INTRODUCTION

Neo-stapedotomy is the Stapes surgery in otosclerosis with anatomical preservation of the stapedius tendon and incudostapedial joint. In the cases on whom it is possible to preserve the incudostapedial joint, which becomes a difficult job sometimes, it is named as “Classical Neo-stapedotomy”.

In some ears the head of the stapes is disconnected from the lenticular process during making the fenestration. In this situation, after finishing the stapedotomy, the head of the superstructure of stapes is brought back and kept attached with the lenticular process of the incus - stapedius tendon being attached in its original position. This is not considered by the author as the Classical Neo-stapedotomy. Gros A, Zargi M, Vatovec J (2000), reported to tie up the head of stapes routinely with the long process of incus by steel wire and opined that this elicits the acoustic reflex in the postoperative period. They have concluded that the patients with the preserved muscle had a higher noise discomfort threshold.

During the last two decades many techniques are described for the surgery of otosclerosis with the idea of improving the function of the middle ear conducting apparatus. In all these techniques, the stapedial tendon is routinely sectioned. This results in definite lowering of the protective function of the middle ear.

The author is performing this surgery with the preservation of the stapedius tendon and incudo-stapedial joint since 1991. Though preserving the stapedial muscle during the surgery for otosclerosis have been reported in the literature since 1986, yet the references available are not too many.

Portmann and Claverie (1958) reported a technique where they used to cut both the crus of stapes below the stapedius tendon and remove them, leaving the head and neck of the stapes connected to the long process of the incus. The space between the vein covered footplate fenestra and the long process of the incus was bridged with a wire prosthesis.

Karjalainen et al (1983) have reported stapes operation with preservation of the stapedius muscle tendon – with a follow up period of 8 years approximately. In 50% of their cases with preserved tendon stapedial reflex was elicited but in none with divided tendon. Revision surgery was performed in 13 out of 85 ears with an intact stapedial tendon for deterioration of hearing. Fixation of the stapedial crus at the oval window margin was observed in those ears. In spite of the better circulation of the stapes and the long process of the incus and of possible protection against loud noises, they do not recommend preservation of the stapedius muscle tendon.

Colletti et al (1993) have reported efficiency of “susceptance multiple frequency tympanometry” in diagnosing otosclerosis and the assessment of the resonance properties of middle ear in cases of different
types of stapedectomy. They have opined that stapes surgery abnormally reduces the stiffness of the tympano-ossicular system. This phenomenon is limited by preservation of the stapedius tendon, which confers a significant degree of stiffness on the conductive system.

Cause et al (1997) described a technique of preserving the stapedial tendon by cutting it as close as possible to its attachment. They advocated to remove the superstructure of stapes and apply the teflon piston connecting the long process of incus with the vein covered foot plate fenestra. The stapedial tendon was then attached to the piston and glued to it.

Silverstein et al (1999) have investigated the postoperative differences in hearing between patients who had their stapedius tendon sacrificed and whose stapedius tendon preserved during laser stapes surgery for otosclerosis. We have performed postoperative audiometric testing including tests to evaluate "hearing in noise" and to determine the "uncomfortable loudness level" (i.e. dynamic range). They have concluded that the stapedius tendon should be preserved whenever possible during stapes surgery. Rasmy (1986), Colletti et al (1988), Dubreuil et al (1990) and Colletti and Fiorino (1994) have also reported in favour of preservation of the Stapedial muscle.

This work aims to keep on record the technique of Classical Neo-Stapedotomy with preservation of stapedius muscle and incudo-stapedial joint in the surgery of otosclerosis and its beneficial effect.

MATERIALS AND METHODS
The present study included 500 patients (ears) with pure conductive deafness; mean age group is 33.5 years. All the cases were diagnosed as otosclerosis on the basis of the clinical features, audiometry and tympanometry. All the patients were operated by the author himself at the ENT departments of The Calcutta Medical College and Ramakrishna Mission Seva Pratisthan and Vivekananda Institute of Medical Sciences, Kolkata, from 1991 to 2000. The patients were divided in two groups for the comparative study; one group of 140 patients with preservation of the stapedial muscle and incudostapedial joint (Group - A) and another group of 360 patients where the stapedial muscle was cut (Group-B).

The fenestra was made preferably at the centre of the footplate with intact stapes, stapedius-tendon and incudo-

stapedial joint in all the patients. Histological examinations of the small pieces of footplate were made wherever it was available. Measured teflon piston was inserted into the fenestra and hooked to the distal part of the long process of the incus. (Fig-I and II). Crurotomy was done after the insertion of the teflon piston. In Group B patients the teflon piston was applied as it was done in Group-A. The tendon of the stapedial muscle was cut close to the pyramid and then the superstructure of the stapes was removed.

Pure tone and speech audiometries were done one month after the operation. The LDL for both pure tone and speech