



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



ELSEVIER



Correspondence and Communications

Vram flap transposition in pelvipereineal reconstruction. A technical note [☆]



Dear Sir,

Complete resection, with negative margins, in locally advanced pelvic visceral tumors usually requires anterior, posterior or total pelvic exenteration (TPE). Such resections often lead to major defects with dead space, surrounded by irradiated skin, which need to be reconstructed using well vascularized tissue.^{1,2} The vertical rectus abdominis myocutaneous flap is a commonly used option after pelvic exenteration thanks to its bulk and safe vascularization.³ Other useful flaps for these types of reconstructions are the anterolateral thigh flap, myocutaneous gracilis flap or the lotus petal flap.^{1,2,5}

It is a versatile flap, with a relatively simple dissection and low rate of complications, therefore, flap's failure is uncommon.⁴ The key step where flap safety may be compromised is during its inset. The aim of this article is to expose an algorithmic approach, based on our experience, to have in mind at the moment of flap transposition in order not to torsion and stretch the flap's pedicle, ensuring its viability.

Surgical technique

Depending on the resultant perineal defect after tumor resection and whether the patient is in the supine or prone position during the surgery, there are several surgical tips that must be taken into account before the inset of the flap.

Flap inset in the supine position

When the whole surgery is done in a supine position, resulting in an anterior perineal defect, the VRAM flap can be transferred intrapelvically or subcutaneously. The latter one, is used when there is a need to cover a skin perineal defect without dead pelvic space. Flap inset in these situa-

tions is simpler because the flap's pedicle is always visible during the transfer.

When there is a need to transpose the flap throughout the pelvis, visibility of the vascular pedicle is temporarily lost, with the risk of pedicle torsion, compromising the blood supply to the flap. That's why it's of paramount importance to control how the flap rotates above its pedicle in the three planes of the space. Intrapelvic transposition in the supine position varies depending on the type of perineal defect: anterior (in urological or vulvar tumors) or posterior (in rectal and anal tumors).

At the moment of VRAM transposition, our goal is that the cranial third of the flap covers the most distal part of the defect (Figure 1). In such manner, the flap adapts to the recipient site with less tension. Thus, when we use the VRAM flap to cover an anterior defect in supine, the cranial third of the flap covers the most anterior part of the defect. In order to achieve this, the flap rotates inside the pelvis 270° in the sagittal plane, leaving the cranial part of the flap anteriorly. The caudal third can be deepithelialized to fill dead space (Video 1).

In posterior defects, the flap rotates 180° medially in the coronal plane in order to avoid tension in the inferior epigastric vessels. As a result, the cranial edge of the flap covers the most posterior resected area (Video 2). This implies that flap inset will vary not only with the position of the patient during tumor resection, but also with the resultant defect after surgical excision.

Another important detail to take into account to safeguard vascular supply to the flap, is the rotation of the vascular pedicle during its transposition. The safest manner to rotate the pedicle is medially, this means rotating the pedicle clockwise in a right rectus abdominis flap, and counter clockwise in a left rectus abdominis flap. Rotating the pedicle in the opposite direction may torsion it compromising the vascular supply. Not sectioning the origin of the rectus abdominis muscle, or leaving a small pyramidalis part of the muscle attached to the pubis, also aids to protect the vascular pedicle and avoids to accidentally stretch it.

Flap inset in the prone position

In certain types of intrapelvic tumors, such as sacral or rectal tumors, the flap is initially harvested in the supine position, while the surgery continues with the patient in prone to complete tumor resection. In these situations, the inset of the flap becomes tricky as it is easy to forget and mislead flap orientation.

[☆] **Financial Disclosure Statement:** The authors have no financial interest to declare; they have no conflicts of interest.

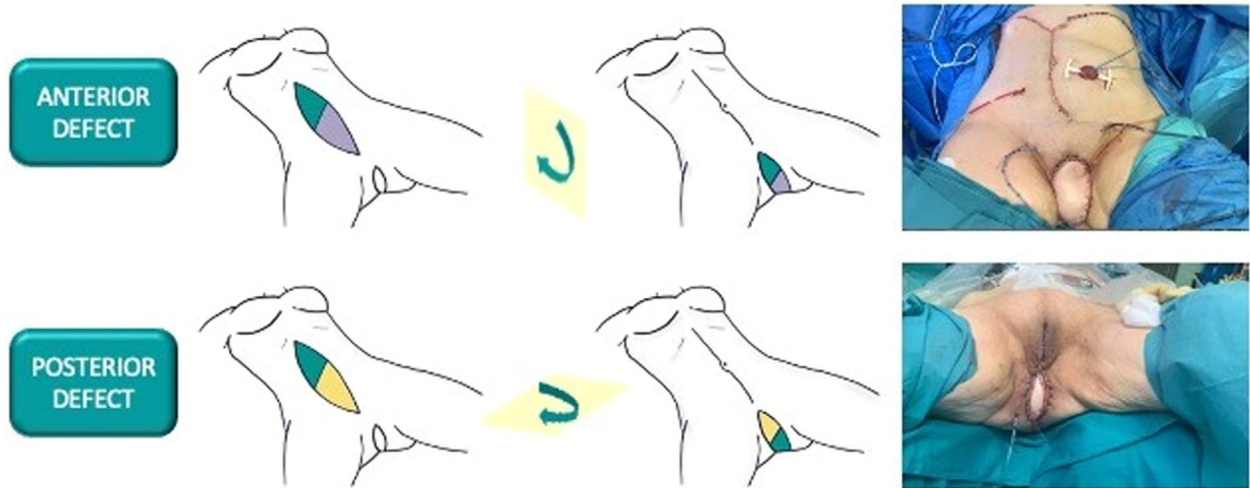


Figure 1 VRAM flap rotation in perineal reconstruction depending on the type of defect. In anterior perineal defects, after flap transposition, its cranial edge covers the most distal and anterior part of the defect, while in posterior defects, the cranial edge of the flap covers the most posterior part of the defect.

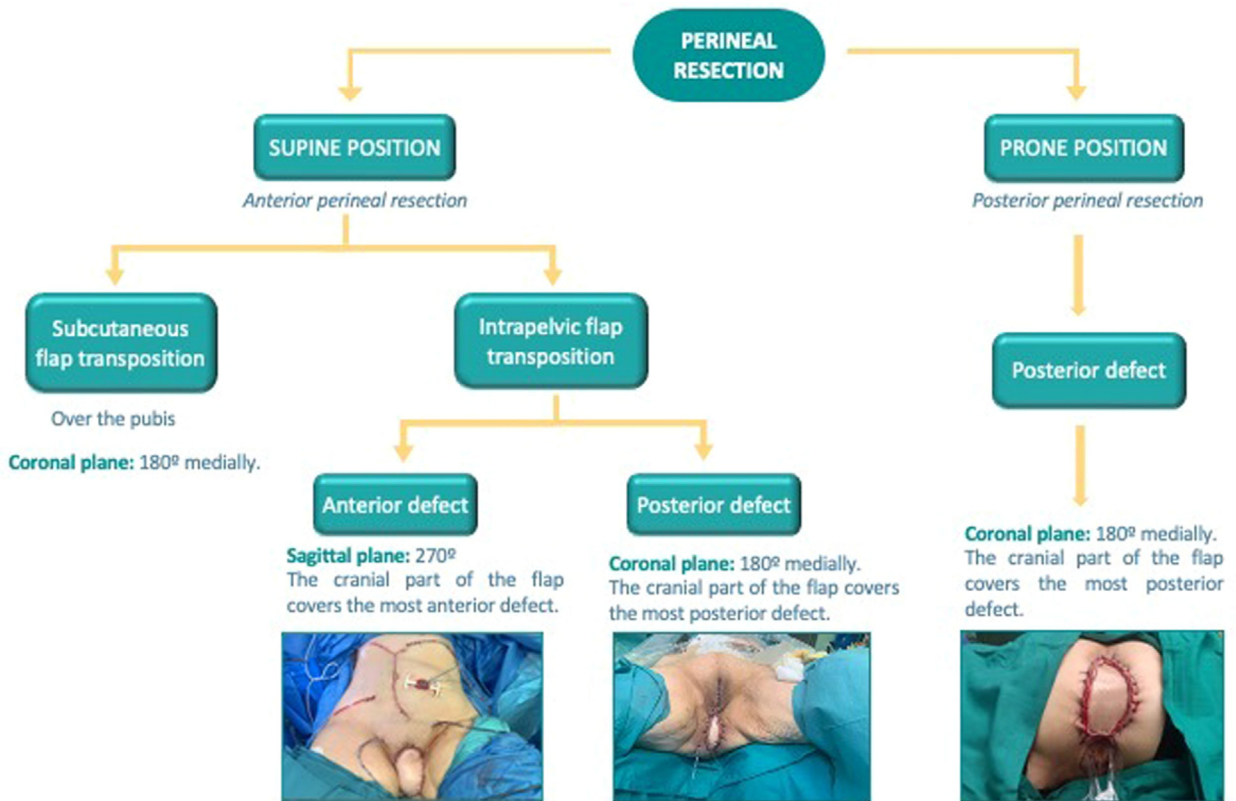


Figure 2 Perineal reconstruction with vertical rectus abdominis myocutaneous flap. Algorithmic approach detailing technical notes that must be taken into account during the inset of the VRAM flap depending on the type of pelvic exenteration made and the position of the patient during the surgery.

A simple tip to leave the flap protected inside the pelvis is to use a reference suture to fix the caudal third of the flap to a pelvic structure like the pubis before changing to prone. This step helps to preserve the orientation of the flap while the patient is changed of position and avoids to

accidentally torsion the pedicle more than 180°. Once the resection is finished, the flap is rescued from the abdominal cavity, having rotated 180° medially in the coronal plane so its cranial part covers the posterior edge of the defect (Video 3).

Conclusions

The VRAM flap is a workhorse flap for perineal reconstructions after pelvic exenterations,^{3,4} being flap failure extremely uncommon if its transposition and inset are performed carefully. The rotation of the flap during its inset may be tricky, and fundamentally depends on the position of the patient during the surgery and the localization of the defect after tumor resection (Figure 2). Having these technical details on mind may help us to take advantage of the hole surface of the flap, protecting the epigastric vessels and minimizing the possibility of complications.

Funding

None.

Ethical approval

Not required.

Declaration of Competing Interest

None declared.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.bjps.2022.08.060](https://doi.org/10.1016/j.bjps.2022.08.060).

References

1. Witte D, van Ramshorst G H, Lapid O. Flap reconstruction of perineal defects after pelvic exenteration: a systematic description of four choices of surgical reconstruction methods. *Plast Reconstr Surg* 2021;147:1420.
2. Mericli A, Martin J, Campbell C. An algorithmic anatomical sub-unit approach to pelvic wound reconstruction. *Plast Reconstr Surg* 2016;137:1004.
3. Barker T, Branagan G, Wright E, Crick A, McGuinness C, Chave H. Vertical rectus abdominis myocutaneous flap reconstruction of the perineal defect after abdominoperineal excision is associated with low morbidity. *Colorectal Dis* 2013;15:1177-83.
4. Butler CE, Gündeslioglu AO, Rodriguez-Bigas MA. Outcomes of immediate vertical rectus abdominis myocutaneous flap reconstruction for irradiated abdominoperineal resection defects. *J Am Coll Surg* 2008;206(4):694-703.
5. Hellinga J, Rots M, Werker PMN, Stenekes MW. Lotus petal flap and vertical rectus abdominis myocutaneous flap in vulvoperineal reconstruction: a systematic review of differences in complications. *J Plast Surg Hand Surg* 2021;55(2):67-82 Apr.

Ana Trapero, Alberto Pérez-García, Alessandro Thione, Belén Andresen-Lorca, Iván Heredia Alcalde
 Department of Plastic and Reconstructive Surgery,
 Hospital Universitari i Politècnic La Fe, Avinguda de
 Fernando Abril Martorell, 106, Valencia 46026, Spain

Eduardo García-Granero Ximénez
 Department of General Surgery, Hospital Universitari i
 Politècnic La Fe, Valencia, Spain
 E-mail address: albertoperezgarci@gmail.com (A.
 Pérez-García)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.060>



Delayed complex fronto-zygomatico-orbital reconstruction using patient specific 3D printed implants; A report of three complex cases - A short communication

Dear Sir,

Review and introduction

Complex middle and upper third skeletal defects remain a major challenge for all reconstructive surgeons. Reproducing optimum contours, symmetry and projection for such complex defects has always been a tedious task even for the most expert surgeons.

Reproducing proper anatomy of the frontal and zygomatic areas and correction of orbital volume with resulting orbital dystopia have always been the primary goals of reconstruction.

A plethora of reconstructive options and techniques have been used and reported in the literature, which is always an indicative of the lack of an obvious superiority of one option over the others. These include: corrective osteotomies, autogenous bone grafting, vascular tissue transfer and alloplastic reconstruction.¹

Recently, Virtual Surgical Planning (VSP) and CAD-CAM technology have founded the much needed integration of patient fitted custom made implants with the obvious improvements in obtaining ideal anatomic reconstructions, a decreased intraoperative time and more reproducible results.²

The aim of this report is to present a series of patients who underwent delayed reconstruction of complex bony defects affecting the frontal, zygomatic areas involving the orbit with Patient Specific Polyamide implants. Polyamide 12 is a biocompatible implantable material with many benefits such as: Good tensile and flexure strengths, long term mechanical stability, thermal resistance and corrosion resistance.³

Patients and methods

Three patients underwent middle and upper facial skeletal reconstruction involving the zygomatic and frontal bones and the orbit using patient specific polyamide implants. These patients expressed significant dissatisfaction with the poor esthetics in the form of facial asymmetry, mismatching contours, enophthalmos and hypoglobus.

