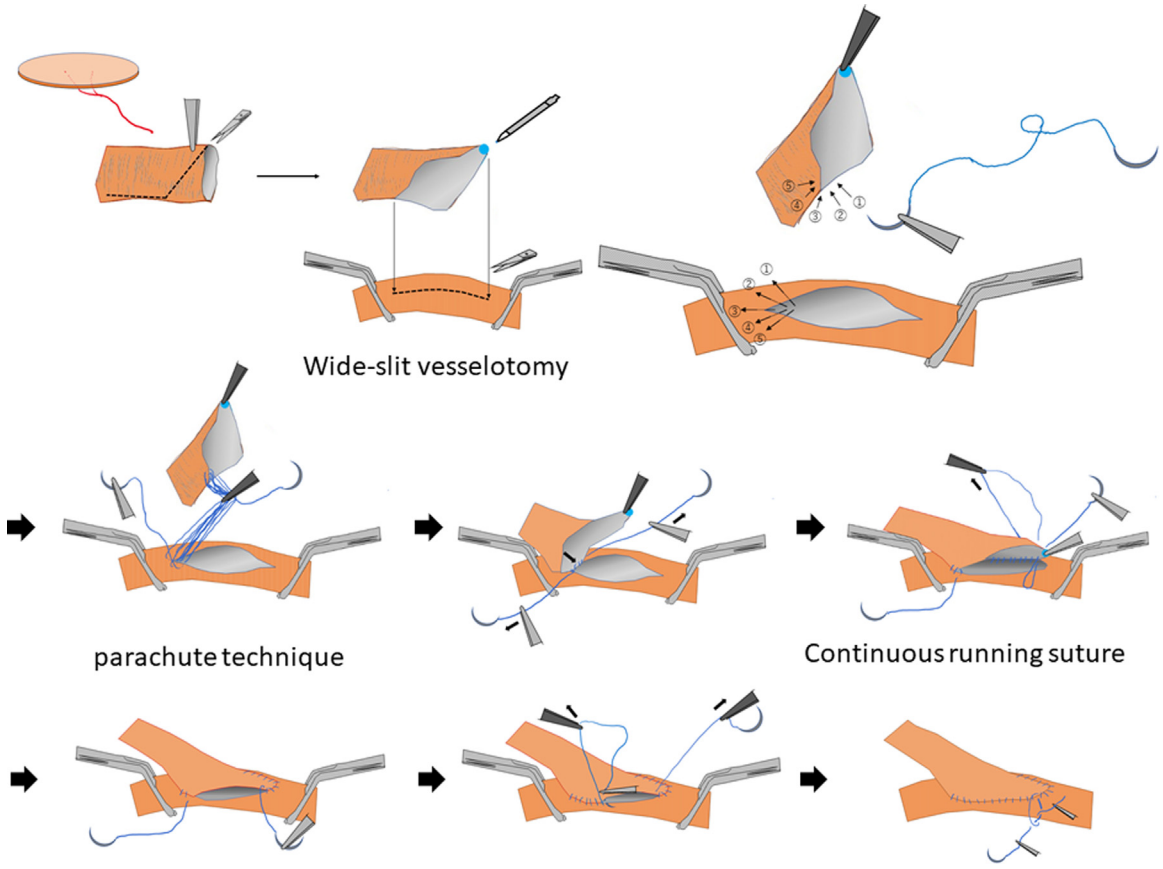

Figure 1 Diagram of the microscopic parachute end-to-side (MPETS) technique. Grey forceps are manipulated by the operator and black forceps by the assistant.

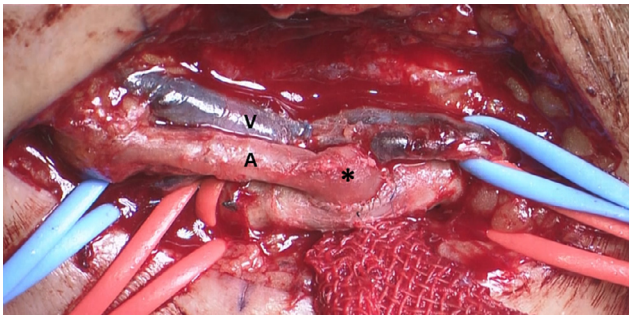

Figure 2 Both artery (A) and vein (V) of this *Latissimus dorsi* myocutaneous flap were anastomosed to a recipient artery (posterior tibial artery) and an accompanying vein using the MPETS technique. After completion of the anastomosis, the anastomotic site was stretched out in a "cobra head" configuration (asterisk).

beyond the toe. The assistant needs to keep the material at an appropriate tension using forceps. The anterior wall is sutured with the other end. It is important to release the clamps before tying both ends to allow the suture and the anastomosis to expand to a full diameter. After tying both ends, the stretched-out anastomosis takes on the characteristic "cobra head" configuration if the MPETS technique is executed correctly (Figure 2). If the recipient vessels have sclerotic changes, it is important to adjust the suture direction and penetrate the vessel wall from the inside out to avoid creating intimal flaps.

We have evaluated the clinical outcomes of free flaps (18 flaps from 17 patients) in which the MPETS technique was used for both arterial and venous anastomoses. There were 12 in the upper and six in the lower extremities; 11 fasciocutaneous flaps, two myocutaneous flaps, and five other composite tissue transfers. One patient with a thoracodorsal artery perforator flap developed partial flap necrosis secondary to over defatting, whereas all other flaps survived using the MPETS technique for both arterial and venous anastomoses. No complications caused by hematomas at the anastomotic sites were observed when using this technique. The MPETS technique was applied to 44 anastomoses (18 arteries and 26 veins) in this study. The mean diameter was 2.2 mm (range 0.8–4.5 mm) in the recipient vessels, and 2.0 mm (0.8–4.5 mm) in the donor vessels. There was a mean of 1.3-fold (0.4–3.3-fold) size mismatch between the donor and recipient vessels. The mean size of the vesselotomy was 4.8 mm (2.0–8.0 mm), and the mean expansion rate of the donor vessel was 2.7-fold (1.3–5.2-fold). The mean anastomosis time was 28 min (13–53 min), and the mean ischemic time was 164 min (56–316 min).

Our MPETS technique has three distinct advantages over the conventional ETS approach because it: (1) allows easy vesselotomy because only a wide slit is made; (2) avoids anastomotic narrowing by making a very wide-slit window

into the recipient vessels; and (3) enables easy anastomosis of the heel of the donor vessel, a high-risk site for blood leakage.

Most orthoplastic surgeons fear serious damage to the great vessels and intractable bleeding from a widely opened window during anastomosis.[1,4] Although blood leakage sometimes occurred during MPETS, all leakage could be controlled by tightening the suture around the bleeding site and tying the loosened suture with an additional one-knot stitch. We believe that our MPETS technique can be applied to various sizes of blood vessels and might make free flaps easier in cases of severe extremity injury. Although it requires a longer anastomosis time than the conventional ETS, it should become simpler and faster with experience and minor technical modifications.

Ethical approval

All patients provided informed consent, and this study was approved by our institutional ethics committee (2018-061).

Declaration of Competing Interest

None declared.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2020.05.022.

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Improving evaluation methods and study population to assess the educational value of the virtual 3D anterolateral thigh model

Dear Sir,

We read with great interest the article by Lo et al. on the use of Three-dimensional visualisation technology (3DVT) in anatomy education[1]. The authors highlighted the benefits of incorporating novel modalities in anatomical education, which traditionally has been delivered via 2-dimensional teaching and cadaveric dissections or prosections where available. The study focused on using real-time 3D models of the anterolateral thigh (ALT) for educating plastic surgery-naïve anatomy students on the complexities of raising the ALT flap. Upon evaluation, the student-reported 'ease of learning' for the method and was more preferable over lec-

tures, textbooks and research papers. Analysis of qualitative feedback showed that this method provided "accurate" and "clear" visualisation whilst offering reversibility in virtual dissection, which is not possible in actual cadaveric dissections. It was interesting that students retained appreciation for lectures despite variations in teaching quality. The study contributed to the growing body of evidence for augmenting anatomical education through the use of 3DVT.

