RESULTS CONTINUED

METHODS & MATERIALS

Mid-Pupillary Inter-Lacrimal Distance

Endoscopic repair of medial orbital rim (MOR) fractures requires a knowledge of the normal distances between medial orbital rim structures. Our objective was to establish a standard of MOR dimensions based on bony landmarks which could be applied to the repair of these fractures.

INTRODUCTION

Endoscopic repair of naso-orbital-ethmoid (NOE), medial maxillary, and LeFort fractures allows reduction and plating of the medial orbital rim (MOR) fractures without a bicoronal incision, which is important when hardware can be placed under the skin (Figure 1). Short hair styles, or hair loss are factors. Limited exposure of an endoscopic procedure can be overcome by the use of intraoperative 3D scanning. See Figure 2. However, there are no bony standards for the normal distances between medial orbital rim structures. Our objective was to establish a standard of MOR dimensions based on bony landmarks which could be applied to the repair of these fractures.

RESULTS

In normal patients, the mean lacrimal fossa measurement was 23.8 mm ± 3.3 for males and 23.4 mm ± 2.9 for females. See Table 1. Operative Scanning after Endoscopic Repair of Medial Orbital Rim Fractures

Kelly Farley, BIS1; Aubree Neuville2; Farhad Ardeshirpour, MD3; Rick Odland, MD, PhD, FACS1,3

Otalaryngology – Head & Neck Surgery, University of Minnesota Medical School, Minneapolis, MN; Bethel University, Arden Hills, MN; Hennepin County Medical Center, Minneapolis, MN

Operative Scanning after Endoscopic Repair of Medial Orbital Rim Fractures

Kelly Farley, BIS1; Aubree Neuville2; Farhad Ardeshirpour, MD3; Rick Odland, MD, PhD, FACS1,3

Otolaryngology – Head & Neck Surgery, University of Minnesota Medical School, Minneapolis, MN; Bethel University, Arden Hills, MN; Hennepin County Medical Center, Minneapolis, MN

ABSTRACT

Objective: Endoscopic repair of medial orbital rim (MOR) fractures requires intraoperative three dimensional scanning to assess adequacy of repair. There are currently no bony standards for the normal distances between medial orbital rim structures. Our objective was to establish a standard of medial orbital rim dimension based on bony landmarks.

Methods: This is an observational, retrospective review of facial bone CT scans in adult patients (n=65) without MOR fractures who were seen at Hennepin County Medical Center over the last two years. Demographic information was collected. Two independent reviewers obtained measurements between the posterior border margin of the lacrimal fossa at the height of the level of the lacrimal fossa and the lateral orbital wall (OL). See Figure 3. A simple direct measurement of the distance between the level of the lacrimal fossa and the lateral orbital wall can be used to estimate the former. The coefficient of variance and mean absolute error were calculated. Inter-rater reliability and precision were also evaluated.

Results: The key bony dimension of MOR placement was found to be the distance between the depth of the lacrimal fossa (LF). In normal patients, the mean LF distance was found to be 23.8 ± 3.3 for males (n=30) and 23.4 ± 2.9 mm ± 2.5 for females (n=33). In nine endoscopically repaired male patients, the LF distance was 23.3 ± 2.0 mm. Conclusion: A standard bony dimension has been established and can be used in patients undergoing endoscopic repair of MOR fractures, for both intraoperative and postoperative assessment.

METHODS & MATERIALS

Operative Scanning Procedure

九 patients who had MOR fractures repaired with endoscopic assistance, and pre and post CT’s were available for review. The endoscopic technique is performed with a sublabial approach. The dissection is carried superiorly along the medial maxilla up onto the nasofrontal suture, being careful not to disturb the medial canthal tendon. A scope can be passed through the sublabial incision all the way to the nasofrontal suture. The medical canthal tendon can be identified, as well as the fracture sites. Once the... extending from the stable frontal bone down to the lower maxilla. The plate is passed from below, and once positioned, a stab incision is made over the site of the upper plate where the screw is to be placed. The hole is drilled,... obtained to assure reduction.

CONCLUSIONS

We propose that distance between the depth of the lacrimal fossa be the standard measure for assessment of MOR fracture repair.

This distance was 23.8 mm for males and 23.4 mm for females with relatively low variability.

A standard bony inter-lacrimal distance will be valuable for patients undergoing repair of MOR fractures in order to assess adequacy of reduction using intraoperative scanning while the patient is still anesthetized in the OR.

Patients with MOR fractures can be repaired with endoscopic assistance avoiding bicoronal or other large skin incisions, while achieving acceptable control of this fracture.

BIBLIOGRAPHY