Multislice Facial CT scans with small slice thickness (0.7–1 mm) were ordered, The Digital Imaging and Communications in Medicine (DICOM) data were processed using Mimics software (Materialise Innovation Suite Medical Edition v. 21, Leuven, Belgium). Implants were designed based on the mirrored image and included separate frontal, zygomatic and orbital implants to make their insertion possible. Overcorrection of orbital floor and medial wall defects was done to manage the unpredictable nature of late corrections of enophthalmos.⁴

The designs were sent to the manufacturing company and the polyamide 12 (PA 2200, EOS, Germany) implants were additively manufactured using selective laser sintering technology using an EOS P810 (Electro Optical System, D-82152 Krailling/München, Germany) CAD/CAM machine.

The designed implants were placed under strict sterile conditions using bicoronal and maxillary vestibular incisions and fixated in place. Postoperative course was uneventful in all three cases considering the expected edema.

Postoperative CT scans were obtained within three days. 3D reconstructed skull models were generated and superimposed onto the virtual plan for accuracy assessment. Also, patient satisfaction was gauged using the Visual Analogue Scale (VAS).

Results

The cases reported in this article were managed during the period from June 2015 to May 2016 with a minimum of 5 years follow up for all three cases. VAS assessment for patient satisfaction yielded promising results with the first case reporting an 8, with 10 being most satisfied. For the second patient, the VAS was 7.5 and for the third patient it was 8.

Discussion

Craniofacial injuries resulting in significant skeletal defects can result from several conditions. Because of the complex anatomy of the middle and upper thirds of the facial skeleton, these defects are difficult to reconstruct. As a result, surgeons have turned to a multitude of options.

This report of three complex reconstruction cases aims to point out the numerous benefits offered by VSP technologies and PSIs, (Figures 1 and 2).

Extensive reconstructions were completed with decreased complexity and repeatably good results. There was also no added donor site morbidity. Only the bicoronal and intra-oral incisions to access the defect were used. The implants were placed in their planned position relying on their fit with the frontal bone, remaining part of the zygomatic arch, zygomaticomaxillary buttress and a male-female locking mechanism.

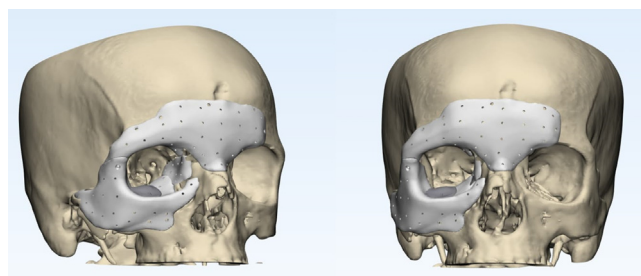


Figure 1 Different views of the final PSI designs to be used for one of the three cases. Note the extent of reconstruction and the matching projection and anatomical contours.



Figure 2 (A) Immediate improvement in facial contours at the end of the operation. (B) One month follow up picture. (C) Five years follow up following lid correction and proper camouflage.

matic arch, zygomaticomaxillary buttress and a male-female locking mechanism.

The obtained matching anatomical skeletal contours could not be obtained by any of the previously mentioned reconstructive options. In all three cases, there was significant improvement in facial projection, symmetry and globe position. This was objectively confirmed by overlapping the postoperative CT and the virtual plan. And it was also confirmed subjectively using VAS.

Polyamide 12 is a very promising novel material for craniofacial reconstruction,⁵ it was used in all three cases without any significant issues regarding the healing and the five years follow-up period. It has been used in different medical specialties for different purposes including the fabrication of patient specific cranioplasties, surgical meshes and parts of hip joints. Its recent ability to be additively manufactured into detailed anatomic shapes should pave the way for its use in maxillofacial reconstruction.

Beside its biocompatibility and good strength, it is a much cheaper option than titanium and PEEK, the two most commonly used materials for facial PSIs. This is a factor that cannot be neglected due to the financial constraints in most healthcare systems in less privileged countries. However, its lack of osseointegration and weakness in thicknesses less than 1 mm are drawbacks for its use when compared to other established materials like PEEK and titanium.

Declaration of Competing Interest

All Authors declare no conflict of interest.

Ethical approval

This investigation is in line with all the guidelines in the Helsinki declaration and has been approved and revised by the Research Ethics Committee, Faculty of dentistry - Cairo University.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Patient consent

All the authors of this article confirm that written consents have been obtained from the patients regarding the use of their personal records, radiographic pictures, clinical pictures for use in the mentioned study and their use in this publication in the same in all editions or versions, and in all forms and media permits publication of the photographs in excerpts and in articles and other medical materials by the above-named authors.

References

1. Markiewicz MR, Gelesko S, Bell RB. Zygoma reconstruction. *Oral Maxillofac Surg Clin North Am* 2013;**25**(2):167-201.
2. Day KM, Gabrick KS, Sargent LA. Applications of computer technology in complex craniofacial reconstruction. *Plast Reconstr Surg Glob Open* 2018;**6**(3):e1655.
3. Abdullah AM, et al. Mechanical and physical properties of highly ZrO₂ / β -TCP filled polyamide 12 prepared via fused deposition modelling (FDM) 3D printer for potential craniofacial reconstruction application. *Mater Lett* 2017;**189**:307-9.
4. Hazani R, Yaremchuk MJ. Correction of posttraumatic enophthalmos. *Arch Plast Surg* 2012;**39**(1):11-17.
5. Arafat SW, et al. Reconstruction of cranial bone defects using polyamide 12 patient-specific implant: Long term follow up. *J Craniofac Surg* 2022.

Hamed A. Shaheen

Oral and maxillofacial surgery, Nasser Institute Hospital, Egypt

Shady Shaker

Oral and maxillofacial surgery, faculty of dentistry, Cairo University, Egypt

Waleed H. Ibrahim

Oral and maxillofacial surgery, Future University in Egypt, Egypt

Duaa Gawad AlDainy, Dina Salama, Aala'a Shokry Emara
Oral and maxillofacial surgery, faculty of dentistry, Cairo University, Egypt

E-mail address: shadymshaker@yahoo.com (S. Shaker)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.034>

The role of cosmesis in pterygium surgery



Dear Sir,

Introduction

The eyes are one of the first features observed when people meet and can be disfigured by a pterygium to an extent where patients become embarrassed or reclusive. Although many pterygia are small or transparent enough not to be easily observed, some pterygia are grossly evident and disfiguring from a distance (Figure 1).

Until recently, the principal goal of surgeons undertaking pterygium surgery has been to avoid a recurrence.¹ Devel-

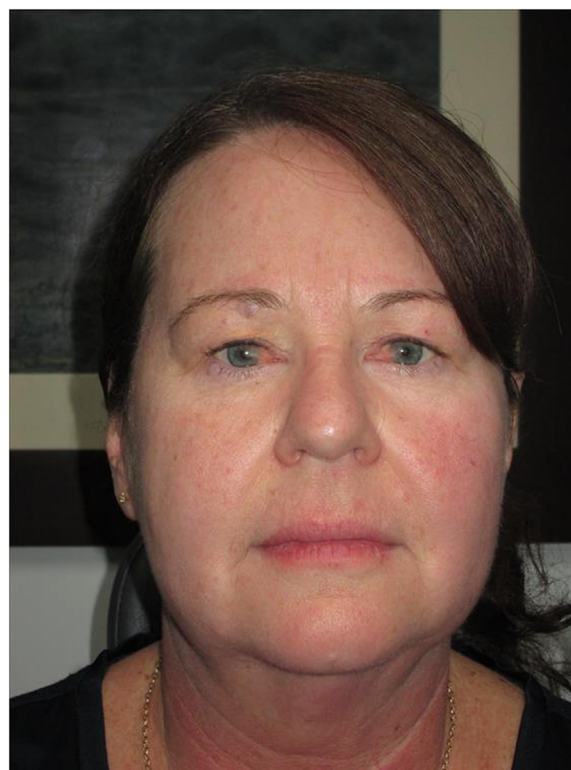


Figure 1 Disfiguring effects of a pterygium on both eyes.

opments in techniques have reduced the benchmark recurrence rate for primary pterygium removals from 5 to 15% down to close to 1%.³ However, this has not been paralleled by a drive to provide patients with a good aesthetic appearance which is desired by all patients.

A grading system² has been developed for the appearance of an eye after pterygium surgery and validated by the author but this has not resulted in its widespread use. In fact, apart from this publication², there have been virtually no studies devoted to assessing the cosmetic results of pterygium surgery by other surgeons.

Methods

This prospective study was designed to understand the role of pterygium in a patient's estimation of their appearance, the likelihood of an acceptable cosmetic result as assessed by the patient and how long after surgery it would take to achieve a good cosmetic result using *P.E.R.F.E.C.T.* for *PTERYGIUM*® (Pterygium Extended Removal Followed by Extended Conjunctival Transplant).

Most patients were followed for 4 months after the surgery. At the final visit the author graded the appearance of the eye using the previously validated system². After the author's grading was documented, the patients were asked to grade the appearance of their eye from 10 to 1 with 10 being a normal looking eye and 1 being a "horrible appearing eye". The patients were unaware of the surgeon's grading. Both gradings were entered into a database and correlated.

Results

Between 1st July 2015 and 1st July 2020, 1790 patients with a pterygium were interviewed. As patients frequently complained of more than one symptom, a total of 3291 symptoms were recorded and yet only 71 patients spontaneously declared that the appearance of the eye was the reason for presentation.

When these 1790 patients were then specifically questioned about whether the appearance of the eye was a concern to them, 54% stated that this was of some concern to them, ranging from slight concern to horrible appearance.

One thousand and ninety-nine of these patients underwent the author's surgical technique and of these nearly 93% were followed by the author for at least 4 months.

When the final appearance was graded by patient, none of the patients graded the appearance worse than 5/10, and 96% giving a grade of 8, 9 or 10 out of 10.

Discussion

Although it would seem that concerns over recurrences have been satisfactorily addressed with existing methods of removal³, most reports still do not address the issue which should follow on from a low recurrence rate, and that is, what cosmetic results can be achieved by these methods.

In this large cohort of consecutive patients, nearly 54% admitted to the appearance of the eye being a concern, but only when asked directly about aesthetic concerns.



Figure 2 Post-operative appearance of same patient as in [Figure 1](#) showing a normal right eye after surgery, with pterygium still present on left eye.

I have reported previously that trained graders², both corneal surgeons and lay people, in a masked and randomised controlled study grade the photos of eyes that have had the author's surgical technique and control eyes that have had no surgery, at similar ratings and that nearly 95% of operated eyes achieve a successful cosmetic result.

In another study⁴ assessing the cosmetic result of the author's surgical technique, masked graders in a randomised controlled study of eyes that had a primary nasal pterygium removed on one eye and no surgery on the other eye, were able to identify the operated eye in fewer than 50% of cases and the graders rated the appearance of the operated eye as better than the unoperated eye.

Both of these studies^{2,4} confirm the impression that after the author's surgical technique it is not possible to tell that an eye has had surgery when assessed by the surgeon or masked graders. This is the outcome desired by patients and surgeons.

This study addresses what the individual patient feels about the cosmetic result.

In this study, 73% of the patients graded the postoperative appearance as 10/10 or normal, while more than 99% of patients gave a grading of between 6 and 10. The lowest grading was a 5/10 by one patient. This would suggest that the cosmetic outcome in all patients in this study was at least satisfactory if not excellent. ([Figure 2](#))

Patients are typically grading their eyes as white after the author's technique by four weeks after surgery.

Declaration of Competing Interest

I am the owner of trademark P.E.R.F.E.C.T. for PTERYGIUM® Ethical approval was provided by HREC of The Queensland Eye Institute.

All patients consented to this study.

Patient permissions was obtained for all photos.

Financial support

None.

References

1. Hirst LW. The treatment of pterygium. *Surv Ophthalmol* 2003;48(2):145-80 Mar-Apr.
2. Hirst LW. Cosmesis after pterygium extended removal followed by extended conjunctival transplant as assessed by a new, web-based grading system. *Ophthalmology* 2011;118(9):1739-46 Sep.
3. Hirst LW. Recurrence and complications after 1000 surgeries using pterygium extended removal followed by extended conjunctival transplant. *Ophthalmology* 2012;119(11):2205-10 Nov.
4. Hirst LW. Pterygium extended removal followed by extended conjunctival transplant: but on which eye? *Cornea* 2013;32(6):799-802 Jun.

Lawrence W Hirst

*The Australian Pterygium Centre, Brisbane, Australia
Queensland Eye Institute, Brisbane, Australia
University of Queensland, Brisbane, Australia
E-mail address: lawrie@tapc.net.au (L.W. Hirst)*

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.064>

Practical use of augmented reality for posterior distraction in craniosynostosis



Dear sir,

Augmented reality (AR) transforms virtual objects into lifelike video images to overlay in real time, providing the surgeon with the specific deep anatomical structures. Various medical innovations are anticipated to be available for application in surgery. In the field of craniofacial surgery, some literatures are described about pilot studies for projecting the osteotomy line determined by preoperative sim-

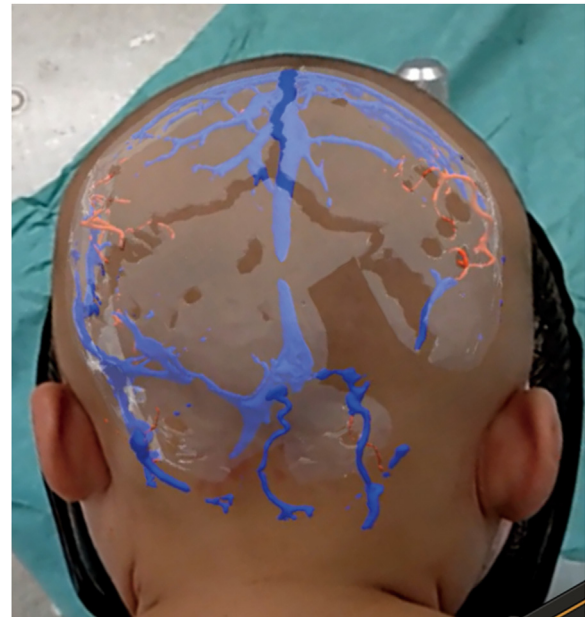


Figure 1 Preoperative alignment of the hologram and head. Note: approximate dural venous sinus could be identified.

ulation and for educational purposes.¹⁻³ However, the literature did not provide deep anatomical structures. We have experienced AR for posterior distraction, by virtually visualizing the transverse sinus, we performed posterior cranial vault osteotomy with designing safe and efficient osteotomy line.