While the study yielded encouraging results, its interpretation is limited by the self-evaluation approach of assessment. Subjective experience of the students remains a crucial factor in the assessment of novel learning methods, but the study did not offer the opportunity to evaluate the 3D virtual models' impact on student performances through dissection or anatomy examinations. Objective assessments could have been implemented during the cadaveric session to evaluate students' anatomical knowledge or practical dissection technique. A direct comparison of the 3D virtual model against other similar virtual educational tools currently available that are already being commonly used by students, such as mobile anatomy applications, would also aid in establishing its educational value. It is known that no single teaching tool fulfils all aspects of anatomical curriculum requirements and that the best identified pedagogical approach is through the use of complementary resources such as plastinated models, medical imaging and cadaveric dissection[2]. It will, therefore, be valuable to assess the efficacy of the 3D virtual model in conjunction with other teaching modalities as well. Without access to such quantitative data, the study falls short on reaffirming the comparative effectiveness of 3D virtual models against other standard pedagogical approaches in anatomical teaching. As aptly named, "augmentation and not replacement", the intention to assess the use of 3-dimensional virtual models alongside traditional means should be achieved by comparing student experience and performance with and without its the addition of virtual models into the standard anatomical curriculum.

The study was also unclear on what aspects of raising an ALT flap were taught and assessed. The benefits of the proposed model might be limited to learning gross anatomy of the thigh and might not necessarily translate to actual surgical performance. The fact that only undergraduate anatomy students were included in the study population might further contribute to this argument as challenges in performing microvascular free flaps lie not only in anatomical knowledge, but also in managing different factors. These include technical factors such as microsurgical techniques and perioperative monitoring and judgement, and non-technical factors including the management of surgical complications as well as functional and aesthetic outcomes[3]. These are the reasons, in addition to 3D anatomical spatial awareness, for the steep learning curve behind free flap surgeries[4]. As such, the subjective evaluation of a novel 3D virtual model, incorporated over a 3-hour course for undergraduate anatomy students rather than medical students or surgical trainees, is unlikely to reflect the true educational value of the proposed teaching method. It is therefore difficult to fully assess the models' potential to improve anatomical education from the present study alone.

Nevertheless, the article was important in highlighting the potential of 3DVT in the context of improving our undergraduate anatomy curriculum. As identified by previous studies, 3DVT has been proven to improve outcomes of anatomy teaching while serving as a reliable solution to the problem of inadequate anatomy pedagogy[5]. As suggested by Lo et al.[1], 3DVT could be utilised to address the issue of inadequate and limited plastic surgery teaching in the undergraduate medical programmes, as the speciality has an "overwhelmingly 3-dimensional nature of learning and eventual practice" that should be rightly emphasised in the modern anatomy curricula.

Declaration of Competing interest

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Tamai zone I fingertip replantation with venous anastomosis versus without venous anastomosis

Dear Sir,

Fingertip replantation poses a considerable challenge to surgeons, because venous anastomosis is extremely difficult and venous congestion is a leading cause of failure.[1] Despite having some limitations, artery-only replantation for fingertip amputations has gained popularity over the years because of the relatively easy surgical process.[2-4] However, both arterial and venous repair are crucial for optimal results in digital replantations.

39 consecutive patients with 46 complete distal digital amputation were included in this study (Table 1). 23 fingers were replanted with arterial and venous anastomoses (group A) with a survival rate of 92% while 18 fingers were replanted with arterial-only anastomoses (group B) with a survival rate of 85.8% ($p = 0.648$). 4 patients in group B needed blood transfusion with an average amount 1.3 U. Nail deformity was noted in all digits in group B and in 3 fingers with nail plate removed in group A. 3 fingers in group A (13%) and 3 fingers in group B (16.7%) showed small amounts of pulp atrophy compared with the contralateral fingers at the end of the follow-up.

Case report

Case 1

A 23-year-old man suffered a sharp amputation by a machine to his right middle, ring and little fingers within Tamai zone I. The injured digits and the amputated part were examined under the microscope to assess the severity of the injury and the feasibility of replantation. The middle and ring fingers were replanted by artery and vein anastomosis.

Table 1 The results difference between the two groups.

	Group A	Group B	*P*
Mean time for the procedures (h)	2.2	1.2	0.000[b]
Survival rate	92%	85.8%	0.648[c]
Blood transfusion rate	-	22%	0.037[c]
Nail deformity[a]	3	21	0.000[c]
Pulp atrophy[a]	3	3	1.000[c]
Average S2PD (mm)	7.5	8.0	0.195[b]

[a] Represents with numbers of digits.
[b] *t*-test.
[c] Fisher test.

The bones were fixed with K-wires. Nerve repair was not performed. The little finger amputated part was sutured in situ. At the follow-up examination at 12 months, the aesthetic appearance of the fingers was satisfactory, the nails were smooth and the injured fingers recovered adequate protective sensations (Supplementary Figure 1).

Case 2

A 43-year-old woman experienced a complete blunt-cut amputation by an electric saw on his right middle finger within Tamai zone I. The middle finger was replanted by artery-only anastomosis; nail-plate removal and nail-bed abrasion was performed prophylactically. At the follow-up examination at 10 months, though the amputated finger had recovered adequate protective sensations, a small amounts of pulp atrophy was observed and nail deformity was noted (Supplementary Figure 2).

Discussion

For artery-only replantation, many techniques have been described to solve the venous drainage problem, including external bleeding protocol using pulp incision, partial nail plate removal, and paraungual area stab incision, application of medicinal leech or mechanical leech, and a controlled nailbed bleeding protocol. In our study, the injured digit and the amputated part were examined under the microscope to assess the severity of the injury and the feasibility of replantation. If microvascular replantation was considered feasible, the surgical procedure began with bone fixation, followed by artery and vein anastomosis in group A. If the vein was absent, artery-only replantation was performed. Because of the lack of vessels in the amputated distal digits, grafting using vein grafts or arteriovenous shunts was not performed in this series to establish a venous system. To prevent venous congestion, nail-plate removal and nail-bed abrasion were performed in group B (artery-only replantation cases), which resulted in nail deformity. This was attributed to repeated nail-bed abrasions in artery-only replantation postoperatively. However, there is no difference in survival rates between group A and group B.

Artery-only replantation needs persistent bleeding which is often associated with a risk of infection and substantial blood loss. Erken et al. reported that 15 of 22 patients (68.2%) required blood transfusion in artery-only replantation.[5] Some patients may not feel comfortable receiving a blood transfusion after fingertip replantation.

Leech application, as a salvage method for vein congestion, is advocated by some authors.[2] In our study, there were no cases using medicinal or mechanical leeches for its potential risks of infection or blood transfusion.

In conclusion, our study shows that although there is no difference in the survival rate between the two techniques, Tamai zone I fingertip replantantion with venous anastomosis has a better aesthetic result and fewer complications than when performed without venous anastomosis. Our results suggest that replantation with venous anastomosis should be encouraged in Tamai zone I fingertip amputation if there are any available veins.

Declaration of Competing Interest

All named authors hereby declare that they have no conflicts of interest to disclose.

Authorship

Yimin Chai designed the study. Liang Cheng wrote the first draft of the manuscript. Liang Cheng and Gen Wen performed the procedures and collected the data. Peihua Cai revised the manuscript.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2020.05.018.

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A modified upper lip lift approach for columella reconstruction.

