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Letter to the Editor

Re: Patient-specific sub-periosteal zygoma implant for prosthetic rehabilitation of large maxillary defects after oncological resection

In the article by Vosselman et al., ''Patient-specific sub-periosteal zygoma implant for prosthetic rehabilitation of large maxillary defects after oncological resection''[1], the authors did not make use of the piriform aperture frame, which otherwise would constitute two extra boney buttresses for solid screw fixation. Furthermore, the authors used a single implant. In 2011, I used a two-segmented sub-periosteal zygomatic implant in a 4-year-old patient with the same indications as those described in the recent report by Vosselman et al. (Figs. 1 and 2).

Because the right-sided implant was not supported vertically, shear forces and rocking caused it to fail, requiring replacement with a new one. The replacement implant was supported vertically, albeit weakly, by the palatal bone, which saved it from loosening again. The system has been functioning well now for 6 years since the revision surgery. The dentures have been remounted three times to keep up with growth (sagittal, vertical, and transverse).

My experience with that case subsequently led to the development of the concepts of the additively manufactured sub-periosteal jaw implant (AMSJI)[2]. My experience has taught me several key lessons. First, always look for extra vertical support (e.g., from the palatal bone, which was not done in the case described by Vosselman et al.)[1]. Second, as has also been advocated by Gellrich et al.[3], use extra fixation on the paranasal buttresses whenever possible (these were available but not used in the case described by Vosselman et al.)[1]. Third, make biofunctionalization towards bone and soft tissues a priority (this was not addressed in the report by Vosselman et al.). Fourth, make it possible to disconnect each post from the basal loop in the event that peri-implant mucositis develops into peri-implantitis. In the demanding case described by Vosselman et al., it is likely that loosening of the implant or peri-implantitis at one buttress will lead to failure and loss of the system.

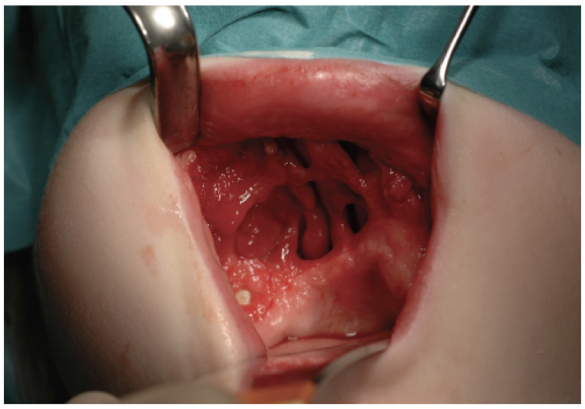

Fig. 1. Three-quarter maxillary defect in a 4-year-old child after resection of aggressive juvenile fibromatosis.

Fig. 2. Patient-specific titanium sub-periosteal zygomatic implants, with transgingival posts that cannot be detached from the endoprosthesis. This was the predecessor of the additively manufactured sub-periosteal jaw implant[2].

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Competing interests

Dr Mommaerts is innovation manager at CADskills bvba.

Ethical approval

Retrospective study—not applicable.

Patient consent

Written consent was obtained.

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