HoloLens2 (Microsoft Corporation, Redmond, WA) AR-enabled smart-glasses were used. Preoperatively, the hologram reconstructed the skull and dural venous sinus from the contrast CT scans and imported into the smart-glasses. Immediately before the operation, a surgeon wears the smart glasses and checked and marked the running of the transverse sinus (Figure 1, Video 1). The approximate position was determined by overlapping the physical object and hologram.

After elevating the skin flap above the pericranium from zig-zag bicoronal incision, the hologram was aligned so that each sagittal and lambdoid suture of both the hologram and skull overlapped (Video 2). The osteotomy line was designed below the transverse sinus for efficient cranial expansion. The osteotomy line went across the transverse sinus with confidence because the location was identified.

Posterior cranial vault distraction osteogenesis is a common treatment for expanding intracranial volume and therefore is performed as a first-choice treatment for syndromic craniosynostosis.¹⁻³ Posterior distraction is performed in prone position, so there are few merkmals comparing fronto-orbital advancement in supine position, and even if preoperative simulation surgery was performed, it is often difficult to determine the osteotomy line.

In addition, the osteotomy should be performed caudal to the transverse sinus to obtain efficient cranial expansion and not create a step due to extension. The use of AR to predict the dural venous sinus could be used to solve these problems.

One of the concerns is errors in physical object/hologram alignment due to the HoloLens. Although we did not evalu-

ate this in our cases, a recent study has calculated those errors are approximately 2.4 mm, and less than 5 mm was said to be an acceptable error.³

Another concern is that the hologram was difficult to see under the surgical light. In addition, the hologram moved unexpectedly in response to several hands, including the assistant's. These are expected to be improved in the future.

In conclusion, AR-based posterior distraction allows for safer and less stressful surgery. It is expected to be applied to other craniofacial surgeries and education in the future.

Declaration of Competing Interest

None declared.

Funding

No funding or grant support.

Ethical Approval

This study was approved by the institutional research ethics board of Keio University hospital (approval number: 20200130).

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.bjps.2022.08.072](https://doi.org/10.1016/j.bjps.2022.08.072).

References

1. Han W, Yang X, Wu S, Fan S, Chen X, Aung ZM, Liu T, Zhang Y, Gu S, Chai G. A new method for cranial vault reconstruction: augmented reality in synostotic plagiocephaly surgery. *J Craniofac Surg* 2019;**47**:1280-4.
2. Coelho G, Rabelo NN, Vieira E, Mendes K, Zagatto G, Santos de Oliveira R, Raposo-Amaral CE, Yoshida M, de Souza MR, Fagundes CF, Teixeira MJ, Figueiredo EG. Augmented reality and physical hybrid model simulation for preoperative planning of metopic craniosynostosis surgery. *Neurosurg Focus* 2020;**48**(1):E19.
3. Thabit A, Benmahdjoub M, van Veelen MC, Niessen WJ, Wolvius EB, van Walsum T. Augmented reality navigation for minimally invasive craniosynostosis surgery: a phantom study. *Int J Comput Assist Radiol Surg* 2022 May 4. In press.

Yoshiaki Sakamoto

Department of Plastic and Reconstructive Surgery, Keio University School of Medicine, 35 Shinanomachi, Shinjuku-ku, Tokyo 160-8582, Japan

Tomoru Miwa, Hiroki Kajita

Department of Neurosurgery, Keio University School of Medicine, 35 Shinanomachi, Shinjuku-ku, Tokyo 160-8582, Japan

Yoshifumi Takatsume

Department of Anatomy, Keio University School of Medicine, 35 Shinanomachi, Shinjuku-ku, Tokyo 160-8582, Japan

E-mail address: ysakamoto@z8.keio.jp (Y. Sakamoto)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.072>

Lagophthalmos after rhinoplasty- a possible complication



Dear Sir,

Introduction

Rhinoplasty is one of the most commonly performed cosmetic surgeries. Lagophthalmos isn't considered as a possible complication. We report our experience of lagophthalmos after rhinoplasty, and elucidate the anatomy.

Case reports

Case 1: 45-year-old male who had undergone two previous rhinoplasties presented with nasal airway obstruction. He underwent a third closed septorhinoplasty. Bilateral medial and lateral guarded osteotomies were performed intranasally, a PDS plate was placed along the septum. Bilateral rim and spreader, septal extension, alar batten grafts were placed.

21 days after surgery, he noted swelling at the right medial canthus, which was treated with Kenalog and 5-fluorouracil. Four days later, he reported incomplete right upper eyelid closure of 2 mm which was evaluated by an oculoplastic surgeon. Conservative management was advised. 2 months after surgery, the lagophthalmos had improved.

Case 2: A 22 year old female underwent primary rhinoplasty for a severely deviated septum with C shaped dorsal deviation, a bulbous tip. Medial oblique and percutaneous lateral osteotomies with 2 mm osteotomes, caudal septal relocation, spreader grafts, septal extension graft, tip sutures and right turbinoplasty were done.

Seven days later, she noted left upper medial eyelid lagophthalmos which was found to be 2 mm. [Figure 1] In consultation with an ophthalmologist, she was started on methylprednisone 16 mg daily for five days, tapered over two weeks. The lagophthalmos recovered completely in six weeks. [Figure 2]



Figure 1 Left sided lagophthalmos seen after splint removal.



Figure 2 Lagophthalmos completely recovered at 6 weeks post surgery.

Discussion

Lagophthalmos is not usually considered as a possible complication of rhinoplasty and indeed is usually not mentioned in most consent forms. We were able to find only one reported case by Choo et al. who described a hematoma after percutaneous osteotomy which they postulated was the cause of the lagophthalmos [1]. Eshraghi et al. described synkinesis of the OO and procerus muscles, 4-5 months after surgery after internal osteotomies [2].

Other surgeries

There are a few reports of this complication after external dacryocystorhinostomy (DCR), which involves an incision of 1-1.5 cm between the nasal bridge and the medial canthus. [8] Vagefi et al. described 16 cases out of 215 individuals (7.4%) [3]. Odat et al. described some level of eyelid closure anomaly in 35% of DCR cases [4]. This complication was also reported after Mohs surgery near the medial canthus. In all these cases, the lagophthalmos was found to be most severe or isolated to the medial upper eyelid.

Traditionally, innervation of the eyelids is believed to proceed from lateral to medial with the temporal branches providing terminal fibres to the upper eyelid and the zygomatic and buccal branches supplying fibres to the lower eyelid. It was not thought that any fibers supplied the OO from its infero-medial aspect.

Nemoto et al. used microscopic dissections of cadaver specimens to identify the periorbital nerve supply [5]. They found that superficial buccal branches of the facial nerve pass anterior to the levator labii superioris (LLS) and run up the nasal wall between the OO and levator labii superioris aequae nasi (LLSAN). They then cross over the medial palpebral ligament with the angular artery and terminate by supplying the medial OO, procerus and corrugator supercilli. They further classified this branch into 3 types, based on its relation to the LLSAN and OO.

- Type 1- Entire nerve between LLSAN and OO
- Type 2- Proximal part posterior to LLSAN, distal part between the two muscles
- Type 3a- Entire length posterior to LLSAN and procerus
- Type 3b- Proximal part posterior to LLSAN, distal part could not be traced

Other studies have found that the zygomatic and buccal branches coalesce to form what has been termed the angular nerve, which tracks superiorly to supply the procerus, corrugator, and the medial orbicularis oculi muscles.

The location of osteotomies, especially lateral, intermediate and transverse can be in the path of these branches. However, lagophthalmos is infrequent as there exists significant anatomical variation, as well as duplicate innervation of the upper eyelid from temporal branches of the facial nerve. In addition, the osteotomy techniques usually involve a very small incision with elevation of periosteum. Higher incidence has been reported after DCR which involves a longer incision in the same area.

As demonstrated in our cases, lagophthalmos was found with both internal and percutaneous osteotomies. What is perhaps beneficial, is adequate periosteal elevation. Repeat surgery and revision osteotomies can likely increase the risk of this complication.

Lagophthalmos is usually due to neurapraxia and hence complete recovery is expected. Oral steroids, eye protection, and artificial tears can be prescribed in consultation with an ophthalmologist. Awareness of this rare complication, and proper emotional support to the patient during recovery are perhaps the most important component of its management.

Conclusion

Our paper and the anatomy elucidated demonstrates that lagophthalmos is indeed a possibility and should be evaluated during the postoperative phase. Adequate counselling and informed consent are also essential. It is also possible that awareness may lead to an increase in such reports.

Disclosures

Compliance with ethical standards

- (1) The authors declare that they have no conflicts of interest to disclose. No funding was taken for this publication
- (2) This article does not contain any studies with human participants or animals performed by any of the authors.
- (3) Informed consent has been taken from the patients informed in this study for medical publication

Funding

No funding was received for this article including from any of the following organizations: National Institutes of Health (NIH); Wellcome Trust; Howard Hughes Medical Institute (HHMI); RCUK; and other(s).

Declaration of Competing Interest

The authors wish to report no conflicts of interest

References

1. Proctor B. The anatomy of the facial nerve. *Otolaryngol Clin North Am* Jun 1991;24(3):479-504 PMID: 1762772.
2. Eshraghi B, Ghadimi H, Nikdel M, Hajizadeh F. Synkinesis between orbicularis oculi and procerus muscles: video presentation of an unusual type of aberrant innervation after cosmetic rhinoplasty. *Aesthetic Plast Surg* Feb 2019;43(1):98-101 Epub 2018 Oct 16. PMID: 30327854. doi:10.1007/s00266-018-1255-2.
3. Vagefi MR, Winn BJ, Lin CC, Sires BS, Laukaitis SJ, Anderson RL, McCann JD. Facial nerve injury during external dacryocystorhinostomy. *Ophthalmology* Mar 2009;116(3):585-90 Epub 2008 Dec 16. PMID: 19091406. doi:10.1016/j.ophtha.2008.09.050.
4. Odat TA, Odat HA, Khraisat H, Odat MA, Alzoubi FQ. Post-external dacryocystorhinostomy lagophthalmos. *Int Ophthalmol* Jun 2015;35(3):375-9 Epub 2014 Jun 7. PMID: 24906865. doi:10.1007/s10792-014-9957-1.
5. Nemoto Y, Sekino Y, Kaneko H. Facial nerve anatomy in eyelids and periorbit. *Jpn J Ophthalmol* 2001;45:445-52.

Aniketh Venkataram

*The Venkat Center for Skin ENT and Plastic Surgery, 3437,
1st G cross, 7th main, subbanna gardens, Vijaynagar,
Bangalore 560040, India*

Paul S. Nassif

*NassifMD Plastic Surgery®, 120 South Spalding Drive,
Suite 301, Beverly Hills, CA 90212, United States
Department of Otolaryngology - Head and Neck Surgery,
University of Southern California Keck School of Medicine,
Los Angeles, CT, United States*

Brittany A. Leader

*NassifMD Plastic Surgery®, 120 South Spalding Drive,
Suite 301, Beverly Hills, CA 90212, United States*

Deeksha Rao

*The Venkat Center for Skin ENT and Plastic Surgery, 3437,
1st G cross, 7th main, subbanna gardens, Vijaynagar,
Bangalore 560040, India*

Grace L. Peng

*120 South Spalding Drive, Suite 301, Beverly Hills, CA
90212, United States*

Rajeshwari Biradar

*Raichur Institute of Medical Sciences, Raichur, Karnataka,
India*

E-mail address: anikethv@gmail.com (A. Venkataram)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.062>

Diagnosis and treatment of needle retention after blepharoplasty



Dear Sir,

Needle retention is a very rare but dangerous postoperative complication in ophthalmologic and oculoplastic surgery, which might threaten eyelid function, integrity of the globe, facial appearance, and eyesight due to the sharpness and migration of the needle. After intra-abdominal surgeries, estimates of the incidence of retained surgical objects range widely from one in every 1000 to 18,760 operations. The associated negative outcomes include patient injury, prolonged operative procedure time or hospital stays, readmission, repeated operations, and potential medical legal costs.¹⁻³

Aesthetic blepharoplasty, especially with the buried-suture technique, is growing in popularity in Asia in recent years, including double-eyelid, canthal plasty, reverse ptosis and so forth.⁴ However, various complications caused by buried sutures have been treated and reported. Adding to the previous literature, the authors have encountered several cases of emergent needle retention that had been transmitted from other institutions. It might be too scarce and difficult for an apprentice to determine precisely how to locate the needle, and whether an incision should be applied could bewilder oculoplastic surgeons. This case series is the first to date study that summarize and analyse the characteristics of needle retention after blepharoplasty. We also introduced our experience in treatment of this issue, and offer suggestions for prevention.