Dear Sir,

we congratulate with the authors for being so exhaustive in describing all the relevant issues the surgeon must face when approaching a columellar defect and reporting all of the reconstructive options, each one with its own advantages and limits.[1]

We hereby propose a modified upper lip lift approach, as originally described by Austin in 1986 and later revised by Spiegel in 2018, where the bull horns, usually excised in aesthetic lip surgery, are harvested as cutaneous medially-based random flaps and used for columella reconstruction.[2,3] Our technique is similar to the one performed by Pincus on two children and described in 1990.[4] However, some refinements derived from aesthetic lip surgery allowed us to obtain a better camouflage of donor site scars.

We used this technique for columella reconstruction in an 85-years-old woman. Excision of a desmoplastic basal cell carcinoma resulted in a 1.5 × 1 cm defect, involving the anterior two-thirds of the columella, both the soft-tissue triangles and extending to the infratip lobule, with exposure of the caudal septum devoid of its covering perichondrium.

Reconstruction was delayed until histopathological examination confirmed negative margins of excision. As described by Spiegel, the incision was marked in the alar groove bilaterally, extending under the nose in the groove between the nasal sill and the lip.[4] The incision was extended adequately laterally, to provide enough length of the flaps to cover the entire defect, not exceeding the nasolabial fold, in order to avoid visible scars and the obliteration of this natural sulcus. Each flap measured 7 mm in width at the base and 2 cm in length, thus not exceeding a width to length ratio of 1 to 3. Flaps were harvested in a subcutaneous plane, leaving the orbicularis oris intact, to avoid an excessive thickness of the reconstructed columella that would inevitably require a secondary thinning procedure. The dissection proceeded deeper in the medial aspect, where a piece of orbicularis oris muscle was included at the flaps' base, to allow adequate flaps perfusion, provided by the vascular subcutaneous and subdermal plexuses originating from septal and columellar branches from the superior labial arteries. The flaps were elevated, transposed by an arc of 90° and approximated on the midline, with each flap having a transposition arc of 90° (clockwise for the right flap, anti-clockwise for the left one). The skin of the caudal part of the columella, which had not been infiltrated by the tumor, was removed and replaced by the flaps. The medial aspects of each flap were sutured one to another with 6-0 nylon sutures. The distal extremities of the flaps were sutured to the skin of the nose tip with 4-0 polyglactin 910 and 5-0 nylon sutures. The lateral edges of the flaps were sutured to the septum mucosa with 5-0 polyglactin

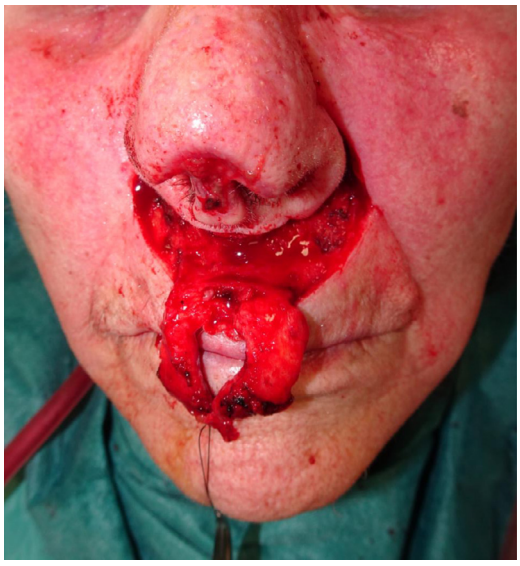

Fig. 1 Intra-operative view, showing harvesting of the flaps.

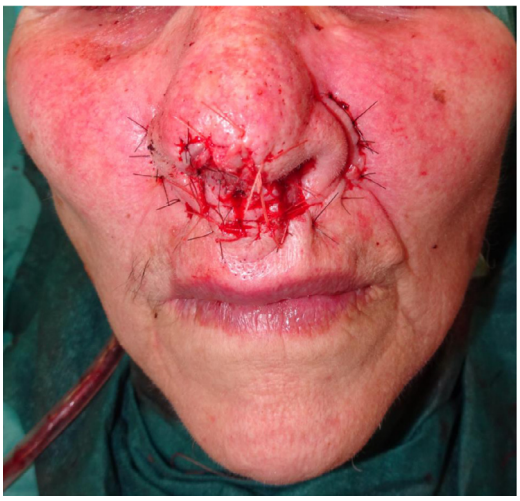

Fig. 2 Intra operative view, showing insetting of the flaps.

910 sutures. Quilting sutures were used in order to avoid dead space between the flaps and to anchor them to the septal cartilage. For closure of the donor site, as reported by Li and Ritz, 5-0 polydioxanone sutures are used to fix the orbicularis oris muscle to the pre-maxilla periosteum, in order to decrease tension on the wound, while superficial closure was performed with 4-0 polyglactin 910 and 5-0 nylon sutures.[5] The patient was discharged three hours after surgery. The post-operative course was uneventful. A secondary refinement procedure was proposed three months later, in order to achieve an adequate thinning of the neocolumella and to correct the obtuse nasolabial angle, but was refused by the patient, who was already satisfied with the outcome.

Our modified upper lip lift technique can be applied in all cases of columellar partial or total defects, even with infratip involvement. In case of full-thickness defects, a columellar strut, harvested from the septum or the rib, can be placed to supply for framework support.

This approach should be considered when the patient refuses more complex and staged procedures, such as melolabial or forehead flaps, as it can provide a good outcome through a single-stage surgery. It can also allows for the saving of a forehead flap, that can be useful in case of local recurrence of the tumor.

We believe it might be indicated especially in patients who desire or may require additional fullness of the upper red lip, or in elderly patients, where the vermillion has lost its volume, the nasal labial distance is elongated and there is loss of dental show. As for the upper lip lift procedure, the scars are well hidden in the groove between the nasal sill and the lip or into the nose.

A secondary revision may be required, after flaps' autonomization (at least 3-4 weeks), in order to restore the normal appearance of the nasolabial angle, where some bulkiness may be noticed at the flaps' pivot point. However, this procedure may not be desired by elderly patients, as happened in our experience. Fig. 1, Fig. 2.

Conflicts of interest

None declared

Acknowledgement

The authors declare that they have no conflict of interest.

Disclosures

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None

Ethical approval

Not required

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2020.05.014.

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Infraorbital groove correction by microfat injection after lower blepharoplasty

Dear Sir,

We read with great interest the article titled "Infraorbital groove correction by microfat injection after lower blepharoplasty" by Won Lee et al.[1] The authors described a new interesting technique, involving the use of autologous fat from periorbital compartments, for infraorbital groove correction after lower blepharoplasty, with the main advantage of correction the deep infraorbital groove and subsequently rejuvenating the lower eyelid area without the need for further fat tissue donor area.

We congratulate with the authors for the presented cases and for the renewed use of the infraorbital septal fat, but we have some elements to discuss.

The authors used a transcutaneous subciliary approach by harvesting a skin-muscle flap using a stair- step approach, leaving the pretarsal orbicularis muscle undisturbed, but we retain, as previously published, that the aging process involves the orbital region and affects the skin, muscle, fat, and bone in different manners, giving a tired and sad look and therefore, to optimize their rejuvenation, these different structures would require individual and specific surgical treatments according to their particular demands during blepharoplasty.[2,3] This requires the separate management of the skin and muscle, splitting them into two different flaps and, to reduce the risk for ectropion, fix the orbicularis oculis muscle flap prophylactically to the periosteum of the superior orbital rim to contrast the natural tendency of the lower eyelid to move downwards after transcutaneous blepharoplasty. Although there are ethnogenic patho-aetiological differences between Asian and Caucasion populations that should be always taken into consideration for the surgical approach, pre- and postoperative marginal reflex distance-2 (MRD2), namely the distance between the center of the pupil and the upper border of the lower eyelid at the mid- pupillary line, could be useful to objectively evaluate the final outcome of lower blepharoplasty, especially when a skin-muscle flap is harvested instead of separating the different tissues. This could be interesting not only for the evaluation of the results, but also to further prove the efficacy of the technique.[4,5]

In conclusion, we retain that some sort of canthal support represents a fundamental step in transcutaneous blepharoplasty, that should not be forgotten during this type of surgery and longer follow-up is mandatory to evaluate long term results, especially in combined surgical procedures.

