Trumergence LLC

Protocol PCO-NzCT: Partially Dentate / CBCT+Optical / Noisy CT scan

Sometimes a CBCT scan can have an undesirable amount of artifact (noise) in it. Usually due to excessive metallic and zirconia restorations, this abundance of noise can actually prevent the merging of the patient's model to the CBCT scan data. When this is the case, we do need to use a scanning appliance that provides markers below the plane of the restorations', even though the patient has teeth.

Facilities / equipment needed:

- -CBCT Scanner
- -Desktop Optical Scanner or Intraoral Scanner
- -Vacuum Former

Items required:

For CBCT:

- 1) Cotton rolls
- 2) Suremark VF-20, V-20, or CF-23 marker tapes with dimensional ball
    - -We use the V-20   <— (Click to zoom)
    - -Here is a link to Suremark's site page with these products on it: [Suremark Dental Markers](#)
- 3) Vacuum formed shell with markers affixed to it

Clinically:

- 1) Plaster model of the arch in question.
- 2) Optional: Model of opposing arch if articulator setup is to be used for the waxup.

Procedure:

- -CBCT Scan (only one CT scan needed for this technique):
    - -Make a vacuum shell on the patient's model. Use the thinest material available. Trim it to extend as far apical into the vestibule as possible.
    - -Affix 4 or more radiographic stickers to the shell. Stick them on as low (apical) as you can.
    - -Have the patient wear the shell during the scan.
    - -If the patient's opposing arch has a removable prosthesis, he/she should be wearing it.
    - -Place cotton roles in the vestibule(s) adjacent to edentulous areas (⚠️ Important this is NOT optional with this technique!)
    - -Patient should bite on additional cotton rolls in the posterior quadrants. It is important that the patient NOT be in occlusion during the scan.
    - -Field of View (FOV) should be limited to the dental arch in question and extend

apical to just beyond the inferior border of the orbits (maxillary scan) or inferior border (mandibular scan).
- -Prepare CBCT scan for Export to Us:
  - -Ask the CBCT technician to give/send you files in one of these two formats:
    - -Standard DICOM SET (A folder with hundreds of .DCM files, one for each slice), or
    - -Anatomage Invivo (.INV file)
- -Optical Scan (There is a total of 3 optical scans for this procedure):
  - -Scans #'s 1 and 2: Use either of the following two optical scan protocols that are normally used for edentulous cases (Substitute "Vacuum Shell with Markers" for the scanning subject anywhere "Denture" specified, and, similarly, substitute "Unmodified Model" any time "Denture Model" is specified):
  - -Prepare the "Wax-Up" model:
    - -If the appropriate software is available, you can perform a virtual waxup.
    - -Otherwise, perform a physical waxup. ⚠️Important: If you are also modifying/waxing existing teeth on the cast, PLEASE make a duplicate of the master model first. And leave all the land areas intact; do not grind them off.
  - -Scan #3: Scan the waxed up model (or export the .STL file of the virtual waxup.
  - -Export all Three (3) model scans to .STL files.
- -   Upload:
  - -Go to our upload page and upload the Four (4) files (1 CBCT scan and 3 STL files).