

acceptable stability in postoperative mouth opening

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O9.16

In vitro evaluation of the fixation properties of a biodegradable “free-form” osteosynthesis plate

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Background and Objectives: The Inion FreedomPlate™ “free-form” osteosynthesis plate is a biodegradable plate with just pilot holes for drilling which provides possibility to either create a countersunk for the screw heads on the plate as in conventional fixation or cut off the screw head along the surface of the plate. The aim of this study was to determine the fixation properties of the Inion FreedomPlate™ fixed with conventional countersunk screws and fixed with screws without screw heads, during the hydrolytic in vitro degradation of 26 weeks.

Methods: Acrylic pipes were fixed together with plates and screws for tensile test and plate was fixed with polyurethane block by a screw for plate-screw pullout test to measure the fixation properties. In the tensile and plate-screw pullout tests, the samples were loaded with a constant speed of 5 mm/minutes until failure of fixation. The yield load, maximum failure load and stiffness were recorded, and the failure mode was visually determined at time points of 0, 6, 9, 12, 20 and 26 weeks of hydrolytic in vitro degradation.

Results: The results of the study show that the both fixations of the free-form plate, i.e., conventional countersunk screws or screws without screw heads provide similar and sufficient postoperative fixation properties. Free-form plate, fixed with into-the-plate countersunk screws or fixed with screws without heads, retains most of its fixation strength up to 12 weeks.

Conclusion: No clinically relevant difference was found between fixations of the free-form plate during hydrolytic in vitro degradation of 26 weeks.

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Defect characteristics and type of reconstruction as predictors of swallowing following surgery

for advanced oral and oropharyngeal cancer

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Background and Objectives: Oral and oropharyngeal cancer and its subsequent treatment have a significant deleterious effect on an individual’s swallowing. The normal oral function, permitting consumption of a regular diet and protection of the airway, may be considerably reduced. Surgical management of oral and oropharyngeal tumours frequently necessitates reconstruction of lost tissues for oral continuity and for functional reasons. This reconstruction commonly involves free tissue transfer, and to a lesser extent regional pedicled tissue transfer. The aim of this retrospective study was to determine the level of swallow function in oral and oropharyngeal cancer patients at time of presentation and subsequently monitor the change in swallowing during and after primary surgery, and to correlate any such deficits to the site, the size and the volume of the primary tumour and to the reconstructive method utilised. The effect of postoperative radiotherapy (where employed) on swallowing was evaluated.

Methods: A retrospective assessment of the clinical notes and objective swallowing assessment data was made for a cohort of individuals diagnosed with oral or oropharyngeal cancer at Head and Neck Centre of University College Hospital London. The clinical notes and swallow assessment data of the cohort of 60 individuals treated between July 2005 and February 2007 were assessed for inclusion. Inclusion criteria for assessment in the study were stage III-IV oral or oropharyngeal malignancy who underwent surgery and subsequent reconstruction with either regional or free tissue transfer reconstruction with or without postoperative radiotherapy. In addition all individuals must have completed a 6 month postoperative course and had objective swallowing assessments at three specific time points spanning their treatment period (pre-operation, immediately postoperative and six months post-operation). Of those eligible for inclusion in the study 33 individuals met the criteria (20 men and 13 women). The mean age at time of presentation was 54 years 0 months (range, 24 years, 7 months–76 years, 7 months).

Results: The oral cavity and oropharynx was divided into four anatomical-functional areas: lateral (lateral floor of mouth, mandibular body or

buccal cavity—24%), anterior (anterior floor of mouth, inter canine segment of mandible—15%), Central (hemi-, partial- or total glossectomy—27%) and oropharyngeal (34%). Reconstruction varied according to size and composition of the defect and with respect to intrinsic patient features such as suitability for free tissue transfer. The most commonly employed methods were the radial forearm free flap and the fibular free flap which accounted for 61% of cases. The clinical case notes and swallow assessment data included information about patient demographics, tumour specifics (site, size and volume), treatment modalities and reconstructive methods used (fasciocutaneous, myocutaneous or composite flaps). The Functional Oral Intake Scale (FOIS), a seven point subjective swallow assessment was utilised to quantify the individuals swallow at the three distinct points in treatment (pre-operation, immediately postoperative and six months post-operation). By site, the central defects had a worse swallow outcome than other sites whilst lateral defects had better outcome swallows. Anterior and oropharyngeal defects had a broad spread of outcome FOIS scores. Across the treatment period, the average FOIS score for oropharyngeal defects deteriorated whilst the average FOIS score for individuals with anterior resections demonstrated a progressive improvement.

Conclusions: The results of the subjective and video swallow assessment are correlated to the site, the extent of the resection and the type of reconstruction. The site and the volume of the defect are independent factors influencing the final swallowing outcome whilst fasciocutaneous flaps correlate better with improved swallowing compared to myocutaneous or composite flaps. The role of postoperative radiotherapy is discussed.

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Comparison of three-dimensional microplate versus miniplate fixation on the stability of zygomatic complex fractures

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The zygomaticomaxillary complex plays a key role in the structure, function, and aesthetic appearance of the facial skeleton. It provides normal cheek contour