Disclosure

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Declaration of Competing Interest

None

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Ethical approval

None.

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Reply: Infraorbital groove correction by microfat injection after lower blepharoplasty

Dear Sir,

We thank Dr. Wen-Tsao Ho for an astute description of our study. As we described in our article, fat transposition and grafting are useful for filling the infraorbital groove.[1] Fat pad sliding involves shifting the medial orbital fat normally excised in lower blepharoplasty,[2] and naturally, central fat pad sliding can also be performed at the centre of the infraorbital groove. However, as we described in our article, fat pad sliding sometimes results in undercorrection. Infraorbital grooves are not always due to volume loss. They are also caused by different factors, such as skin thickness differences and orbicularis oculi muscle changes. Thus, fat pad sliding can only compensate for the volume of the layers below the muscles of the infraorbital groove, which can sometimes lead to insufficient results. Our method can fill the subcutaneous volume loss with fat; hence, it can be more effective than performing deep volumisation alone.

Another concern is the survival of transplanted fat. We harvested and transplanted septal fat after performing only minimal measures without centrifugation. We expect the method to lead to higher fat survival rate than conventional fat graft, which uses harvested fat from other parts of body, which is then centrifuged and transplanted. In fact, we have never experienced complete absorption of transplanted fat, and for this reason, we have not made overcorrection cases. In Figure 6, you can see that the fat was relatively retained at 6 months after the procedure.

We believe concomitantly performing fat pad sliding and microfat injection, as Dr. Wen-Tsao Ho described, would lead to considerably better results. Conventional microfat grafting leads to donor-site morbidity, longer operation time and additional surgical preparation. Furthermore, patients might not want to spend additional operation fees.

Correction of infraorbital groove by improving the subcutaneous layer after skin closure is a novel idea of this study, and thus, further evaluation is needed.

Declaration of Competing Interest

None.

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Engaging stakeholders in bioprinting research: Views and concerns of microtia patients' parents on bioprinted auricular cartilage

Dear Sir,

As novel tissue engineering and bioprinting technologies are being explored for future auricular cartilage repair, there is also a growing need to involve relevant stakeholders in the research process in order to further align research incentives with societal needs and expectations. Scientists, physicians, funding agencies and ethical committees are still considered the main actors driving (bio)medical research. However, the voice of patient stakeholders is largely absent in the development process of new medical and technological products and methods.[1] Nevertheless, the research process and its outcomes can greatly benefit from

Table 1 Categorized questions and associated key terms.

	Keyword
Questions related to technologies	
How do you feel about creating new tissues in the laboratory, in general?	Tissue engineering
How do you feel about the use of laboratory-made cartilage for future treatments for microtia?	Tissue-engineered cartilage
How do you feel about using the new 3D-bioprinting technology for the creation of an ear implant?	3D bioprinting for ear
Questions related to cells	
How do you feel about the use of the patient's own chondrocytes (from the cartilage) for future therapies?	Autologous chondrocytes
How do you feel about the use of the patient's own stem cells for future therapies?	Autologous stem cells
How do you feel about harvesting the patient's own cells from your child?	Harvesting cells from child
Questions related to materials	
How do you feel about the use of synthetic materials for future therapies with tissue regeneration?	Synthetic materials
How do you feel about the use of natural materials for future therapies with tissue regeneration?	Natural materials
How do you feel about the use of cell-seeded Medpor® for ear reconstruction?	Cell-seeded Medpor®
How do you feel about the use of "decellularized" (donor) tissue?	Decellularized tissue
Questions related to implementation	
How do you feel about the future possibility of implanting laboratory-made cartilage, if this would be in your child?	Implantation of engineered cartilage
How would you feel about the participation of your child in early clinical research?	Participation in early trials

participatory processes involving a continuous dialog between patients and researchers.[2] In fact, public engagement in scientific research is one of the pillars of the Responsible Research and Innovation (RRI) approach adopted by the EU Commission. This framework was designed to overcome misalignment between values, needs and expectations of society to be pursued in Research and Innovation (R&I) and what is actually being researched and developed as innovative products.[3,4,5] A remarkable aspect of the RRI approach is that it requires the incorporation of participation of all stakeholders, thus including patients and end-users since the very outset of the R&I process.

Impacts of innovative technologies, such as bioprinting, are highly dependent on its effective responsible development and translation into clinic and society. The current study is one of the first attempts of embedding bioprinting research and clinical applications into a RRI process. In fact, it involves end-users and stakeholders in the research process of a specific case of bioprinting of auricular cartilage implants for future microtia reconstruction. Microtia, a congenital deformity of the external ear, is currently treated with reconstructive surgery using autologous rib cartilage or synthetic polyethylene (Medpor®) implants. As reconstruction is often performed when the patient is still a child, their caretakers become relevant stakeholders. This study explored the views and concerns of microtia patient caretakers towards emerging technologies for future auricular reconstruction, specifically concerning tissue engineering, 3D bioprinting, and related aspects such as the use of autologous (stem) cells, synthetic and natural biomaterials. Further, it studies the interest in the hypothetical involvement of their child in the deployment of such techniques. After approval of the Medical Research Ethics Committee, participants were recruited at a microtia patients/parents day and subsequent outpatient clinic consultations. Oral and/or written information pertaining the topics surveyed in the study were provided in a factual tone, and study questionnaires regarding the aforementioned topics (Table 1) were scored on a 5-point Likert-type scale, with 1 meaning a negative attitude towards the topic, 2 being hesitant, 3 being neutral, 4 being receptive, and 5 having a positive attitude towards it.

In total, 37 completed questionnaires were returned (57% by mother, 27% by father). There were no statistically significant differences between higher and lower educational levels of respondents in the mean scores of given answers. The parents expressed an overall positive attitude and receptiveness towards the use of tissue engineering and bioprinting technologies for reconstruction of the auricle (Fig. 1). Comments were positive, including statements like "beautiful development" and "I'm definitely a proponent of new innovations, especially if it means that surgeries become less intensive." One respondent expressed being "wary of humans 'playing God' and unintended and unimagined consequences, but being encouraged at the same time". The use of autologous chondrocytes or stem cells was received with a bit more caution. Respondents expressed concerns about the invasiveness of the harvesting techniques, the pain it would cause and the potential long-term effects. The majority of respondents expressed an openness towards the use of synthetic and natural biomaterials for the creation of laboratory-made auricular implants. It was regarded as a good alternative to harvesting tissue from the patient (like in auricular reconstruction using rib cartilage), yet concerns were raised about potential rejection by the body. One respondent stated to be "concerned about the durability of man-made materials and how they behave over time". The future possibility of implanting laboratory-made, bioprinted cartilage in their child was received with considerable enthusiasm. However, a contrasting and important finding was parents' reluctance in subjecting their own child to surgical and technological innovations in early stages of the clinical