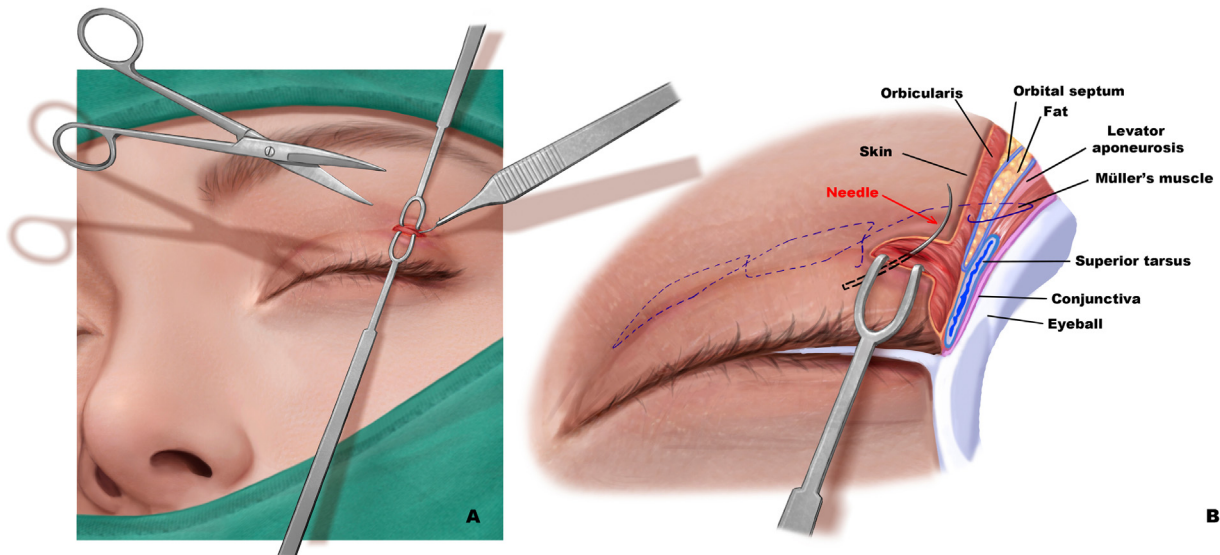


Fig. 1 An illustration of the percutaneous small incision method for needle removal surgery. A: based on the 3D-CT scanning results, an incision of usually 3-5 mm in length and parallel to the lid margin was made above or near the predicted location of the retained needle; B: the incision was stretched open and the wound was dissected by layers, following which, the needle (arrow) was explored and exposed to be found buried in the orbicularis. (Declaration: [Figure 1](#), commissioned by artist Ms. Zijun Du, is an illustration specially drawn for this article and has never been published anywhere else.).

From November 2016 to October 2017, six eyelids (5 upper eyelids and 1 lower eyelid) in 6 consecutive female Chinese patients (median 22 years old, 17 - 35) that received prior initial blepharoplasties and presented to the emergency unit were treated. All patients accepted their initial plastic surgeries either in a private cosmetic clinic (5/6) or at a friend's home (1/6). After needle retention occurred, most of them (5/6) spent no more than 24 h (median 8 h, 4 h - 5 days) to reach our emergency department. (Supplemental Table) In patient No. 1 and No. 2, efforts had been made to find the retained needle with no shorter than a 10 mm incision that was made by their operator during the initial surgery. However, without the aid of imaging, none of the operators succeeded in the needle exploration procedure.

Clinical features were collected, and all patients underwent slit lamp examination, visual acuity check, and three-dimensional computed tomography (3D-CT) scanning with volume rendered technique (VRT). Four patients (4/6) complained of little discomfort with regard the retained needle, and presented with mild swelling, without any fresh bleeding, which was seen equally in the operated eyelids of both sides. By 3D-CT scanning, a clear and exact image of the position was made, and one piece of the retained needle could be merged with VRT. All needles were shown to reside in the lateral part of the left-side eyelid.

Under local anaesthesia with the patient in the supine position emergently, all needles were removed successfully by minimally invasive surgery through the existing wound or a small cut (3-5 mm in length) by aesthetic approaches according to CT imaging ([Figure 1](#)). By exploring the layers, needles were found to reside in the orbicularis muscle in all cases with the exception of patient No. 4 (nailed in periosteum, Supplemental Figure1). There was no evidence of any buried sutures found around the needle. A compar-

ison of the length and one piece of the foreign body using the 3D-CT images was implied. In the case of patients No.2 and No.4, needles were broken and partially missing (Supplemental Figure2). All needles in the remaining cases were removed in an intact state of appearance.

All sutures were successfully removed at postoperative 1-week. And at postoperative 6-months, double eyelid or reposition of the lower eyelid exhibited an acceptable looking appearance without any complications.

There are several findings from this study that are worthy of note. Diagnosis of needle retention after blepharoplasty is based on histories, and aiding with 3D-CT scanning is recommended to locate the foreign body fragments. In regard to the intervention, small incisional surgery with an aesthetic design according to the 3D-CT-assisted location is effective and essentially leaves no scars. Reports have shown that retained needles cause chronic irritation, chronic pain, organ injury, and even impairment or death.⁵ The retained needle should be removed as early as possible before the potentially devastating migration in the body begins.

Considering its infrequency and probability of a malpractice claim, instrument retention has been less reported than its real incidence rate. Therefore, the infrequency potentially limited the sample size of this study, which implies an imperfect representation of the disease. Besides, single centre study without comparison to control groups suggested possible selection bias.

For prevention, counting of the surgical objects during blepharoplasty should be performed without exception. In addition, we suggest that authentication, diagnosing facilities and certified surgeons at institutions practicing cosmetic surgery, is critically urged and should be supervised by the Government. Further studies on patient safety and a

validation system concerning plastic surgical procedures are demanded.

Declaration of Competing Interest

The authors have no conflicts of interest or financial disclosures related to this manuscript.

Acknowledgments

Many thanks to artists Ms. Zijun Du, who drew the illustration (Figure 1) for this article.

Ethics approval and consent to participate

The retrospectively designed study was approved by the local Ethics Committee and Institutional Review Board of Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, and followed the tenets of the Declaration of Helsinki. All patients accepted written informed consent before surgery.

Consent to publish

Written consent to publish related information in this article was obtained from all study participants. Proof of consent to publish from study participants can be requested at any time.

Funding

This work was supported by the Interdisciplinary Program of Shanghai Jiao Tong University (YG2016MS02), Science and Technology Commission of Shanghai (17DZ2260100), and National Key R&D Program of China (2018YFC1106100, 2018YFC1106101), and Fundamental research program funding of Ninth People's Hospital affiliated to Shanghai Jiao Tong university School of Medicine (JYZZ093).

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2022.08.016.

References

- Harathy S, Shikha G, Viney G. Retained intraocular surgical needle. *Ophthalmol* 2019;126:8.
- Atul AG, David MS, E John O, et al. Risk factors for retained instruments and sponges after surgery. *N Engl J Med* 2003;348:229-35.
- Jayadevan R, Stensland K, Small A, et al. A protocol to recover needles lost during minimally invasive surgery. *JLS* 2014;18 e2014.00165. doi:10.4293/JLS.2014.00165.
- Tsutomu M. Treatment of suture-related complications of buried-suture double-eyelid blepharoplasty in Asians. *Plast Reconstr Surg Glob Open* 2016 12;4:e839 [published Online First: August 2016]. doi:10.1097/GOX.0000000000000835.
- Casey JT, Lupo JE, Jenkins HA. Retained dental needle migration across the skull base to the cochlea presenting as hearing loss. *Otol Neurotol* 2015;36:e42-5. doi:10.1097/MAO.0000000000000690.

Yimin Li[#], Yue Xing[#], Xuefei Song, Xiuhui Yue
Department of Ophthalmology, Ninth People's Hospital
Affiliated to Shanghai Jiao Tong University School of
Medicine, No. 639, Zhizaoju Road, Shanghai 200011, China

Yixiong Zhou[†], Yefei Wang
Department of Ophthalmology, Ninth People's Hospital
Affiliated to Shanghai Jiao Tong University School of
Medicine, No. 639, Zhizaoju Road, Shanghai 200011, China
Shanghai Key Laboratory of Orbital Diseases and Ocular
Oncology, Shanghai, China

[#]These authors contributed equally to this paper and share the first author.

[†]These authors share senior author.

E-mail address: paper34@163.com (Y. Wang)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.016>

The effects of the face mask wearing on the surgical facial wounds healing during the COVID-19 pandemic



Dear Sir,

The coronavirus disease 2019 (COVID-19) is a viral infection caused by SARS-CoV-2, which spread around the world from December 2019 by registering about 433 millions of cases with 5,94 millions deaths around the world.¹ Despite advances in pharmacological treatments and the efficacy of the vaccine, the self-protection by the use of facemasks still remains the main way to prevent and control the spread of the infection and to reduce the transmission of the virus.

During this period, in Italy and in the majority of the other countries, the use of face mask was mandatory indoors and outdoors.

Imposing the world population to spend many hours of the day wearing the personal equipment. Therefore international authors have questioned the long-term effects of chronic use of the facemask: Cotrin et al. showed that the patients reported feel shortness of breath, feel discomfort in the ears due to the elastics, dermatitis/skin problems and esthetic issues.² Moreover, the authors of this paper have already previously demonstrated in a preliminary study³ the

Table 1 Surgical outcomes for parotid gland surgery, submaxillary gland surgery and condylar fractures surgery.

Parotid gland	No dehiscences	Dehiscences	Total
A (No Covid 19)	128	4	132
B (Covid 19)	99	17	116
Total	227	21	248
SUBMAXILLARY GLAND			
A (No Covid 19)	41	2	43
B (Covid 19)	25	6	31
Total	66	8	74
CONDYLAR FRACTURES			
A (No Covid 19)	34	2	36
B (Covid 19)	15	4	19
Total	49	6	55

Table 2 Surgical outcomes of total patients.

Group total	No dehiscences	Dehiscences	Total
A (No Covid 19)	204	10	214
B (Covid 19)	138	25	163
Total	342	35	377

correlation between the chronic use of face mask in patients who underwent to parotid surgery for benign neoplasia, with a preauricular approach, and the delay of surgical wounds healing. In fact, during the angiogenesis and maturation phases of the wounds healing, any trauma to the area of skin involved in surgery will cause the destruction of the small sprouting vessels of the dermis, resulting in a dehiscence.⁴

The aim of this study is to evaluate the correlation between delayed wounds healing and chronic face mask wearing and to verify if it is valid for other types of facial surgical wounds. In particular we evaluated if submaxillary gland surgery and mandibular condylar fractures surgery with an external cutaneous approach can be involved.

In the study, we enrolled 377 patients who were divided in three groups: Group 1) 248 patients treated for benign pathologies of parotid gland needing a superficial parotidectomy or extracapsular dissection of neoplasia; Group 2) 74 patients treated for benign pathologies of submaxillary gland needing a submaxillary sialoadenectomy (sialoadenitis or benign neoplasms); Group 3) 55 patients treated for condylar fractures with external cutaneous approach. For each group, the patients were further divided in two subgroups: A) patients treated before the pandemic (March 2018-March 2020); B) patients treated during the pandemic (March 2020-March 2022) and forced to wear the facemask.

The total obtained results of dehiscences in the different groups are shown in the [Table 1](#). In the [Table 2](#) is reported the group of totally of patients, regardless of the type of surgery.

We conducted a statistical analysis of the data, using a chi-square test (Microsoft Excel 16.16.27 Version), comparing in each group¹⁻³ and in the total patients, the dehiscences in the two subgroups (No Covid 19 and Covid 19). The obtained values of chi-square test were compared with the chi-square standard distribution tables.

We obtained that for the Group 1 the chi-square test value was 10.76; for the Group 2 the chi-square test value was 4.04; for the Group 3 the chi-square test value was 3.07; for the totally of patients the chi-square test value was 20.11. All the values resulted statistically significant and in particular the significance increases as the number of patients in the sample considered increases.

In conclusion we can say that our data confirm the correlation between chronic use of the face mask and delayed healing of facial surgical wounds. In particular, the possibility of dehiscence does not depend on the type of surgery or the position of the surgical wound on the face, but depends on the rubbing trauma caused by the face mask.

To reduce the risk of wound dehiscence we strongly recommend the use of PPE masks with loop clips or extenders which appear to reduce this peculiar complication.

Funding

None declared.

Ethical approval

N/A.

Declaration of Competing Interest

None declared.

Acknowledgments

None.

References

- https://en.wikipedia.org/wiki/Template:COVID-19_pandemic_data
- Cotrin P, Bahls AC, da Silva DO, et al. The use of facemasks during the COVID-19 pandemic by the Brazilian population. *J Multidiscip Healthc* 2020;13:1169-78.
- Bonavolontà P, Troise S, Arena A, et al. The use of Personal Protective Equipment during the COVID-19 pandemic: the effects on surgical wounds healing after parotid gland surgery. *J Plast Reconstruct Aesthet Surg*. 2021;74(12):3443-76.
- Wang PH, Huang BS, Horng HC, Yeh CC, Chen YJ. Wound healing. *J Chin Med Assoc* 2018;81(2):94-101.

Paola Bonavolontà
Stefania Troise
Giovanna Norino
Vincenzo Iaquino
Vincenzo Abbate
Luigi Califano

Department of Neurosciences, Reproductive and
Odontostomatological Sciences, Maxillofacial Surgery
Unit, Federico II University of Naples, Via Sergio Pansini,
5, 80131 Naples, Italy

E-mail address: paola.bonavolonta@unina.it (P. Bonavolontà)

Buccal fat pad interposition in modified small double-opposing Z-plasty palatoplasty using medial incision approach: A technical note



Dear Sir,

Bleeding, mucosal tearing, greater palatine artery avulsion, and closure under tension are examples of surgical-related obstacles which could impair the avoidance of fistula formation after primary palatoplasty.¹ We describe the use of pedicled buccal fat flaps (BFFs) as an intermediate layer of soft tissue closure, placed between the teared nasal lining and intact oral mucosal layer, for strengthening the mucosal repair in modified Furlow small double-opposing Z-plasty (DOZ) palatoplasty using a recently proposed medial incision approach.

Five non-syndromic 9-month-old children (3 girls) who presented with Veau I and II cleft palates were repaired by the first author. The procedure initially proceeded as expected using the medial incision approach² for successful dissection of the pyramidal space³ and elevation of the hard palate mucoperiosteal flaps. Three clinical situations compromised the continuity of the nasal layer of repair: mucosal tearing during elevation of the nasal lining from the nasal side of the hard palate (n=2); insecurity of nasal Z-plasty during transposition (n=2); and incomplete mucosal closure at the transition between soft and hard palate (n=1). Bilateral BFFs (**Figure 1**) were then harvested to reinforce these tenuous repairs with nasal mucosal defects. A submucosal tunnel was meticulously created posterior to the left-sided maxillary tubercle using a delicate curved scissors (**Supplementary Figures 1 and 2**). Starting from the dissected medial region, the submucosal tunneling continued laterally across the surface topography of the pterygomandibular raphe and then anteriorly until exposure of the buccinator muscle. By spreading the scissors tips, the buccinator muscle was bluntly opened exposing the buccal fat pad. Using gentle pull with forceps, the BFF was harvested with preservation of an intact vascularized base. The procedure was repeated in the opposite side. The nasal-sided closure was completed. The BFFs were spread and fixed (Polyglactin 910 4-0) in the repaired nasal surface with minimal tension. The oral-sided closure was then concluded.

