New Macroscopic Classification of Stapedio-Ovalar Otosclerosis: A Simplified Rating for Training in Stapedotomy

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Objective: To have a new macroscopic classification of otosclerosis based on appearance variations of the stapes footplate due to the disease and to determine if the color variations are correlated to a minor or major incidence of footplate complications.

Study Design: Retrospective study.

Materials and Methods: From January 2006 to December 2006, 106 patients affected by otosclerosis underwent surgery. Three revision procedures (1 primarily operated in our department and 2 elsewhere) were excluded from the study. We finally considered 103 surgical procedures. In all patients, the appearance of stapes footplate before removing superstructure was assessed to determine a simplified rating of stapedial otosclerosis. We then excluded from the study group 7 patients in which the footplate was not visible (obliterative otosclerosis). Finally, we considered 96 otosclerosis patients divided into 2 groups (Groups A and B) that differed only in footplate color. Group A included 74 otosclerosis patients with blue footplate (77%), and Group B included 22 otosclerosis patients with white footplate (23%). We planned a stapedotomy procedure for all patients of Groups A and B. The surgeon, anesthesia, approach, succession of surgical steps, and type of surgical instruments were the same in all patients. We estimated whether there is statistical correlation between the incidence of footplate complications (floating footplate and footplate fracture) and the color variations of the stapes footplate in Groups A and B.

Main Outcome Measures: Color footplate, incidence of footplate complications (floating and fractures footplate).

Results: The visible portion of stapes footplate before removing superstructure preserves the natural blue color in all its points in 71.84% of patients (n = 74). In 21.36% of patients (n = 22), the footplate appears white in all or in most of its extent. In 6.8% of patients (n = 7), the footplate was not visible because it was covered by massive otospongiotic tissue. Comparison of incidence of footplate complications between Groups A and B showed statistical significance. The incidence of footplate complications is higher in white otosclerosis than in blue otosclerosis.

Conclusion: Based on the appearance and, furthermore, on the color of the visible portion of stapes footplate, before removing superstructure, the authors have formulated a new classification of otosclerosis: blue otosclerosis (blue footplate), white otosclerosis (white footplate), and obliterative otosclerosis (nonvisible footplate). The advantage of this classification is that it consents, before making any manipulation on the stapes, a rapid and simple identification of the different degrees of difficulty of surgery: I degree, blue otosclerosis; II degree, white otosclerosis; and III degree, obliterative otosclerosis.

Key Words: Footplate color—Footplate complications—Otosclerosis—Stapedotomy training.