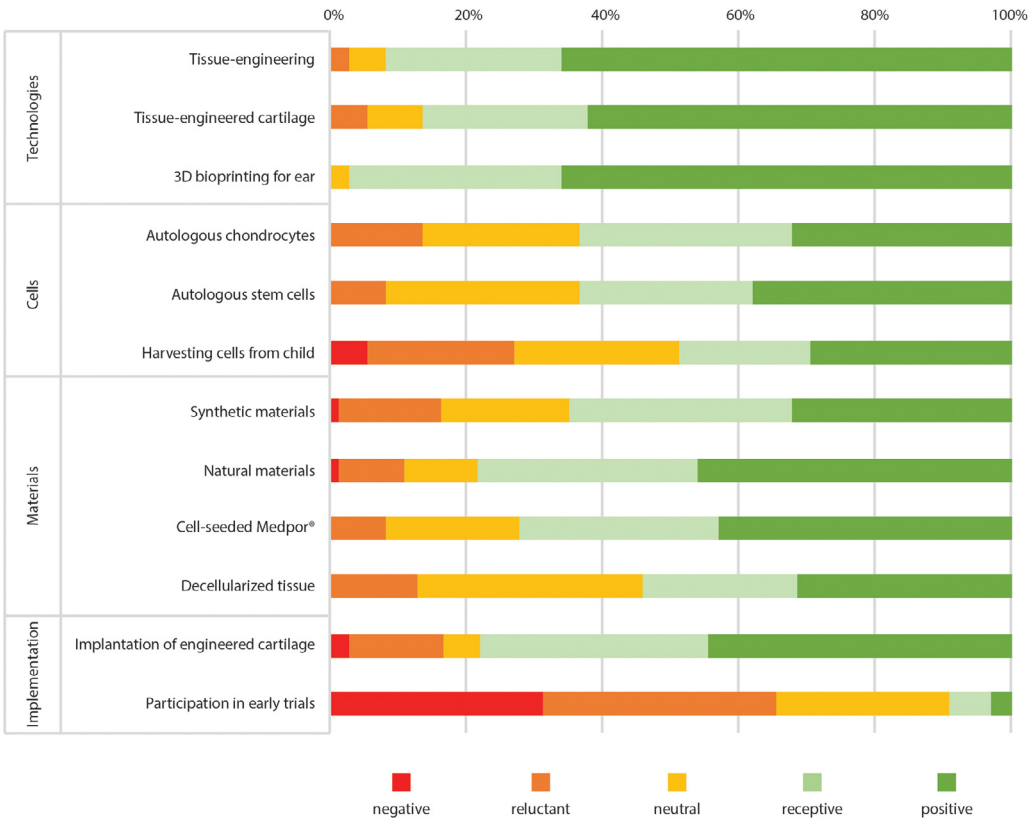

Fig. 1 Attitudes of parents of microtia patients towards tissue engineering-based innovations for auricular repair and their translation to the clinic.

research process, expressing a desire to have more knowledge and preferably proof of success first.

The outcomes of this study underscore the need for the active role of patient stakeholders in the development of biomedical technologies in order to identify incongruities between research priorities of investigators and funders on the one hand, and clinicians and patients on the other. It became clear that future users of tissue engineering and bioprinting applications require extensive information about the technology, the benefits and the risks before choosing to use the innovation. This study is a first step towards involving patient (caretaker) stakeholders and stimulating a two-way dialogue about the innovation of auricular reconstruction and potential clinical applications and trials. More specific insight in patients' and their caretakers' attitudes and concerns could help shape the design of future clinical trials with bioprinted cartilage for auricular reconstruction, fully addressing a participatory approach toward effective patient engagement and empowerment.

Ethics statement

All documents pertaining to this study were verified by the institutional Medical Research Ethics Committee (MREC) prior to participant recruitment (protocol number 17-744/C). The MREC confirmed that the Medical Research Involving Human Subjects Act (WMO) does not apply to this study, and as such it does not require official approval by the MREC (reference number WAG/mb/17/032,289). This study was performed in accordance with current laws and regulations. Informed consent was given by all participants to use their responses for analysis and publication.

Conflict of interest statement

All authors declare no conflict of interest.

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Neonatal ear splinting for congenital ear deformities☆

Dear Sir,

Splinting of ears to correct the congenital auricular deformities in neonates has been described since 1980's. It is a safe and non-invasive technique. Despite this technique having an excellent potential to prevent a need for a future correctional surgery, it's up-take across the UK has been poor. This study evaluates the outcomes of neonatal ear splinting for congenital ear deformities at a regional centre for plastic surgery.

The study was conducted at the Welsh Centre for Burns and Plastic Surgery, Swansea, United Kingdom. A retrospective case note review was performed of all the patients undergoing neonatal ear splinting from 2009–2015. Medical records of patients were retrieved, and the data was recorded. In addition, an anonymous postal questionnaire was sent to the parents to determine the satisfaction following the treatment. Non-responders were contacted via telephone. The retrospective service analysis did not require a formal ethical review and appropriate letters of exemption were acquired from our National Health Service Trust's Research & Development office.

A total of 82 ($n=123$ ears) neonates were treated. 62% were male and 38% were female. The mean age at the referral was 7.1 weeks and the mean age at initiation of treatment was 9.3 weeks. The average time between referral and first appointment was 4.6 weeks. In majority of the cases the patients were referred by health visitors. In 67% bilateral ears were involved. 50% ($n=62$) of the patients presented with constricted ears. The constricted ears included lop/cup ears. Prominent ears were diagnosed in 39% ($n=32$), cryptotia in 12% ($n=10$), pixie ears in 12% ($n=10$) and stahls ear in 13% ($n=11$). The patients had a mean follow up of 63 weeks. Subjective assessment was recorded for 100 ears and in 23 patients no data was available. At the cessation of treatment, 93% of the ears were reported as improved or excellent on subjective assessment by the senior author. Further, in 82% of the patients the correction was assessed to be maintained during the long-term follow-up.

The response rate for parental satisfaction questionnaire was 76%. An excellent outcome was recorded in 40% ears ($n=38$) and 35% ears ($n=33$) were reported as improved. No improvement was seen in 5 ears. According to parental opinion recurrence was observed in 6 ears, therefore in 79% of the patients the parents reported excellent or improved outcome (Figures 1 and 2). With respect to overall evaluation of the service 79% of the parents reported it as excellent and 15% as good. Dermatological problems such as skin irritation were reported in 33% ($n=40$). In 8 ears (7%) the treatment however had to be abandoned. Recurrence was seen in 6 ears (5%).

There are several methods available for ear splinting using different materials and techniques. We use the method described by DT Gault for our neonatal ear splinting.[1] This technique is simple to execute; it is reproducible and only costs approximately £ 0.40 for materials. In literature, majority of the studies reviewing outcomes of non-surgical correction, come from outside the UK and report a small cohort of patients. However, Van Wijk et al. prospectively reviewed 209 ears in 132 children and Schonauer et al. retrospectively reviewed 46 infants with 72 deformed ears in their study with a similar male to female ratio as our study and a mean age of 8.8 weeks at the start of treatment vs 10 weeks in our study.[2,3] Tan et al. treated 19 patients (32 ears) and

☆The study was presented at the BAPRAS Winter Scientific Meeting, 2015

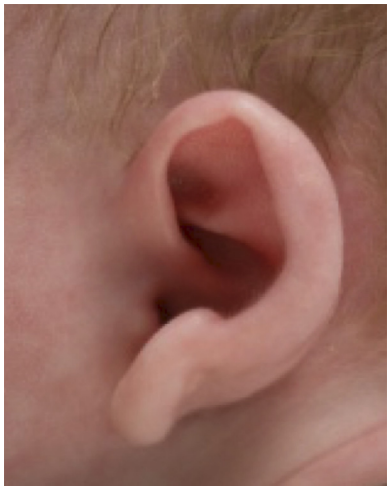

Figure 1 A 6-week-old baby with an ear deformity.

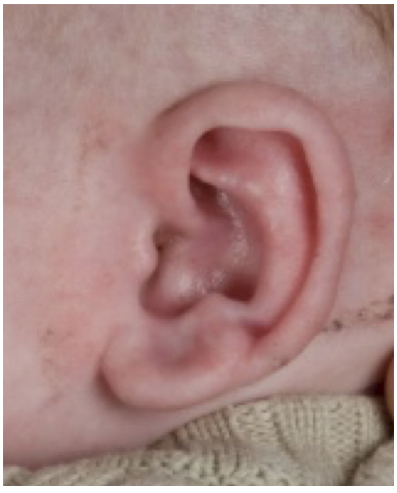

Figure 2 Patient underwent 7 weeks of splinting. Parent reported outcome was 'Excellent'.