Subsequent comparative and noncomparative investigations have demonstrated improved outcome of small DOZ palatoplasty with low fistula and velopharyngeal insufficiency rates and enhanced maxillary development.²⁻⁵ The newly described surgical procedure using medial incision approach has reduced the use of lateral palatal incisions with no increase of complication.² This method was applied to repair Veau I and II cleft palates. By thorough dissection of the pyramidal space to release tension, the palatal flaps could be freely mobilized medially to achieve a tension-free closure with no need for lateral incision. Small DOZ with overlapping of the cleft muscle mass restored a physiologically appropriate velopharyngeal muscular sling for speech production. The association of a very-thin mucous tissue plus tearing of the nasal mucosa during tissue manipulation raised the need for strengthening of the mucosal reconstruction by inclusion of an intermediate layer of vascularized fat tissue between the nasal lining and the oral layer. A successful mucosal healing was observed with no compromise of palatal flap viability as well as with no infection, wound dehiscence, fistula formation, or parotid duct obstruction. Acellular dermal matrix is a valuable option for similar condition, but it could increase the total cost of care. Buccal myomucosal tissue is a precious autogenous option, but its use could be considered as contrasting to the concept of medial incision approach with reduced use of lateral incisions. The growing body of evidence³⁻⁵ supporting the BFF and its proximity to the surgical field were key factors considered when choosing this additional vascularized autogenous flap during the intraoperative surgical decision-making process.

In the cleft-focused literature, the pedicled BFF has been harvested from the lateral palatal incision under direct visualization of anatomical structures.³⁻⁵ In this report, bilateral BFFs were harvested through the medial incision only with aid of a 2.5× loupe magnification, headlighting, delicate hook-assisted maneuvers, and angulation of surgeon's head. Through the precise creation of a submucous tunnel, the buccinator muscle could be meticulously opened for harvesting of the BFF with no interference on the surgical steps which have regularly been used in the adopted palatoplasty method.^{2,3} In-depth application of topographic anatomy concept was primordial in the surgical execution as accurate recognition of specific anatomical landmarks, surfaces, and regions on the palate and surrounding structures was of utmost importance to avoid disruption of the important elements such as superior pharyngeal constrictor muscle and tensor muscle and aponeurosis. The described surgical maneuver could be expanded to other palatoplasty-related situations.

Postoperative evaluations (**Supplementary Figure 3**) of the reported children have shown no nasal regurgitation, fistula, hearing abnormality or respiratory compromise, and age-appropriate speech with no signs of hypernasality or nasal air emission; but the 16 to 22-month follow-up is short to draw a conclusive answer about the final speech and maxillary growth development.

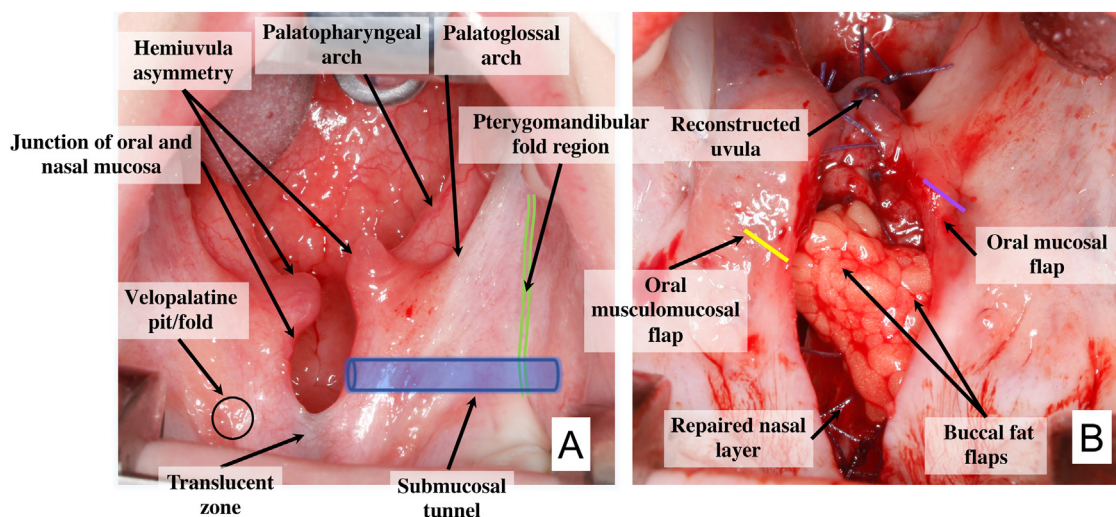


Figure 1 (A-B) Intraoperative images of medial incision small double-opposing Z-plasty with dissection of pyramidal space plus interpositional pedicled buccal fat flap. (A) The surface topography aided in the identification of the corresponding anatomical elements with the pterygomandibular raphe acting as a relevant structure. This raphe serves as an origin point for the buccinator and superior pharyngeal constrictor muscles, attaches superiorly to the pterygoid hamulus, and its surface topography can be inferred from the pterygomandibular fold. A submucous tunnel was meticulously created across the pterygomandibular fold until reaching the buccinator muscle (see **Supplementary Figures 1 and 2**). Through the submucous tunnel, the buccinator muscle and its fascia were bluntly opened until the exposure of the buccal fat pad. (B) The fat was grasped with a delicate forceps and gently teased out of the buccinator opening as external pressure was applied to the cheek region. Harvesting was completed incrementally until each flap crossed the midline at the junction of the soft and hard palates without tension.

Financial disclosure

None.

Ethical Approval

Not required.

Declaration of Competing Interest

There are no conflicts of interest to disclose.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.bjps.2022.08.018](https://doi.org/10.1016/j.bjps.2022.08.018).

References

1. Kobayashi S, Yabuki Y, Kokubo K, et al. A predictor of a post-operative fistula after double-opposing Z-plasty in bilateral cleft lip and palate patients. *J Plast Reconstr Aesthet Surg* 2022;**75**:1931-6.
2. Seo HJ, Denadai R, Pascasio DCG, Lo LJ. Modified double-opposing Z-plasty for patients with Veau I cleft palate: are lateral relaxing incisions necessary? *Medicine* 2019;**98**:e18392.

3. Jung S, Lo LJ. Dissection in the pyramidal space for effective relief of tension in cleft palate repair. *Ann Plast Surg* 2020;**84**:S54-9.
4. Denadai R, Chou PY, Lo LJ. Reinforcing the modified double-opposing Z-plasty approach using the pedicled buccal fat flap as an interpositional layer for cleft palate repair. *Cleft Palate Craniofac J* 2021. doi:[10.1177/10556656211064769](https://doi.org/10.1177/10556656211064769).
5. Lo CC, Denadai R, Lin HH, et al. Favorable transverse maxillary development after covering the lateral raw surfaces with buccal fat flaps in modified Furlow palatoplasty: a 3D imaging-assisted long-term comparative outcome study. *Plast Reconstr Surg* 2022;**150**:396e-405e. doi:[10.1097/PRS.00000000000009353](https://doi.org/10.1097/PRS.00000000000009353).

Rafael Denadai
Plastic and Cleft-Craniofacial Surgery, A&D
DermePlastique, Sao Paulo, Brazil

Lun-Jou Lo
Department of Plastic and Reconstructive Surgery, the
Craniofacial Research Center, Chang Gung Memorial
Hospital, Chang Gung University, Taoyuan, Taiwan
E-mail address: denadai.rafael@hotmail.com (R. Denadai)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.018>

Regarding the “cleft screening questionnaire”



Dear Sir,

We read the recent the article titled “The Cleft-screen-questionnaire (CSQ) - A validated screening instrument for health-related quality of life in cleft patients” with interest and commend the authors for their efforts to improve measurement here.¹

Patient reported outcome measures (PROMs) are rapidly improving in the field of plastic surgery, and particularly in the care of people born with a cleft lip and/or palate. Recent advances include the development of new outcome measures,² and the application of computerised adaptive testing to reduce burden of completion.³ Furthermore, the International Consortium for Health Outcomes Measurement (ICHOM) Standard Set may help standardise measurement in cleft lip and/or palate research and clinical practice.⁴

The methods used in this paper have raised some queries. It would be reassuring if the authors could confirm that they have not breached copyright law by modifying and publishing items from questionnaires that are protected by licensing agreements? This has implications for readers who may then use the newly developed tool.

There are areas where the methodology involved to date may require further clarification, or where further work may be needed to demonstrate the properties of the proposed tool. While efficient research is commendable, we challenge the statement “a further validation process, e.g., patient interviews or calculating impact scores of the questions could be dispensed with, since all questions have already been tested and validated previously”. Validity is complex, involving many aspects. One cannot assume that these questions would work well together as a questionnaire, particularly since the response options have been modified, and they have now been applied as proxy and dyadic health measures (capturing the parents’ or carers’ perceptions in addition to the patients’). We would argue that this tool should be subject to the rigorous validation standards outlined by the COnsensus-based Standards for the selection of health Measurement Instruments (COSMIN).

It would be useful to understand if statements such as “the newly developed CSQ provides a combination of the most important domains and items of several validated questionnaires in one single screening tool” can be substantiated by qualitative research with people who have a lived experience of cleft lip and/or palate.

It is not clear whether the authors are aiming to develop a unidimensional measurement scale, or a symptom checklist (for which dimensionality would be less important). Exploratory factor analysis (EFA) and principal component analysis (PCA) have been conflated, and we propose that PCA has been applied where EFA would probably have been preferable.⁵

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plasty.

We understand the authors’ desire to produce a low-burden screening tool, and that this does not necessarily require excellent psychometric performance. However, this is important and should be explored together with expert questionnaire developers, robust methods, and in line with all necessary licensing agreements.

Declaration of Competing Interest

None

Acknowledgments

Conrad J. Harrison is funded by a National Institute for Health and Care Research (NIHR) Doctoral Research Fellowship (NIHR300684) for this research project. Jeremy N. Rodrigues is funded by a NIHR postdoctoral fellowship (PDF-2017-10-075). This document presents independent research funded by the NIHR. The views expressed are those of the authors and not necessarily those of the CIHR, the NHS, the NIHR or the Department of Health and Social Care.

Ethical approval

Not required

References

1. Sander AK, Dietrich L, Kloss-Brandstätter A, et al. The Cleft-screen-questionnaire (CSQ) - A validated screening instrument for health-related quality of life in cleft patients. *J Plast Reconstr Aesthet Surg* 2022 Apr 27 Epub ahead of print. PMID: 35610102. doi:10.1016/j.bjps.2022.04.040.
2. Klassen AF, Riff KWW, Longmire NM, et al. Psychometric findings and normative values for the CLEFT-Q based on 2434 children and young adult patients with cleft lip and/or palate from 12 countries. *CMAJ* 2018;190(15):E455-62. doi:10.1503/cmaj.170289.
3. Harrison CJ, Geerards D, Ottenhof MJ, et al. Computerised adaptive testing accurately predicts CLEFT-Q scores by selecting fewer, more patient-focused questions. *J Plast Reconstr Aesthet Surg* 2019;72(11):1819-24. doi:10.1016/j.bjps.2019.05.039.
4. Allori AC, Kelley T, Meara JG, et al. A standard set of outcome measures for the comprehensive appraisal of cleft care. *Cleft Palate Craniofac J* 2017;54(5):540-54. doi:10.1597/15-292.
5. Martin CR, Savage-McGlynn E. A ‘good practice’ guide for the reporting of design and analysis for psychometric evaluation. *J Reprod Infant Psychol* 2013;31(5):449-55. doi:10.1080/02646838.2013.835036.

MB Maryam Borumand
University of Buckingham Medical School, Buckingham,
United Kingdom

CH Conrad Harrison
Nuffield Department of Orthopaedics, Rheumatology and
Musculoskeletal Sciences, University of Oxford, Oxford,
United Kingdom

JR Jeremy Rodrigues
 Department of Plastic Surgery, Stoke Mandeville Hospital,
 Buckinghamshire Healthcare NHS trust, United Kingdom
 Warwick Clinical Trials Unit, Warwick Medical School,
 University of Warwick, Coventry, United Kingdom
 E-mail address: 1800479@buckingham.ac.uk (M.M.
 Borumand)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.022>

Modified submandibular mandibulotomy approach without lip-splitting in tongue cancer



Dear Sir,

Surgical resection remains the mainstream treatment for the management of tongue cancer, along with radiotherapy or chemoradiotherapy. Good access to the tumor for adequate three-dimensional R0 resection is the key surgical procedure for the good patient survival of tongue cancer. The lip-splitting mandibulotomy (LSM) approach gains full access to all areas of the oral cavity and oropharynx.¹ But LSM approach inevitably leads to facial scar and other complications. In 1990s, the mandibular lingual releasing (MLR) and visor flap (VF) techniques had been becoming alternative approaches in resection of oral cavity and oropharynx cancers, which avoided facial scar and other morbidities^{2, 3}. Surgeons appreciated non-lip-splitting approach because it can achieve both good tumor control and esthetic outcomes. So far, there are no guidelines regarding the surgical approach for oral cavity and pharynx cancers. In order to balance margin clearance with better esthetic outcomes, we modified mandibulotomy with submental incision instead of lip-splitting incision in resection of tongue cancers and reconstructed with free flaps and evaluated clinical outcomes.

Forty-three primary tongue squamous cell carcinoma (TSCC) patients surgically treated with a MSMM approach from January 2016 to December 2019 were retrospectively reviewed in oral and maxillofacial surgery database of Sun Yat-sen Memorial Hospital, Sun Yet-sen University. For the MSMM approach of hemiglossectomy, an incision is made from mastoid to submental (Figure 1). Following neck dissection, the attached points of mylohyoid muscle to hyoid bone and mandible are transected. The midline of the anterior tongue is split and then the mandibulotomy is carried out. After the posterior segment of the mandible is



Figure 1 Modified submandibular mandibulotomy (MSMM) incision in resection and defect reconstruction of tongue squamous cell carcinoma (TSCC).

