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Permanent middle-ear aeration

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A METHOD using a flanged silicone-rubber (Silastic) tube inserted through a hole in the bony external canal, has been developed in an effort to create a permanent air-containing middle-ear space. This method, used since 1968, may be indicated when there is persistent and refractory malfunction or non-function of the eustachian tube in the following conditions: (1) chronic secretory otitis media; (2) chronic adhesive otitis media; (3) atrophic tympanic membranes that will not hold an indwelling pressure-equalizing tube; and (4) during or following tympanoplastic procedures for chronic suppurative otitis media.

Method

The skin of the external canal is injected with a 1 per cent lidocaine-epinephrine solution. A tympanomeatal flap is elevated exposing the middle-ear structures. The middle-ear effusion is aspirated. Using a right-angled instrument the lateral wall of the facial recess is palpated. If there is sufficient bony overhang, a hole is drilled beneath the bony annulus into the facial recess. Using a drill (Jordan-Day) with a 1·5 mm cutting burr, the bone of the posterior inferior canal wall is saucerized to the level of the bony annulus. Care is taken during the drilling to watch for the facial nerve which is posterior to this area. This nerve has not been encountered in any case, nor in drilling holes in this area in temporal bones in the laboratory. The flanged silicone-rubber tube is grasped with a cup forceps holding the flanges against the tube. The tube is inserted into the prepared bony tract and pushed in place with a spatula. As the flanges pass through the bony opening they will once again assume their original shape, and hold the tube in place. If the end of the tube is pulled as if to extract the tube, resistance is felt. With more forceful pulling the tube may be extracted from the hole. This tube is then irrigated with a mixture of polymyxin B, bacitracin-neomycin-hydrocortisone. The tympanomeatal flap is returned to its original position over the tube. Suction on the tube should result in movement of the drum inward. The tympanomeatal flap is held in place with small strips of silk and a small rubber sponge.

The packing is removed from the ear in one week. Patency of the tube can be ascertained either by applying suction at the end of the tube or by blowing air into it through an 18-gauge needle. If the tube becomes occluded with cerumen or mucous material it may be opened by introducing a stilette through the lumen of the tube.

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