Smith et al. reviewed 69 ears treated with a wax splint and Medipore ™ tape and evaluated results at 6 weeks.[4,5]

The follow-up for patients in our study was up to five years with a mean of 63 weeks, longer than other studies in the literature. Schonauer et al. followed their patients for up to one year and Smith et al. followed for 6 weeks. There is controversy with regards to the optimum duration of splinting, in our study the mean duration of treatment was 10 weeks.[2] In our experience, the success rates of treatment reduced considerably after three months and were poor after six months.

We used grading of excellent/improved/satisfactory and not-improved to grade the outcome.[4,5] At the cessation of treatment 39% had excellent and 54% had improved result. In our study excellent or improved results were primarily seen in patients who had their treatment initiated between 0 and 12 weeks and those who had prominent or constricted ears. All the parents would recommend the service, and none were dissatisfied.

Currently, there is paucity of prospective studies and randomized control trials providing comparison of different methods of neonatal ear splinting. Overall, the different techniques and splints described in literature have comparable outcomes. Neonatal ear splinting is a relatively inexpensive and cost-effective method and has been demonstrated to have a high rate of success for constricted and prominent ears hence, we recommend its use.

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Conflict of interest

None.

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Use of absorbable membrane in diced cartilage technique for nasal dorsum restoration

Dear Sir,

Nasal deformities represent the main condition requiring a dorsal nasal reconstruction, in order to obtain a harmonic and pleasant nasal profile, projection and width. Multiple techniques have been described to achieve this purpose, while one of the most commonly used is the "diced cartilage graft".[1-4] We describe a new approach to this surgical procedure where an absorbable collagen membrane is adopted to "wrap" cartilage graft, being a valuable alternative to the currently used materials.

Cartilage grafts may be harvested from different donor sites, based on the quality, the type of nasal deformity and the preference of the surgeon. Septum and ear concha are the mainly adopted donor sites, however when large amount of cartilage is needed, chondrocostal graft represents the gold standard (first choice).[5]

In order to avoid the high rates of complications, such as exposure or resorption, diced cartilage is commonly wrapped in a "sheet" of autologous or allogeneic material that allows it to keep the shape and the position of the graft.[3] Temporal or abdominal fascia are the most commonly used wrapping material however, donor site morbidity, particularly on the temporalis region, is not to be underestimated and for this reason the use of allogeneic materials is proposed.[3]

A small thoracic incision (1–2 cm in length) on the 7th-8th rib, under the infra-mammary sulcus, is performed with an endoscopic-assisted approach in order to harvest the cartilage graft. A Nr 10 surgical blade is used to dice the cartilage in fragments smaller than 1×1 mm (Fig. 1) which is then inserted into a 1 ml insulin syringe. Geisthlic collagen membrane 30×40 mm (Bio-Gide® Geistlich Biomaterials, Wolhusen, Switzerland) is then sutured with a 5/0 vicryl in a cylindrical shape by being wrapped around the syringe containing the diced cartilage. The syringe content is then poured inside the wrapped "collagen pouch" taking into account the dorsal nasal deficit (Fig. 2) and closed with a resorbable 5.0 vicryl suture. The collagen membrane diced cartilage graft can also be molded with the fingers into a desired form and carefully inserted under the nasal skin. After its placement, the graft can be further molded externally. Nose is taped and dressed as usual and a thermoplastic splint is placed on the dorsum for 4–5 days after the operation. Manual remodeling of the dorsum made by the patient is also possible until 2–3 weeks postoperatively.

Fig. 1 Diced cartilage graft and remaining graft used for structural rhinoplasty. On the left the collagen membrane.

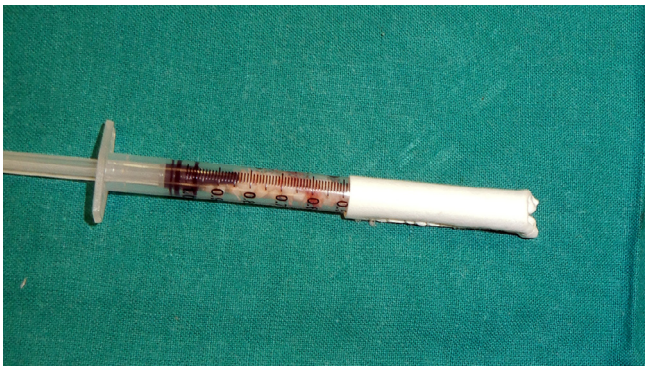

Fig. 2 The syringe containing the diced cartilage and the collagen membrane wrapped around it.

Dorsal grafts are widely diffused in nasal surgery and cartilage has become the material of choice for this procedure. Autologous grafts, like calvarian bone, are abandoned due to their high incidence of resorption, exposure and/or donor site morbidity while synthetic implants have higher rate of complications, such as displacement deviation, extrusion, inflammation, infection and changes in skin quality. As a consequence, cartilage has become the first choice for dorsal augmentation and remodeling.

The advantages of using a fascia to wrap the diced cartilage involve the conformational maintenance of the graft and the resorption prevention however its limited amount, the donor site morbidity and the longer operative times should be considered.

We suggest the use of this specific membrane due to its natural bi-layer structure (smooth side for soft tissues and rough for bone) contributing to an excellent adaptation as a functional barrier that is likely to promote optimal healing of the tissues. Its collagen structure acts as a guide for blood vessels regeneration during the healing process with a proper integration of the membrane into the surrounding tissue ensuring the necessary stability of the graft. Membrane is enzymatically degraded in approximately 7 weeks allowing an easy integration of the graft into the donor site. Consequently, the risks of subsequent thickening, late resorptions, infection, inflammation and fibrosis are dramatically reduced.

Diced cartilage graft technique has remarkable benefits. Being autogenous, we don't have a risk of rejection, the graft can be prepared in the surgical field, different donor sites can be used for graft harvesting (rib, conchea and septal cartilage), the graft is moldable, and the graft can be reshaped after operation.

Regarding the wrapping material a biodegradable bovine collagen membrane presents numerous advantages compared to materials described in literature, resorption in about 10 weeks, allowing a better graft healing and inte-

gration, at the same time, avoiding inflammations, skin retractions and fistulas.

Author's participation

1 Pasquale Piombino: Surgical procedures
2 Pamela Zace: Data collection
3 Luigi Vaira: Data collection
4 Giacomo De Riu: Surgical procedures
5 Luigi Califano: Surgical procedures

Financial disclosure statement

The authors have no financial interest to declare regarding the content of this article.

Conflict of interest

None.

Ethical approval

N/A.

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Prone Positioning following Breast Reconstruction

Dear Sir,

The COVID-19 epidemic has put strain on healthcare staff and providers. Those patients who require critical care admission and mechanical ventilation may also require prone positioning, as a method of improving oxygenation, decreasing shunting, and a reduction in barotrauma and ventilator induced lung injury. The PROSEVA trial demonstrated a significant reduction in both 28 and 90-day mortality in an acute respiratory distress syndrome (ARDS) population[1].

Risk factors for development of severe disease include age over 65, pre-existing lung disease and immunosuppression. Our population of breast cancer patients may therefore be of increased risk of critical illness due to the demographic and development of chemotherapy or radiotherapy-induced lung fibrosis predisposing to worsening lung function. Prone positioning is associated with an increased risk of pressure damage; McCormick et al demonstrated 49%, affecting both the face and breasts[2].

The presence of breast implants may complicate the positioning. A previous case report describes nipple and breast tissue necrosis following a period of 24 hours in the proned position for ARDS caused by pneumonia[3]. She had capsular contracture which prevented normal lateral displacement and held the breast in a more medial position.