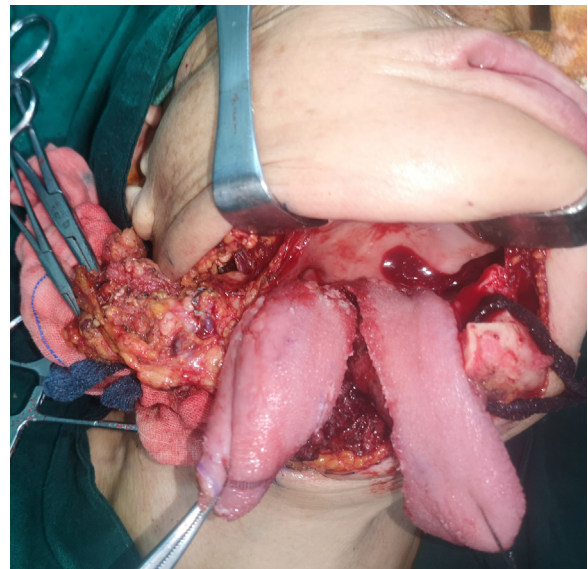


Figure 2 MSMM approach gains excellent tumor exposure and the tumor is safely resected with adequate margins.

retracted in a lateral upward direction, the anterior-split tongue is pulled out to the submandibular space with excellent tumor exposure and the tumor is safely resected with adequate margins (Figure 2). The surgical defect is reconstructed with a free flap. For the MSMM approach of subtotal glossectomy and glossectomy, the incision is made from mastoid to mastoid. The tongue is pulled out and is en bloc resected and defect reconstruction through the similarly previous procedure. MSMM approach showed good tumor exposure and all tumors were resected in an en bloc fashion with negative resection margins. The defects were reconstructed with free flaps.

The median follow-up time was 39 months. Eighteen patients (41.9%) received postoperative radiotherapy or radiochemotherapy. In follow-up period, one patient was

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plasty; MSMM, modified submandibular mandibulotomy.

found osteoradionecrosis. The local and regional recurrence, distant metastasis was 3/43 (7%), 1/43 (2.3%) and 2/43 (4.7%). Disease free survival of patients was 36 cases (83.7%). Patients were alive with disease and died of disease were 5 cases (11.6%) and 3 cases (7%).

Scar assessment was performed at 1, 6, 12 and 24 months after surgery. The observer from our clinician team and the patient scored the overall scars of lip, chin, submental and neck and then rated the overall disfigurement of the scars on a 10-point Likert scale. The scores at each time point were lower than 3, which indicated that the subjective and objective scar was good in MSMM approach and they have satisfactory facial appearance after surgery.

The surgical approach for resection of tongue cancer is highly variable and the optimal approach remains an open question. Both lip-splitting incision and non-lip-splitting incision can gain good tumor exposure. However, the anesthetic and functional outcomes are controversial^{2, 4}. This study performed a novel MSMM approach differed from previous non-lip-splitting approach for oncologic resection and defect reconstruction of different stage TSCC. Some surgeons worry that non-lip-splitting incision can't provide adequate tumor exposure which will lead to tumor recurrence and poor patient prognosis. However, this MSMM approach showed adequate three-dimensional tumor exposure and the en bloc R0 resection. The MSMM approach applied in this study is differed from previous non-lip-splitting approaches. Firstly, the incision of lip is transfer to submental region which will increase the width of visor flap and expose the mandible. Secondly, the mandibulotomy is easy to apply with this incision. Thirdly, transoral incision of oral floor and semi-tongue-splitting is performed before mandibulotomy. As previous reports, this study also showed similar tumor recurrence and patient prognosis of patients with TSCC. Thus, MSMM approach without lip-splitting is safe for oncologic resection of patients with TSCC.

The mandibulotomy in surgical treatment of oral and oropharyngeal cancer is controversial⁵. The tumor control and frequency of complications associated with this procedure varies in many studies. Previous study showed mandibulotomy approach provided superior local control and disease free survival compared to transoral resection without mandibulotomy in tongue cancers⁵. In our study, mandibulotomy approach was applied and this method gained adequate access to the tumor and provided optimal margin clearance. The complication rate of fistula and osteoradionecrosis of mandible was low in this study for adequate soft-tissue closure with flaps.

Overall, the MSMM approach without lip-splitting achieved satisfactory facial appearance, which is safe and effective in patient with tongue cancer underwent oncologic resection and defects reconstruction.

Ethical approval and patient consent

This study was approved by the Ethics Committee Board of Sun Yat-sen Memorial Hospital. Informed consent was obtained from all of the TSCC patients. Consent for photo publication received.

Funding

This study was supported by Guangdong Basic and Applied Basic Research Foundation (2019A1515011936 and 2021A1515010202).

Declaration of Competing Interest

The authors declare that there is no source of financial or other support or any financial or professional relationships that may pose a competing interest.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2022.08.074.

References

1. Rapidis AD, Valsamis S, Anterriotis DA, Skouteris CA. Functional and aesthetic results of various lip-splitting incisions: a clinical analysis of 60 cases. *J Oral Maxillofac Surg* 2001;59:1292-6.
2. Devine JC, Rogers SN, McNally D, Brown JS, Vaughan ED. A comparison of aesthetic, functional and patient subjective outcomes following lip-split mandibulotomy and mandibular lingual releasing access procedures. *Int J Oral Maxillofac Surg* 2001;30:199-204.
3. Cilento BW, Izzard M, Weymuller EA, Futran N. Comparison of approaches for oral cavity cancer resection: lip-split versus visor flap. *Otolaryngol Head Neck Surg* 2007;137:428-32.
4. Dziegielewski PT, O'Connell DA, Rieger J, Harris JR. The lip-splitting mandibulotomy: aesthetic and functional outcomes. *Oral Oncol* 2010;46:612-17.
5. Ong HS, Gokavarapu S, Tian Z, et al. Does a mandibular access osteotomy improve survival in pT2 oral tongue cancers? Retrospective study at a single institution. *Int J Oral Maxillofac Surg* 2018;47:289-95.

Youyuan Wang

Department of Oral and Maxillofacial Surgery, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, 107 Yanjiang West Rd, Guangzhou 510120, China
The Guangdong Provincial Key Laboratory of Malignant Tumor Epigenetics and Gene Regulation, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, China
Craniomaxillofacial Surgery Center, Sun Yat-sen University, Guangzhou City, China

Bin Zhou, Zhixin Liu, Tao Rui

Department of Oral and Maxillofacial Surgery, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, 107 Yanjiang West Rd, Guangzhou 510120, China
The Guangdong Provincial Key Laboratory of Malignant Tumor Epigenetics and Gene Regulation, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, China

Chaobin Pan

Department of Oral and Maxillofacial Surgery, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, 107 Yanjiang West Rd, Guangzhou 510120, China

Weiliang Chen
 Department of Oral and Maxillofacial Surgery, Sun Yat-sen
 Memorial Hospital, Sun Yat-sen University, 107 Yanjiang
 West Rd, Guangzhou 510120, China
 Craniomaxillofacial Surgery Center, Sun Yat-sen
 University, Guangzhou City, China
 E-mail addresses: [sumswangyy@163.com](mailto:sunswangyy@163.com),
wangyy78@mail.sysu.edu.cn (Y. Wang)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.074>

Sono-histological protocols of superficial tissues: A 'statuesque' approach for plastic surgeons



Dear Sir,

We have read with great interest the article recently published in your journal by Malagón et al.¹ The authors have studied the ability of a mixed group of physicians - i.e. 10 radiologists, 10 plastic surgeons and 10 medical students - to distinguish different layers of the superficial tissues and identify specific structures e.g. arteries, veins, nerves, and lymphatic vessels using ultrasound imaging.¹

The first interesting finding of the authors is the highest overall correct response rates, confidence, and intraobserver agreement reached by the radiologists.¹ We need to note that this would "simply" not be related to their greater experience with ultrasound imaging but also/especially to their training strictly based on standardized sonographic protocols. In this sense, the recently published EURO-MUSCULUS/USPRM * protocols - comparing the histological and sonographic architecture of the skin and superficial tissues - can be considered a practical as well as a comprehensive guide for plastic surgeons.²

The second interesting finding is the poor capacity of radiologists, despite their greater ultrasonography experience, to correctly identify the lymphatic vessels when compared to plastic surgeons.¹ Once again, we suppose that this result could also be related to the lack of standardized protocols in the pertinent literature - specifically focused on the lymphatic network. Likewise, detailed knowledge of the macroscopic architecture of the lymphatic system (already well-known by plastic surgeons) can perfectly be combined with the sono-histological standardized protocols^{3,4} to ac-

curately assess the multiple/different patterns of lymphatic diseases in daily practice.

In short, considering the mounting role of ultrasound examination as the natural extension of physical examination,⁵ we strongly believe that the incorporation of standardized protocols pertaining to the superficial tissues could be in the agenda of plastic surgeons or allied professionals in their teams.

Abbreviation

* European Musculoskeletal Ultrasound Study Group/ Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine

Authors' contributions

All authors have contributed to the scientific discussion, manuscript writing and editing.

Funding

None.

Availability of data and material

None.

Code availability

None.

Ethics approval

None.

Consent to participate

None.

Consent for publication

None.

Declaration of Competing Interests

None.

References

1. Malagón P, Hayashi A, Del Río M, Vilà J, García O, Carrasco C, et al. Improving the learning process of ultrasound in plastic surgery: how easy is to read ultrasound images? *J Plast Reconstr Aesthet Surg* 2022 Jun 28 S1748-6815(22)00416-8Epub ahead of print. PMID: 35831223. doi:[10.1016/j.bjps.2022.06.087](https://doi.org/10.1016/j.bjps.2022.06.087).

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plastyMSMM, modified submandibular mandibulotomyEURO-MUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group/Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine.

2. Ricci V, Ricci C, Cocco G, Donati D, Fari G, Mezian K, et al. From histology to sonography in skin and superficial tissue disorders: EURO-MUSCULUS/USPRM approach. *Pathol Res Pract* 2022;237:154003.
3. Ricci V, Ricci C, Gervasoni F, Andreoli A, Özçakar L. From histo-anatomy to sonography in lymphedema: EURO-MUSCULUS/USPRM approach. *Eur J Phys Rehabil Med* 2022;58:108-17.
4. Ricci V, Ricci C, Gervasoni F, Giulio C, Fari G, Andreoli A, et al. From physical to ultrasound examination in lymphedema: a novel dynamic approach. *J Ultrasound* 2022 Jan 9 Epub ahead of print. PMID: 35000129. doi:10.1007/s40477-021-00633-4.
5. Güvener O, Ricci V, Özçakar L. The mounting role of ultrasound examination in lymphedema evaluation. *J Plast Reconstr Aesthet Surg* 2022;75:893-939.

Vincenzo Ricci

Physical and Rehabilitation Medicine Unit, Luigi Sacco University Hospital, ASST Fatebenefratelli-Sacco, Milan, Italy

Orhan Güvener*

Mersin University Medical School, Department of Physical and Rehabilitation Medicine, Mersin 33343, Turkey

Levent Özçakar

Hacettepe University Medical School, Department of Physical and Rehabilitation Medicine, Ankara, Turkey

*Corresponding author.

E-mail address: dr.orhanguvener@gmail.com (O. Güvener)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.035>

An encounter with the first female Emirati plastic surgeon: Role models can be found in places where we are not always searching for them



Dear Sir,

A couple weeks ago, as we were gathering our documents getting ready to land after a long flight, a recently published article in your journal called our attention. *Health Equity and Healthcare Disparities in Plastic Surgery: What We Can*

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plastyMSMM, modified submandibular mandibulotomyEURO-MUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group/Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine.

Do by Khetpal et al. We were in the beginning of a research trip, to gather information about the role of women in medicine in the United Arab Emirates. In that publication the authors reflected about how to close the various disparities among plastic surgeons that impact care. One of the issues they discussed is how to provide for a more inclusive workforce by “Educational, research, community and recruitment efforts.”¹ These remedies spoke directly to the concerns of another article which highlighted: “the lack of female role models and mentors and a lack of gender diversity,”² in the plastic surgery practice.

It is necessary for progress in this area to define the disparities and strategize solutions, but we are afraid that if this is all that we do it depersonalizes the issue. Just a few days later into our trip, we had a compelling opportunity to meet in Dubai with the first female Emirati plastic surgeon Dr. Buthainah Al Shunnar. She is a modern day pioneer in her field and her country. Her impressive list of firsts actualizes the skills of purpose, high academic standards and dedication which distinguishes an excellent plastic surgeon. We spent the whole afternoon with her discussing history, her take on women in the profession and medicine in her country. It was a remarkable opportunity to see and ponder, why do we often wait till people are a statistic or a historical memory to tap into their ability to change and inspire? That is why we decided to pause the writing of our draft of the original research project and compose this letter.

The lack of representation of all diverse groups in plastic surgery practice, particularly women, is a very real phenomenon.³ Systemic efforts to incorporate women are certainly praiseworthy. Active and aspiring female plastic surgeons offer inspiration to other women who want to achieve high. The facts of Dr. Al Shunnar’s journey become a living lesson, as ingredients in the recipe for change.

From the moment we crossed the threshold into Dr. Al Shunnar’s clinic we were inspired by her attention to detail and esthetic taste. This was no perfunctory attempt at opulence, but rather a carefully crafted statement about her core values as a woman, an Emirati and a plastic surgeon. Behind her engaging smile we discovered a deeply humble person who embodies the legacy of her devoted mother, Dr. Zainab Kazim, the first female Emirati doctor who delivered over 18,000 children.³ It is not difficult to imagine what it took for her to become a Middle Eastern, female resident plastic surgeon at Johns Hopkins, this was indeed a first in that program. As an expat woman on her own in Baltimore in the early 90s this was no easy feat, but incredibly formative for the challenge of going where none of her countrymen had gone before.

