Advanced head and neck cancers that involve bony structures often require surgical removal of large segments of the oral cavity, including significant portions of the jaw or cheek. Reconstructing the resulting defects from these aggressive resections is essential to reconstitute not only facial form but also its function, such as swallowing, chewing, speech and breathing. Reconstruction is afforded by transplanting donor bone, muscle and skin from the patient’s own body to the resected region. Traditionally, the fibula or scapula are used and require multiple bony cuts in complex orientations to recreate the original 3-dimensional shape. Accuracy of the reconstruction has significant restorative implications and benefits to the patient’s quality of life. Currently the intraoperative approach is to manually reshape the donor bone to recreate the projection and contour of the defect. This process continues to be challenging and time consuming and may not result in an optimal reconstruction. To improve this process, patient imaging data can be used to create a reconstruction plan that is actualized through surgical cutting guides. We have developed an in-house semi-automated virtual platform that plans mandibular reconstructions from patient CT data, and generates cutting guide models that can be 3D printed. Over the last two years, we have been evaluating our platform clinically through a case series of twenty patients. Preliminary results suggest that our preplanning workflow significantly reduces ischemia time, promoting bone integration. We are taking post-operative scans of the patients to generate models through which we can assess geometric qualities.

Themes:

Check (highlight) the most applicable theme according to the abstract.

| Innovation and Technology | Health and Wellness | Culture and Society | Sustainability and Conservation |

Comments:

This is an excellent abstract on very interesting work that will appeal to all attendees. I don’t have much else to say. Very well done.

The only thing I might recommend is to add a sentence at the end that specifies what the talk will focus on. You only have 10 minutes, so you won’t be able to present everything you’ve done. Adding that sentence will help shape your talk.