A 52-year-old female was admitted to the critical care unit for severe COVID-19 pneumonia, and required proning to improve oxygenation. She had a history of right sided ductal carcinoma in 2014 and underwent wide local excision and adjuvant chemo-radiotherapy. In 2019, recurrence was detected, and she underwent mastectomy. She had immediate reconstruction with a tissue expander and dermal sling followed by chemotherapy which finished 1 month prior to COVID diagnosis. There was a small amount of postoperative haematoma which had been aspirated under radiological guidance.

She required prone positioning for 16 hours on 3 separate occasions. On performing personal care during the critical care admission it was noted that the right breast looked enlarged and inflamed, and on examination was firm. As the patient was mechanically ventilated it was not possible to assess for pain. There was also a blister noted on the mid-sternal area likely to represent grade 2 pressure damage.

Clearly the underlying significant disease process takes priority in this situation, and symptoms should be managed in order of clinical priority, which may or may not include prone positioning if required. The patient has recovered fully, and was safely discharged following a 22 day admission. There were no further complaints regarding the breast.

Rupture of implant due to prolonged pressure would be unlikely, but development of seroma or early capsule formation is possible. The tissue compressed between the ex-

pander and mattress is at significant risk of ischaemic damage. Previous recommendations are for medial placement of larger breasts during proned surgery as this can be less painful[4], however in the presence of implants this should be discouraged.

Therefore, care and attention should be given to this cohort of patients during the proning process to ensure adequate pressure relief and repositioning occurs, and if possible, less pressure placed on the affected side to reduce risk of further complications. Although the first peak in the UK has been reached, cases of COVID-19 will continue and staff will become more familiar with the techniques of managing them.

Conflicts of Interest

All authors declare no conflict of interest.

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Re: Regional incidence of and reconstructive management patterns in melanoma and nonmelanoma skin cancer of the head and neck: A 3-year analysis in the inpatient setting*

Dear Sir,

We read with interest the article by Egeler et al,[1] and would like to highlight that inpatient burden for managing head and neck skin cancer is not restricted to high income countries (HIC), but also prevalent in low and middle income countries (LMIC). Cutaneous malignancies are one of the ten most prevalent cancers in sub-Saharan Africa,[2] and curative treatment is challenging due to delays in diagnosis in Fitzpatrick type VI skin, late presentation, prevalence of albinism and human immunodeficiency virus (HIV), and limitations in access to healthcare. In addition, attending hospital for surgery in Malawi has a significant impact on loss of income within a poor society, and frequently has catastrophic effects for the household.[3] Consequently, patients may present with large skin malignancies of the head and neck.

We reviewed all cases of cutaneous malignancies of the head and neck, and inclusion was restricted to those requiring reconstruction of large defects (>50cm2), presenting over a 12 month period (September 2015 to August 2016) to Queen Elizabeth Central Hospital, Blantyre, Malawi. Factors posing a unique challenge in this setting include: 1) absence of a full-time pathologist; 2) No computed tomography (CT) scanner – a magnetic resonance imaging (MRI) scanner is available; 3) No radiotherapy service in Malawi.

Four patients were identified with a mean age of 32 years (range 28 to 36 years). One patient with Fitzpatrick type VI skin had a basal cell carcinoma (BCC) of the ear eroding half of it, while three patients with albinism presented with squamous cell carcinomas (SCC's), two of whom had HIV infection. Two involved the ear and temporo-parietal scalp, and the remaining patient had a fixed SCC of the fronto-

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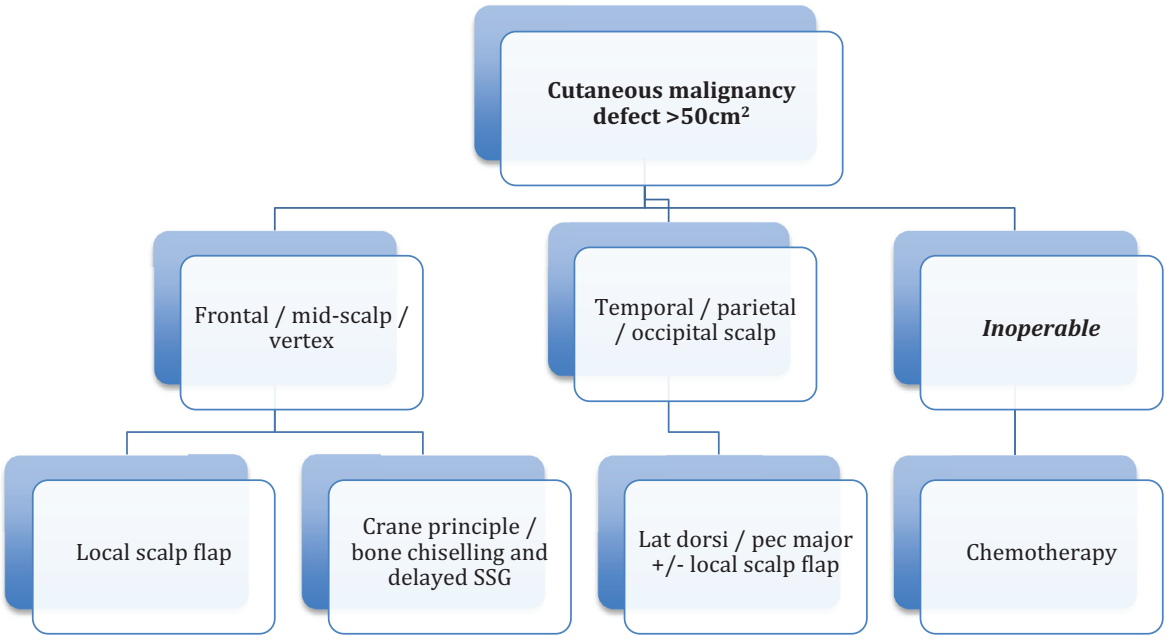

Figure 1 Management algorithm for large cutaneous malignancies of the head and neck.

parietal scalp with evidence of bone invasion on MRI, and was deemed inoperable and managed with chemotherapy.

The three patients who underwent surgery had total pinnectomies with a 1cm margin and were completely excised. One patient had palpable level II nodes and underwent superficial parotidectomy and selective (I-IV) neck dissection. One patient had a pedicled myocutaneous pectoralis major flap and two had pedicled myocutaneous latissimus dorsi flaps. All flaps survived and patients were discharged home. Long-term follow up was not available.

Management of these tumours pose a unique challenge in Malawi, with a high prevalence of HIV infection predisposing to aggressive cutaneous SCC's, and no evidence in the literature on management in our setting. Wound management and local control can be provided with the reconstructive algorithm we have devised for large cutaneous defects (Figure 1), and long-term follow up is required to determine prognosis. In addition to large head and neck skin cancers, there is also a significant workload with small to medium-sized head and neck skin cancers. Patients frequently travel long-distances to hospital with scarce financial resources, and in conjunction with the surgical procedure, frequently necessitate an inpatient stay. Our algorithm primarily reconstructs large defects with regional pedicled flaps, and where required, we reconstruct hair-bearing areas with a local scalp flap. Therapeutic lymph node dissection is performed for clinically palpable disease.

Education on skin cancer prevention in people with albinism is crucial, however knowledge of skin cancer in children with albinism in South Africa has been demonstrated to be poor.[4] In addition, people with albinism have been subject to attacks within society in Malawi, in part due to beliefs in witchcraft, and in 2016 the United Nations reported that people with albinism could face systemic extinction at the current homicide rates.[5] Such complex societal challenges provide significant barriers to seeking medical help and result in advanced tumours at presentation. Education and financial empowerment to encourage prevention and earlier hospital presentation, improved resources including radiotherapy, and longer-term follow-up can further improve outcomes in Malawi.

Declaration of Competing Interest

None.

