

and BPG (34% increase), while the treatment with fibrin glue alone did not influence this parameter. BP with and without fibrin glue increased of 97% and 94% respectively the number of alkaline phosphatase (ALP) positive cells compared to the control. Finally BP determined the upregulation of transcription factors and component of the extracellular matrix.

*Conclusion:* The present data show that BP has a high osteoinductive potential on human OBs, enhancing their activity.

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#### Clinical analysis on surgery of middle ear cholesteatoma and chronic otitis media

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#### Learning Objectives:

*Objective:* To evaluate the choice of microsurgical treatment modalities and its clinical effect on middle ear cholesteatoma and chronic suppurative otitis media.

*Methods:* 110 cases with middle ear and mastoid lesions including middle ear cholesteatoma and chronic suppurative otitis media were analysed which performed canal wall up mastoidectomy or at the same time tympanoplasty and canal wall down mastoidotomy depending on lesion extent and followed-up, observed the ear recovery, complications, recurrence and postoperative hearing improvement.

*Results:* 110 cases including 66 cases of middle ear cholesteatoma, 44 cases of chronic suppurative otitis media, 51 canal wall up mastoidotomy, 46 cases simultaneously followed by tympanoplasty, 59 canal wall down mastoidectomy, Intraoperative finding as followed auditory absence of bone destruction 36 cases including 7 cases of chronic suppurative otitis media, 29 cases of middle ear cholesteatoma; 7 cases of complete auditory ossicles including 4 cases of chronic suppurative otitis media, 3 cases of middle ear cholesteatoma; facial nerve canal bone destruction 22 cases, brain palate damaged and meningitis exposed in 13 cases.

*Conclusion:* According to different lesions of middle ear and mastoid the specific disease in intraoperative, different operative methods can be used to obtain the corresponding clinical curative effect, the canal wall up mastoidectomy plus tympanoplasty, if indications mastered properly, the technical conditions permitted, can effectively keep the original middle ear mastoid anatomical structure and improve

hearing skill, and this surgery is feasible; if tympanoplasty cannot be used to a wide range of middle ear cholesteatoma, canal wall down mastoidectomy should be preferred in order to avoid recurrence and affect the efficacy.

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#### Analysis of Clinical characteristic of Simple congenital ossicular malformation and Ossicular chain reconstruction

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#### Learning Objectives:

*Object:* To study of simple congenital ossicular malformation clinical and audiological characteristics, and to discuss options to different auditory ossicles in ossicular chain reconstruction.

*Methods:* Ossicular chain malformations in 75 cases (79 ears) were studied involving 43 males and 32 females, aged from 6 to 57 years old (average  $23.5 \pm 14.5$  years old). There are four cases of bilateral conductive deafness and 71 cases of unilateral conductive deafness (39 left ears and 32 right ears). Results of preoperative audiometry showed that air-bone gap was  $38.7 \pm 14.5$  dB of speech frequency. We operated exploratory tympanotomy in 79 ears (4 cases of bilateral). Among them, ossicular chain reconstruction was performed in 71 cases, while in six cases not done because of facial deformity, and in two cases ossicle joints'activities were good after incudostapedial joint release.

*Results:* According to Teunissen classification (1993), we divided 79 ears into four groups, including 5 (6.3%, 5/79) ears of type I, 11(14%, 11/79) ears of type II, 47(59.5%, 47/79) ears of type III, 16(20.3%, 16/79) ears of type IV. 0.5 cases of type I were implanted with Piston. 11 cases of type II were implanted with Piston, including Kurz(3), Spiggle(5), Xomed(3). For type III, 23 cases were implanted with partial ossicular replacement prosthesis (PORP), including Kurz(6), TTP(5), Xomed(12); 2 cases were implanted with autologous incus; 20 cases were implanted with total ossicular replacement prosthesis (TORP), including TTP(7), Spiggle(2), Xomed(10), autologous incus(1); and 2 cases were performed with incudostapedial joint release. 10 cases of type IV had done oval window drill-out ossicular reconstruction, including 8 cases with Piston, 2 cases with TORP. The average air-bone gap was 21.5 dB in two weeks post-surgery.

*Conclusion:* Ossicular chain reconstruction with selection of different types of artificial ossicular is an effective method to improve hearing and decrease air-bone gap.