To further demonstrate our point that role models are pivotal in the creation of opportunities for gender parity, Dr. Al Shannar attributed a large part of her success to her mentors. They were all male, something that reflects the state of the specialty at the time she studied but something she also noted as indicative of the collegiality she has mostly encountered among her peers in this career. Today her successful practice, numerous awards and medical excellence render her a true role model.⁴ Perhaps, the very same type that the Keane et al. article said was lacking. While many more like her in the plastic surgery field are needed, stopping to appreciate those like her that are already breaking down barriers is a worthwhile duty. When asked what she wanted

to tell other women she said: “There is a place for you in plastic surgery. To get there one must have clear goals, put in the hard work and yes, find a little bit of luck. I am not saying it is easy, but that it is possible.”⁵ She has become a successful woman in a society that is not always well understood by foreigners. She has worked hard but feels that a large part of this success is due to the example of her parents (both doctors), a country that has fully supported her dreams and colleagues that have her back. Her journey, persistence and love for perfection are catalysts that can inspire and engage other women to join the field.

Role of funding resources

No Specific Funding was obtained.

Ethical approval

Not required.

Declaration of Competing Interest

None.

References

1. Khetpal S, Lopez J, Redett RJ, Steinbacher DM. Health equity and healthcare disparities in plastic surgery: what we can do. *J Plast Reconstr Aesthet Surg* 2021;74(12):3251-9. doi:10.1016/j.bjps.2021.05.026.
2. Keane AM, Larson EL, Santosa KB, et al. Women in leadership and their influence on the gender diversity of academic plastic surgery programs. *Plast Reconstr Surg* 2021;147(3):516-26. doi:10.1097/PRS.0000000000007681.
3. Shahbandari S. *First Emirati doctors Honoured at 2nd Health Awards*. Gulf News; 2022 <https://gulfnews.com/uae/health/first-emirati-doctors-honoured-at-2nd-health-awards-1.2179506>.
4. Morris O. Meet Dr Buthainah Al-Shunnar the First Female Emirati plastic Surgeon, Emirates Woman. <https://emirateswoman.com/dr-buthainah-al-shunnar-the-first-emirati-female-plastic-surgeon/>
5. Oral interview conducted June 11, 2022 Dubai. UAE

Jorge Cespedes

Yale Comprehensive Epilepsy Center, Department of Neurology, Yale University, New Haven, CT, United States

Matthew Grady

Department of History, University of Memphis, Memphis, TN, United States

E-mail address: mgrady86@icloud.com (M. Grady)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.008>

Accelerated Medical School Curricula and Plastic Surgery Applicants: Balancing Financial, Research, and Clinical Considerations



Dear Sir,

In the last decade, three-year undergraduate medical education (UME) curricula have seen growing interest in the United States. These programs decrease student debt, accelerate training, and alleviate the growing physician shortage without compromising competency. The majority of three-year programs select pre-medical or first-year medical students committed to primary care. However, some schools offer conditional acceptance into any home residency program.¹ Given the challenges of traditional training pathways, plastic surgery should seek participation in these innovative educational programs.

The financial implications of accelerated UME are particularly salient for plastic surgery, which can require 10 years of training after college in traditional training pathways. In 2019, the AAMC reported a median cost of attendance for four-year UME programs of \$272,000, resulting in a median of \$200,000 in student debt.² Based on prevailing interest rates on federal direct education loans, \$66,612 in interest will accrue per year of tuition after a decade of forbearance during graduate medical education. By eliminating the fourth year of UME, this debt would be significantly decreased. Additionally, conditional acceptance into home residency programs also eliminates residency application costs, which may be upwards of \$10,000 in plastic surgery³. Although there has been progress towards reducing these costs, three-year programs continue to offer a distinct financial advantage.

Another important consideration is the impact of accelerated training on medical student research experiences. In recent years, research experiences have increased among students interested in plastic surgery, who often utilize dedicated months built into their school's curriculum or pursue dedicated research years. While these opportunities are excluded in three-year curricula, programs may compensate incorporating early dedicated mentorship that fosters research exploration. In this environment, students may feel encouraged to pursue more impactful but time-intensive research such as basic science and randomized-controlled trials.

There are several reasons why it may be argued that plastic surgery should not be integrated into three-year medical school programs. First, there is a lack of early exposure to plastic surgery for medical or premedical students. Three-year students would need to declare their specialty

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plastyMSMM, modified submandibular mandibulotomyEUROMUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group/Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine.

before or within the first school year, prior to when clinical and research exposure occur.⁴ However, other competitive surgical subspecialties (e.g., orthopedic surgery) have successfully joined multiple three year programs⁵ and it is feasible for plastic surgery to do the same. Another important concern is that students with socioeconomic advantages (e.g., a parent who is a plastic surgeon) would have disproportionate access to these programs, exacerbating well-documented systemic inequity in the field. Addressing such disparities would need to be a priority in developing integrated UME pathways. Lastly, early matriculation into plastic surgery residency will be limited by the ability for programs to determine suitability and maturity of applicants. Although we anticipate it would be the exception rather than the rule for a student to meet such standards, this should not be prohibitive.

Despite some potential drawbacks, three-year medical school programs offer several benefits to students and the specialty of plastic surgery. As these programs proliferate, the field should consider joining their ranks and involving their students.

Ethical approval

Not required.

Financial Disclosure Statement

N/A.

Declaration of Competing Interest

None.

Funding

None.

References

1. Cangiarella J, Fancher T, Jones B, et al. Three-year MD programs: Perspectives from the consortium of accelerated medical pathway programs (CAMPP). *Acad Med* 2017;**92**(4):483-90. doi:[10.1097/ACM.0000000000001465](https://doi.org/10.1097/ACM.0000000000001465).
2. Physician education debt and the cost to attend medical school: 2020 update. Accessed 2022. <https://store.aamc.org/physician-education-debt-and-the-cost-to-attend-medical-school-2020-update.html>
3. Sarac BA, Rangwani SM, Schoenbrunner AR, Drolet BC, Janis JE. The cost of applying to integrated plastic surgery residency. *Plast Reconstr Surg - Glob Open* 2021;**9**(1):e3317. doi:[10.1097/GOX.00000000000003317](https://doi.org/10.1097/GOX.00000000000003317).
4. Jarvis T, Aime V, Smith A. 23. The impact of early exposure to plastic surgery on medical student specialty choice. *Plast Reconstr Surg - Glob Open* 2021;**9**(25):13. doi:[10.1097/01.GOX.0000734996.96025.02](https://doi.org/10.1097/01.GOX.0000734996.96025.02).
5. Member Schools. Consortium of accelerated medical pathway programs. Accessed March 16, 2022. <https://www.acceleratedmdpathways.org/member-schools-1>

Sabrina Shih
Division of Plastic and Reconstructive Surgery,
Department of Surgery, Columbia University Irving Medical
Center/New York-Presbyterian Hospital,
New York, NY, United States

Joseph Mellia
Renaissance School of Medicine, Stony Brook University,
Stony Brook, New York, NY, United States

Alexander I. Murphy
Division of Plastic and Reconstructive Surgery,
Department of Surgery, Columbia University Irving Medical
Center/New York-Presbyterian Hospital,
New York, NY, United States

Brian C. Drolet
Department of Plastic Surgery, Vanderbilt
University/Vanderbilt University Medical Center, 1161 21st
Ave South, Room/Suite: D-4208B, Nashville, TN 37232,
United States
E-mail address: brian.c.drolet@vumc.org (B.C. Drolet)

© 2022 Published by Elsevier Ltd on behalf of British Association of Plastic, Reconstructive and Aesthetic Surgeons.

<https://doi.org/10.1016/j.bjps.2022.08.070>

Diversity and inclusion initiatives are infrequently featured among integrated plastic surgery residency program promotional YouTube videos



Dear Sir,

Correspondence

Integrated plastic surgery residency programs in the United States have increasingly adopted social media platforms. Specifically, previous literature has examined the role of Instagram in social media engagement.¹⁻³ These studies have offered appraisals of residency program social media profiles by examining post content, frequency, and engagement rate. YouTube is another social media outlet that programs have increasingly leveraged to engage with prospective residency applicants, especially in the wake of the COVID-19 pandemic, however residency use of this platform has not

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plasty; MSMM, modified submandibular mandibulotomy; EURO-MUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group/Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine.

Table 1 List of verbal and visual criteria included in content analysis (CA) score.

Criteria	Points Awarded
<i>Verbal</i>	
Description of clinical sites	1
Description of research opportunities	1
Description of diversity and inclusion initiatives	1
Description of service opportunities	1
<i>Visual</i>	
Footage of operating room	1
Educational space	1
Recreational space	1
Surrounding area	1
Video quality	
	760 DPI
	1080 DPI
	2160 DPI
<i>Total Possible Points</i>	10

yet been studied. Little is known about the prevalence or content featured in promotional videos on this platform, and factors contributing to video success are not well understood. We provide a content analysis of current videos and propose a novel scoring criterion for quality improvement of future media.

We directly queried YouTube using institutional names appended with permutations/abbreviations of the term, “plastic surgery”. Videos were identified and content analysis was performed. Number of views and likes for each video were normalized by date of upload and number of subscribers of the uploading channel. A 10-point content analysis scoring system (CA score) was created a priori with points awarded for various quality metrics. The scoring system was subsequently evaluated ad hoc for predicting video success. (Table 1).

Of 84 programs queried, 23.8% (20) had YouTube videos. Among programs with promotional videos, 75% (15) were published after onset of the COVID-19 pandemic. Mean length of video was 4:24 min (1:38-7:46), with an average of 128 (0-1900) likes per video. The program director and department chair were interviewed in 81% (17) and 48% (10) of videos, respectively. The median number of residents interviewed in each video was 3 (0-7). Statistics for each promotional video are listed in Table 2.

Residencies most frequently promoted operating room environments (65%) and breadth of clinical sites (65%). Educational spaces (60%), such as microsurgery labs or lecture rooms, and research initiatives (45%) were featured in roughly half of all videos. Half (50%) of videos included footage of the surrounding area, such as an urban downtown, nearby park, or other natural scenery. Fewer programs spoke about diversity or inclusion initiatives (15%), and even fewer (5%) mentioned service opportunities. These stand to be areas which programs might consider in their future video creation with the intent of crafting topically holistic videos.

On linear regression analysis, CA score was moderately predictive of video success, as measured by views and likes per day per subscriber. Specifically, videos with a high CA

score achieved a statistically significant increase in the number of views ($r = 0.50$, $p = 0.02$). There was also a moderate positive association between the CA score and the number of likes ($r = 0.40$), however, this failed to achieve statistical significance ($p = 0.08$). The average CA score for the cohort of videos was 3.3 (1-6) out of 10 possible points.

This is the first investigation pertaining to integrated plastic surgery program YouTube videos and provides a framework for programs to create successful promotional materials in the future. In the wake of virtual residency interviews, these videos have become a critical means for programs to engage and attract prospective applicants. Naturally, programs might seek to include the most relevant and intriguing information for these candidates. On content analysis, programs most frequently promote their operating room environments and breadth of clinical sites. Research initiatives and educational spaces were featured in roughly half of all videos. By contrast, a paucity of programs reference service opportunities or diversity and inclusion initiatives. These stand to be areas which programs might consider in their future video creation more strongly. Previous literature has remarked that diversity initiatives remain a challenge for integrated plastic surgery programs.^{4,5} Notably, we propose a novel, validated scoring system which may guide future content to be both holistic and successful.

This investigation has several limitations. Namely, one factor that may influence video success is the number of times a video is “shared.” Videos accumulating more shares may obtain a wider audience, therefore generating a greater number of views and likes. The YouTube platform at present allows video owners to view the number of times their video was shared; however, this statistic is unavailable to the public. Therefore, this component was unable to be included in our CA score algorithm. Another important consideration is that video views and likes may not necessarily be a proxy for what prospective applicants seek to gain from these videos. As YouTube is a public platform, these views and likes may be supplied by any internet user rather than integrated program candidates specifically. Therefore, there may be dyssynchrony between perceived success of a

Table 2 Video statistics and content analysis (CA) score for integrated plastic surgery programs with published promotional YouTube videos. Likes and Views per day per subscriber were multiplied by 10^6 for numerical readability.

Program	Date of Video Upload	Number of Subscribers	Number of Likes	Likes per day per subscriber	Views per day per subscriber	Number of Residents Featured	CA Score
Cooper Medical School	October 28, 2020	2650	1	0.07	24.8	0	2
Duke University	November 25, 2020	876	12	2.84	322.1	2	5
Eastern Virginia Medical School	March 9, 2022	3750	3	6.15	213.3	2	3
Emory University	July 22, 2020	1,16,000	45	0.06	4.7	4	3
Geisinger Health	September 16, 2020	632	12	3.44	74.2	3	1
Loyola University	August 4, 2020	28,500	10	0.06	8.3	7	3
Mount Sinai	December 11, 2020	30,100	66	0.47	40.8	1	3
Northwell Health	September 13, 2018	23,900	103	0.34	55	3	4
Southern Illinois University	October 16, 2014	9020	17	0.07	20.2	2	2
Spectrum Health	May 7, 2021	5750	0	0	5	0	3
University of California - Los Angeles	November 15, 2017	4,59,000	1900	0.26	68.1	3	5
University of California - San Diego	January 8, 2019	423	87	17.59	1601.9	4	6
University of Colorado	February 11, 2021	742	10	3.34	461.4	3	5
University of Florida	July 29, 2020	13,800	32	0.39	36.4	0	2
University of Kentucky	April 8, 2019	387	3	0.72	190.4	1	1
University of Michigan	August 31, 2017	1,42,000	174	0.07	9.8	4	4
University of North Carolina at Chapel Hill	November 11, 2020	807	9	2.25	262.3	4	3
University of Pennsylvania	December 20, 2021	44,500	34	0.83	29.5	2	5
University of Utah	October 13, 2020	727	30	7.86	558.3	4	3
University of Virginia	October 26, 2020	2240	15	1.31	186.9	6	3

promotional video and engagement among prospective applicants, which perhaps could be more properly measured by increases in the number of applications to a given program following upload of their promotional video.

Funding

None.

Ethical approval

Not required.

Declaration of Competing Interest

None declared.