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Response to letter to the editor re: "Regional incidence of and reconstructive management patterns in melanoma and nonmelanoma skin cancer of the head and neck: A 3-year analysis in the inpatient setting"☆

Dear Sir,

We would like to extend our appreciation to Dunne et al.[1] for their interest in our study and insightful comments regarding considerations for treatment of head and neck cancer in low- and middle-income countries (LMIC). We agree with the authors that efforts to promote disease education and awareness are paramount and must be contoured to the target demographic at risk. In our paper, we analyzed trends in reconstruction after melanoma and nonmelanotic skin cancer excision of the head in neck in the United States (US).[2] Our data was obtained from a large, national inpatient database over a three-year time period. Although we found differences in reconstructive rates and trends by geographic region, we were unable to comment on the underlying factors which may be contributing to late disease presentation. More advanced presentation often requires more complex and research-depleting reconstructive management. This underscores the need to further investigate the critical elements that may influence disproportionate incidence of late presentation malignancies.

While our study may be limited to the US, we agree with the authors that there is a continued need for international dialog regarding management and treatment approaches for cutaneous malignancies based on available resources. Nonmelanotic (NMSC) and melanotic skin cancers constitute a significant international disease burden. The worldwide incidence continues to rise. The World Health Organization estimates that between 2 and 3 million individuals are diagnosed with NMSC each year.[3]

It is imperative that evidence-based treatment algorithms based on defect location, size and stage are developed. We recognize that the utility of a treatment algorithm is predicated on an understanding of resource availability for diagnosis and treatment. Dunne et al. present their unique experience in Malawi and provide their management algorithm for cutaneous malignancies $>50cm^2$. The authors describe key challenges that result in delays in diagnosis and treatment such as limited access to health care, scarcity of diagnostic resources, poor infrastructure for patient follow-up. Further, the authors detail factors including a high incidence of albinism and HIV, predisposing this population to malignancy. This provides a contemporary example of the multiple, local factors which can contribute to geographic-centered disease management.

We analyzed our own institutional data for patients presenting with melanotic and non-melanotic cutaneous malignancies of the head and neck and reported on common reconstructive trends based on location, the principle esthetic facial subunit(s) involved, and the median defect size and depth. Similar to other authors, we devised an algorithm for treatment based on patient outcomes and resource availability.[4,5] We commend the authors on sharing their algorithm and hope that evolution of information technology may assist in early patient identification, surveillance, and outcomes evaluation. In addition, more accurate transfer of quality information between treatment centers will increase the statistical power of these analyses and ultimately improve the validity of practice paradigms.[6] Finally, we commend Dunne et al. for emphasizing the importance of a more balanced approach in provision of care, which includes recognition and evaluation of regional characteristics, in order to optimize oncologic treatment worldwide.

Disclosures

None.

Declaration of Competing Interest

None.

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Letter comments on: "Impact of MSLT-II on lymph node clearance surgery in a tertiary plastic surgery centre"

Dear Sir,

We read with great interest the findings of Mr Nikkhah's[1] team and would like to commend them on their results. What is really striking is the total number of malignant melanoma related lymph node clearances performed in the last year (10). We recognise that this figure does not reflect dissections related to other cancers (e.g. head and neck). Dickson et al.[2] reviewed all the regional lymph node dissections related to skin cancer performed in 2012 in the South-West region of England with a catchment area of over 8 million people (163 in total). They proposed that, at least 10 procedures per year should be performed by a single surgeon to enable a meaningful assessment of the prevalence of complications.[2] Perhaps in the future, a downward trend in the number of regional lymph node dissections will lead to select specialist centres accumulating patients from wider catchment areas to keep numbers large enough to optimise outcomes. We fully acknowledge that this data is a snapshot of a single tertiary centre and might not correlate with numbers from other centres however, a question needs to be raised about the training opportunities available if such numbers are indeed the average exposure for trainees.

Certification guidelines set by the Joint Committee on Surgical Training (JCST) require a minimum number of indicative procedures performed or supervised to be logged. One of the indicative procedures is lymph node basin dissections which was introduced after a 2016 review.[3] UK plastic surgery trainees are expected to perform or be supervised in at least 15 lymph node dissections. We speculate that a downward trend in melanoma related lymph node dissections from the data provided by our colleagues and the change in practice related to the results of the MSLT-II[4] trial should prompt a further review of the indicative numbers. We fully appreciate, that the indicative numbers set out by the Specialty Advisory Committee (SAC), are a benchmark of broad competencies that allow the UK to train highly qualified plastic surgeons with skillsets that are easily transferable to all aspects of plastic surgery.

The recent UK consensus statement[5] suggests that sentinel lymph node biopsy (SNB) should not only be offered to patients staged pT2a and above but also considered in pT1b patients particularly those with features of either lymphovascular invasion or a mitotic rate $\geq 2/mm^2$. This could potentially translate into an increased number of patients electing to undergo SNB and lead to trainees gaining a higher exposure to this procedure. Perhaps, SNB could be incorporated into the indicative numbers in view of the reduced number of regional node dissections and the requisite that plastic surgeons should be competent in lymph node surgery.

Declaration of Competing Interest

None.

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Response to "Re "Impact of MSLT-II on lymph node clearance surgery in a tertiary plastic surgery centre""

Dear Sir,

We are grateful for the interest our earlier submission has generated amongst the Journal's readership. In particular, we were very interested to read the above response to our article.

As demonstrated by our colleagues' letter, even in 2012 – well before the publication of the MSLT-II findings – lymph node clearances (LNCs) were not very commonly performed procedures, with only 163 dissections amongst five tertiary plastic surgery centres.[1] Indeed, our findings very much correlate with the above values – in 2015 (prior to MSLT-II) we performed a total of 38 LNCs in a 12 month period. Even with those numbers, it is difficult to allow a large number of trainee plastic surgeons to gain sufficient exposure to LNC surgery to attain the required competencies as prescribed by Specialty Advisory Committee (15, in the form of indicative logbook numbers). Similarly, it is difficult to allow our consultant surgeons to have the experience of at least 15 lymph node block dissections a year, as recommended by the British Association of Dermatologists guidelines for the UK management of cutaneous melanoma.[2]

As we demonstrated, our LNC numbers dropped precipitously following publication of MSLT-II's findings; a trend we would expect other centres to have followed as well.

This decrease in number of lymph node clearance is not only observed in United Kingdom. Herb et al. recently, reported on significant decrease in number of LNC among sentinel lymph node biopsy (SLNB) positive patients from 2012 to 2016 in a major comprehensive cancer network centre in USA.[3]

As mentioned by our colleagues, this translates into even less of an opportunity to learn the skills of LNC and to maintain skills already acquired among plastic surgery consultants and trainees. This potentially can have a negative impact on long-term care of this group of patients.

In the long run, if this decrease in number of procedures continues as more units adopt this policy, our proposal would be to allow adoption of a centralised pathway similar to cleft lip and palate surgery for care of melanoma patients who need LNC surgery. This model of care delivery has been implemented in cleft lip and palate surgery since 1998 and was completed in 2007 in United Kingdom with evidence of improvement in patient care and outcomes.[4] A similar approach to LNC surgery would result in accumulation of all resources in terms of surgical expertise and training in designated units with ample training opportunities and regular case numbers to maintain surgical skills. Training of juniors could also be undertaken at these centres in form of skin oncology fellowships and supplemented by simulation – a popular and proven teaching method in surgical practice, including the discipline of plastic surgery.[5]

In the meantime, we agree that the inclusion of SLNBs in the list of indicative procedures is a logical next step in the evolution of plastic surgical training. SLNB is likely to become a much more prevalent procedure, given the recommendations of the latest UK consensus statement.[6] It is our hope that the plastic surgical Specialty Advisory Committee of the Joint Committee on Surgical Training will acknowledge the shifting directions of skin malignancy surgery at their next curriculum review.

Declaration of Competing Interest

None.

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