CORRESPONDENCE AND COMMUNICATION

Re: ‘Osmotic tissue expanders in cleft lip and palate surgery: a cautionary tale’

We read with some concern the letter from Rees et al. The authors report the disastrous complication of complete nasal soft tissue envelope necrosis. This followed an attempt to expand an area of ‘extreme shortage of skin following multiple previous operations for a cleft lip and nose’ using an Osmed osmotic expander.

We find it rather surprising that Rees et al. can point their finger at the device for such a catastrophic complication when a basic principle of tissue expansion — avoidance of donor sites compromised by previous scars or trauma — was clearly overlooked. In addition, when using a new device with unfamiliar characteristics, frequent review of the patient would seem sensible, particularly if the skin appears ischaemic ‘immediately following insertion’. We were therefore, rather confused by the comment that ‘once the tissue began to necrose there was no stopping the process without removing the expander’.

Self-expanders herald a new era of more precise, targeted tissue expansion, and are especially useful in paediatric facial reconstruction. The final size of the device can readily be controlled by customising its initial proportions and the speed of expansion can be controlled by modifying the composition of polymer. Clinical experience has been positive, with no tissue loss associated with any of these devices. We have used self expanders with uniformly good results in eight rhinoplasty patients, without ever seeing skin compromise. In summary, when used correctly, the technology is safe and represents a major leap forward in nasal reconstruction.

References


Stuart E. James
Martin H. Kelly
The Royal Marsden Hospital, Plastic and Reconstructive Surgery, Fulham Road, London SW3 7LL, United Kingdom
E-mail address: stuart.james@rmh.nhs.uk
Osmotic tissue expanders in cleft lip and palate surgery: a cautionary tale

We read with interest Kobus’ preliminary report of a two-stage cleft palate repair using self-expanding hydrogel tissue expanders, and would like to share a cautionary tale of our own experience using the same osmotic expander, resulting in tissue necrosis.

Kobus used OSMED (Ilemenau, Germany) osmotic tissue expanders placed under the mucoperiosteal layer of the hard palate to facilitate palate closure 24 to 48 h later. The expanders are designed to gradually swell by absorption, although the rate and time of expansion depends both on the available moisture and pressure within the tissue space. Kobus described an increase in the expander of up to fivefold, reaching 98% expansion by 24 h. The second stage operation was undertaken sooner if the tissues were cyanosed or pale, following rapid expansion. There was a high rate of postoperative fistula formation.

There is no control over the rate of expansion. Rapid expansion may place undue tension on tissues as we found to our cost in the case we present. The same osmotic tissue expander was used to expand skin over the nose to make up for an extreme shortage of skin following multiple previous operations for a cleft lip and nose. The intention had been to create a pocket large enough to accommodate a rib graft to achieve greater tip projection and augment the dorsum. The patient had had three previous operations, the last being with silastic struts that had been removed more than 2 years prior to our operation. We had seen a similar case of Binder’s Syndrome presented at a BAAPS meeting (Martin Kelly, personal communication).

Fig. 1 shows a bruised appearance 2 h following insertion of the expander (A). After 7 days massive expansion had caused the expander to break through the nasal mucosa and protrude from the nostril (B), with subsequent necrosis of the skin and destruction of the underlying nasal bones (C). In this case the previous multiple operations may have limited skin stretch, furthering the harmful

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Gerda Topar
Klaus Eisendle
Bernhard Zelger
Medical University Innsbruck,
Department of Dermatology and Venereology,
Anichstraße 35, AT-6020 Innsbruck, Austria
E-mail address: gerda.topar@i-med.ac.at

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Figure 1  Appearance immediately following insertion of the osmotic expander (A), and one week postoperatively with protrusion of the expander through the nasal mucosa (B) and tissue necrosis (C).
effect of rapid expansion. Following debridement the
defect was reconstructed with a forehead flap and subse-
sequently a rib graft was used to go some way to correcting
the situation with a far from satisfactory outcome for all
concerned.

Conventional tissue expansion is performed on a weekly
basis. More rapid expansion can be safe, however, to
achieve comparable tissue quality the final volume fol-
lowing rapid expansion may have to be maintained for
a longer interval. The concept of osmotic expansion
was appealing when compared to the alternative of a cus-
tom-made expander with a buried filling port. Previous
scarring may have restricted skin stretch with expansion
in our case. There was no control over the rate of
expansion, and once the tissue began to necrose there
was no stopping the process without removing the
expander.

We would advise caution in the use of osmotic expanders
in tight and cosmetically sensitive areas such as the face.
We acknowledge that we had not completely appreciated
the possible rapidity of expansion. Using a silicone enve-
lope to limit initial rapid expansion has been described. We also understand from others that burring down the ex-
pander to a smaller pre-expansion size proportional to
the ultimate size anticipated makes this a safer product
to use.

References


Leila Rees
Paul Morris
Per Hall
Department of Plastic and Reconstructive Surgery,
Addenbrooke’s Hospital, Cambridge CB2, UK
E-mail address: leilarees24@hotmail.com

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