The Relation Between Bony Nasolacrimal Canal And Primary Acquired Nasolacrimal Duct Obstruction

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Abstract:

Introduction: Epiphora is a medical condition caused by primary acquired nasolacrimal duct obstruction (PANDO). It is often diagnosed in patients over 70 years of age and is at least 4 times more common in females. As life expectancy increases, the prevalence of epiphora will continue to increase and significantly affect quality of life. We propose to explore the effect of narrower bony nasolacrimal canal (BNLC) morphology on PANDO.

Method: This study used a hospital-based, retrospective case-control design with 584 participants grouped into PANDO patients and the control group. Morphometry of the bony nasolacrimal canal was measured by CT scan. The diagnosis of PANDO was confirmed by a blockage on the lacrimal irrigation test. The analyses were performed using Stata version 11.2. Statistical significance was defined as $p<0.05$.

Results: The average age of PANDO patients was 63.1±11.3 years, while the average age of control patients was 62.9±12.6 years. The BNLC's minimum transverse diameter was 3.67±1.96 mm on the PANDO side, 3.98±2.01 mm on the non-PANDO side and 4.03±1.12 mm for the control group. The distal BNLC transverse diameter was 4.39±1.21mm for the PANDO side, 4.33±1.32 mm on

the non-PANDO side and 5.11±1.25 mm for the control groups. The BNLC entrance transverse diameter was 4.36±1.59 mm on the PANDO side, 4.43±1.83 mm on the non-PANDO side and 4.69±1.61 mm in the control group.

Conclusions: A susceptibility for primary acquired nasolacrimal duct obstructions' development may result from narrower bone nasolacrimal canal shape. We detected a narrow distal bony nasolacrimal transverse diameter for both the PANDO and non-PANDO sides in unilateral PANDO patients compared with the control group.

Key words: *Elders, Primary Acquired Nasolacrimal Duct Obstruction, Bony Nasolacrimal Canal, Computed Tomography, Nasolacrimal Duct*