References

- Chandawarkar AA, Gould DJ, Stevens WG. Insta-grated plastic surgery residencies: the rise of social media use by trainees and responsible guidelines for use. *Aesthet Surg J* 2018;**38**(10):1145-52. doi:10.1093/asj/sjy055.
- Chartier C, Chandawarkar AA, Gould DJ, Stevens WG. Insta-grated plastic surgery residencies: 2020 update. *Aesthet Surg J* 2021;**41**(3):372-9. doi:10.1093/asj/sjaa172.
- Irwin TJ, Ortiz R, Leto Barone AA, et al. Are all posts created equal? A review of academic plastic surgery residency programs' social media engagement statistics. *Plast Reconstr Surg* 2021;**148**(4):700e-702e. doi:10.1097/PRS.00000000000008379.
- Silvestre J, Serletti JM, Chang B. Racial and ethnic diversity of U.S. plastic surgery trainees. *J Surg Educ* 2017;**74**(1):117-23. doi:10.1016/j.jsurg.2016.07.014.
- Hernandez JA, Kloer CI, Porras Fimbres D, Phillips BT, Cendales LC. Plastic surgery diversity through the decade: where we stand and how we can improve. *Plast Reconstr Surg Glob Open* 2022;**10**(2):e4134. doi:10.1097/GOX.0000000000004134.

Luke Soliman
Carole Spake
Vinay Rao
Nikhil Sobti
Paul Liu
Albert S. Woo

Division of Plastic and Reconstructive Surgery, The Warren
Alpert Medical School of Brown University, Providence, RI
02903, United States

E-mail address: luke_soliman@brown.edu (L. Soliman)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.049>

Are we correctly assessing scapholunate injuries under arthroscopy?



Dear sir,

In their article, the authors compare the radiological and arthroscopic signs of scapholunate (SL) instability.¹ Currently, the European Wrist Arthroscopy Society (EWAS)/International Wrist Arthroscopy Society (IWAS) study group has developed a 5-stage classification (EWAS Classification), based anatomically on the sequential sectioning of the SL capsuloligamentary elements.² According to the EWAS, to note a difference between stages 4 and 5, it will be necessary to verify the presence or absence of radiological signs of SL instability such as an SL gap or a dorsal intercalated segmental instability deformity. Stages 3A, 3B and 3C are therefore not expected to have any visible radiological abnormalities.

In our opinion, the SL gap is not a contributing factor to radioscaphoid osteoarthritis as shown by Watson with his elliptical configuration of the two interlocking spoons.³ To ensure that the radiological signs and the assessment of the SL lesions under arthroscopy correspond, we compared their Scapholunate angle (SLA). The limit between stages 4 and 5 may seem thin and unspecific. Therefore, we performed this analysis initially on a personal series of 44 patients in stages 3A (three patients), 3B (12 patients), and 3C (29 patients). Two out of three patients in stage 3A had a SLA > 70° (66%), as did 11 out of 12 patients in stage 3B (92%), and 19 out of 29 patients in stage 3C (66%). In contrast, there were never any cases with a radiolunate angle (RLA) < -10°. Furthermore, we considered that in order to differentiate between stages 4 and 5, it was necessary for an SLA > 70° and an RLA < -10° to be considered stage 5.⁴

In total, we compared 68 patients who could be considered arthroscopically as stages 4 or 5. Twelve of them (18%) had altered RLA and SLA angles (stage 5), 42 of them (62%) had an SLA > 70°, and 14 of them had no radiological abnor-

malities. However, we do not believe that patients with SL instability at stages 3 or 4 will be treated differently based on whether or not they have radiological abnormalities.

From these observations, we can affirm that radiological abnormalities may be present even in stages less advanced than stage 5, and thus the EWAS classification does not fully represent the reality of sequential ligamentous section. Moreover, we can see that these radiological abnormalities do not follow a linear phenomenon in the evolution of the stages of chronic SL instability and can appear in any stage in a non-exponential way concerning the ALS. However, the appearance of an abnormality of the RLA appears during the most severe forms of SL instability. Although the study by Messina et al. found significant differences for SL gap and SLA,² we believe that the use of other angles (such as the radiolunate or posterior radioscaphoid angle⁵) seem more adapted and specific to SL instability at risk of osteoarthritis. These remarks go against this study reporting that the SLA seems more representative than the RLA.¹

Currently, there is no consensus on the standards of the different carpal angles and the correlation of the lesion visible under arthroscopy, and the radiological abnormalities are not yet clear from the literature. Further studies are needed to better understand the complex SL capsuloligamentous biomechanics and thus identify the indices of SL instabilities with high potential for wrist osteoarthritis.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethical approval

The local ethics committee approved the design of this study and stated this project does not infringe the French ethical rules and the privacy of patients.

Declaration of Competing Interest

The authors declare no funding and no conflict of interest related to this work.

References

1. Rachunek K, Springer F, Barczak M, Kolbenschlag J, Daigeler A, Medved F. An algorithmic diagnostic approach to scapholunate ligament injuries based on comparison of X-ray examinations and arthroscopy in 414 patients. *J Plast Reconstr Aesthet Surg* 2022;51748–6815(22)00281-9. doi:10.1016/j.bjps.2022.04.083.
2. Messina J, Van Overstraeten L, Luchetti R, Fairplay T, Mathoulin C. The EWAS classification of scapholunate tears: anatomical arthroscopic study. *J Wrist Surg* 2013;02(02):105-9. doi:10.1055/s-0033-1345265.
3. Watson HK, Brenner LH. Degenerative disorders of the wrist. *J Hand Surg Am* 1985;10(6):1002-6. doi:10.1016/S0363-5023(85)80025-3.
4. Lee KW, Bae JY, Seo DK, Kim SB, Lee HI. Measurement of carpal alignment indices using 3-dimensional computed tomography. *J Hand Surg Am* 2018;43(8) 771.e1–e7. doi:10.1016/j.jhsa.2018.01.003.

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plasty; MSMM, modified submandibular mandibulotomy; EURO-MUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group; Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine.

5. Gondim Teixeira PA, Rouizi K, Moustache-Espinola P, et al. Imaging assessment of dorsal scaphoid displacement in patients with scapholunate ligament tears: what is the best option for quantitative assessment? *Eur Radiol* 2022;32(5):3121-30. doi:10.1007/s00330-021-08446-z.

Jean-Baptiste de Villeneuve Bargemon
Hand, Wrist and Elbow Surgery, Saint Roch Private
Hospital, 99 avenue Saint Roch, Toulon 83100, France
International Wrist Center, Clinique Bizet, Paris, France

Christophe Mathoulin
Hand surgery and limb reconstructive surgery, Timone
Adult Hospital, Aix Marseille University, 264 rue Saint
Pierre 191 Boulevard Baille, Marseille 13005, France

Michel Levadoux
Hand, Wrist and Elbow Surgery, Saint Roch Private
Hospital, 99 avenue Saint Roch, Toulon 83100, France

Rémy Dubian, Charlotte Jaloux
Hand surgery and limb reconstructive surgery, Timone
Adult Hospital, Aix Marseille University, 264 rue Saint
Pierre 191 Boulevard Baille, Marseille 13005, France

Lorenzo Merlini
International Wrist Center, Clinique Bizet, Paris, France
E-mail address: jbdevilleneuvebargemon@gmail.com (J.-B.
de Villeneuve Bargemon)

© 2022 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.033>

Re: Correlation between tissue-harvesting method and donor-site with the yield of spheroids from adipose-derived stem cells



Dear Sir,

We applaud and appreciate the effort by Stefano and his team in assessing the association between tissue harvesting techniques and donor site variability in the yield of spheroids formed from adipose-derived stem cells.¹ While numerous other groups have examined adherent adipose-derived stem cells (ASCs), the authors' laboratory is one of

a handful of pioneers at the forefront of quantifying and characterising spheroids of ASCs. The extracellular matrix produced by these self-assembling ASCs spheroids makes the cells more resistant to mechanical stresses, preserving the stem cell microenvironment and allows for the use of microencapsulation delivery systems that enhances stem cells homing and long-term retention.^{2,3} The authors' study offers much-needed clarification on where and how to harvest adipose tissues to maximise spheroids yield, which is a significant step toward realising the full potential of mesenchymal stem cells (MSC)-spheroids in regenerative therapies.

Current regenerative medicine research knows no bounds. From stem cells therapy to cell bioprinting, scientists and plastic surgeons are eager to push the limits of possibility. In the novel field of spheroid culture system for ASCs, sequential improvement in our understandings on how stem cell behave in the three-dimensional space has led to innovations that aim to optimise ASCs spheroids functionalisation. To ensure that the results of such studies are safe and applicable to the bedside, it is essential to revisit and apply well-established experimental models and methodologies, to be used as both positive and negative controls. Consequently, we would like to bring up a few discussion points, not to challenge the authority of the authors but rather to serve as a learning opportunity for ourselves.

Firstly, as alluded to by the authors themselves, fat-harvesting technique could influence the yield of stromal vascular fraction (SVF) cells and ASCs.¹ Previous study by Iyanki and colleagues showed that Coleman's technique with centrifugation yielded more total stromal-vascular fraction (SVF) cells, but not ASC.⁴ They contend that larger shear stresses may be experienced by denser fat grafts obtained using Coleman's method during extrusion from the syringe, and that these stresses may have an impact on ASC yields.⁴ This raises the question of whether it would have been beneficial to also include quantification of spheroids generated from human adipose SVF as a comparison. Secondly, given that the authors chose to use the syringe-assisted Coleman technique, we would like to know how they managed the variability between the operators and the equipment used in performing the manual lipoaspiration.⁵ Thirdly, the classic Coleman technique recommends centrifugation at 3400 RPM for 3 minutes, and a prior work by Kim et al. found that 3000 RPM for 3 minutes is best for maximising fat cell viability.⁶ Therefore, we are interested in the authors' justification for choosing to centrifuge at 1500 RPM.¹

According to the authors' findings, there were no appreciable differences between age groups in the yield of spheroids of adipose-derived stem cells (SASCs).¹ We have some reservations regarding the validity of this conclusion. A recent Nature review article by Ou *et al.* (2022) summarised age-related changes with adipose tissue in terms of redistribution and composition, which happens in parallel with the functional decline of adipocyte progenitors and accumulation of senescent cells.⁷ Not only does advancing age increases visceral fat and reduces subcutaneous fat, it is also associated with a decline in ASCs proliferation and ASCs dysfunction, with deterioration begins around age 30, and most prominent at age 50.⁷ In light of this, we question whether further stratification of the age groups into incre-

Abbreviations: BFF, buccal fat flap; DOZ, double-opposing Z-plasty; MSMM, modified submandibular mandibulotomy; EURO-MUSCULUS/USPRM, European Musculoskeletal Ultrasound Study Group; Ultrasound Study Group of the International Society of Physical and Rehabilitation Medicine; ASCs, adipose-derived stem cells; MSC, mesenchymal stem cells; SVF, stromal vascular fraction; SASCs, spheroids of adipose-derived stem cells.

ments of ten, subcategorising the participants into younger or older adults, or separating the female participants into pre- or post-menopausal age groups would have been more appropriate. The wide age range of the participants may have skewed the results of this relatively small sample size and resulted in erroneous conclusion.

While we do not downplay Stefano and colleagues' efforts in travelling down an uncharted path to determine how donor site and fat-harvesting technique affect the quantity of SASCs extracted, we would like to see further characterisation of these ASCs, using cell quality evaluation with gene expression analysis, rather than purely counting the cells using a Burkert chamber.¹ It would be really interesting to see whether the donor sites and harvest methods affect the mesenchymal stem cell markers and their microRNA and mRNA profiles. In addition, we hope that the authors could consider providing more data regarding the cell stemness isolated with their methods, and how these changes with cell passage in 3D suspension, to provide us a hint about its possible application in later functional research.

Declaration of Competing Interest

None.

Funding

None.

Ethical Approval

Not Required.

References

1. Stefano ABD, Cammarata E, Trapani M, et al. Correlation between tissue-harvesting method and donor-site with the yield of spheroids from adipose-derived stem cells. *J Plast Reconstruct Aesthet Surg*.

2. Kapur SK, Wang X, Shang H, et al. Human adipose stem cells maintain proliferative, synthetic and multipotential properties when suspension cultured as self-assembling spheroids. *Biofabrication* 2012;4(2):025004.
3. Silva KR, Rezende RA, Pereira FD, et al. Delivery of Human Adipose Stem Cells Spheroids into Lockyballs. *PLoS One* 2016;11(11):e0166073.
4. Iyyanki T, Hubenak J, Liu J, Chang EI, Beahm EK, Zhang Q. Harvesting technique affects adipose-derived stem cell yield. *Aesthet Surg J* 2015;35(4):467-76.
5. Herold C, Utz P, Pflaum M, Wilhelmi M, Vogt PM, HO Rennekampff. Negative pressure of manual liposuction with Coleman technique is highly dependant on the position of plunger of the syringe. *J Plast Reconstruct Aesthet Surg* 2012;65(7):983-4.
6. Kim IH, Yang JD, Lee DG, Chung HY, Cho BC. Evaluation of Centrifugation Technique and Effect of Epinephrine on Fat Cell Viability in Autologous Fat Injection. *Aesthet Surg J* 2009;29(1):35-9.
7. Ou M-Y, Zhang H, Tan P-C, Zhou S-B, Li Q-F. Adipose tissue aging: mechanisms and therapeutic implications. *Cell Death Dis* 2022;13(4):300.

Jing Qin Tay*

Plastic, Burns and Reconstructive Surgery Department,
Salisbury District Hospital, Thames Valley/Wessex
Deanery, United Kingdom

Jing Shin Tay

Internal Medicine Department, Sultan Ismail Hospital,
Johor Bahru, Malaysia

*Corresponding author at: Plastic Surgery Registrar, Salisbury District Hospital, Thames Valley, Wessex Deanery.
E-mail address: jingqin.tay1@nhs.net (J.Q. Tay)

Crown Copyright © 2022 Published by Elsevier Ltd on behalf of British Association of Plastic, Reconstructive and Aesthetic Surgeons. All rights reserved.

<https://doi.org/10.1016/j.bjps.2022.08.030>