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Deafness Duration and Etiology as Prognostic Criteria in Cochlear Implantation

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Objective

To examine the impact of deafness duration and etiology on the outcome of cochlear implantation in adult patients receiving a cochlear implant (CI) at the Uppsala University Hospital between 2001 and 2012.

Methods

Retrospective study. Pre- and postoperative speech-perception levels (monosyllabic words) were analyzed in all patients (245) receiving a CI after the age of 17. One year postoperatively, 19 patients still scored 0 % in the speech perception test (group 1). These were compared with the 19 patients with the highest scores (group 2) at one year following surgery as regards to deafness duration and etiology.

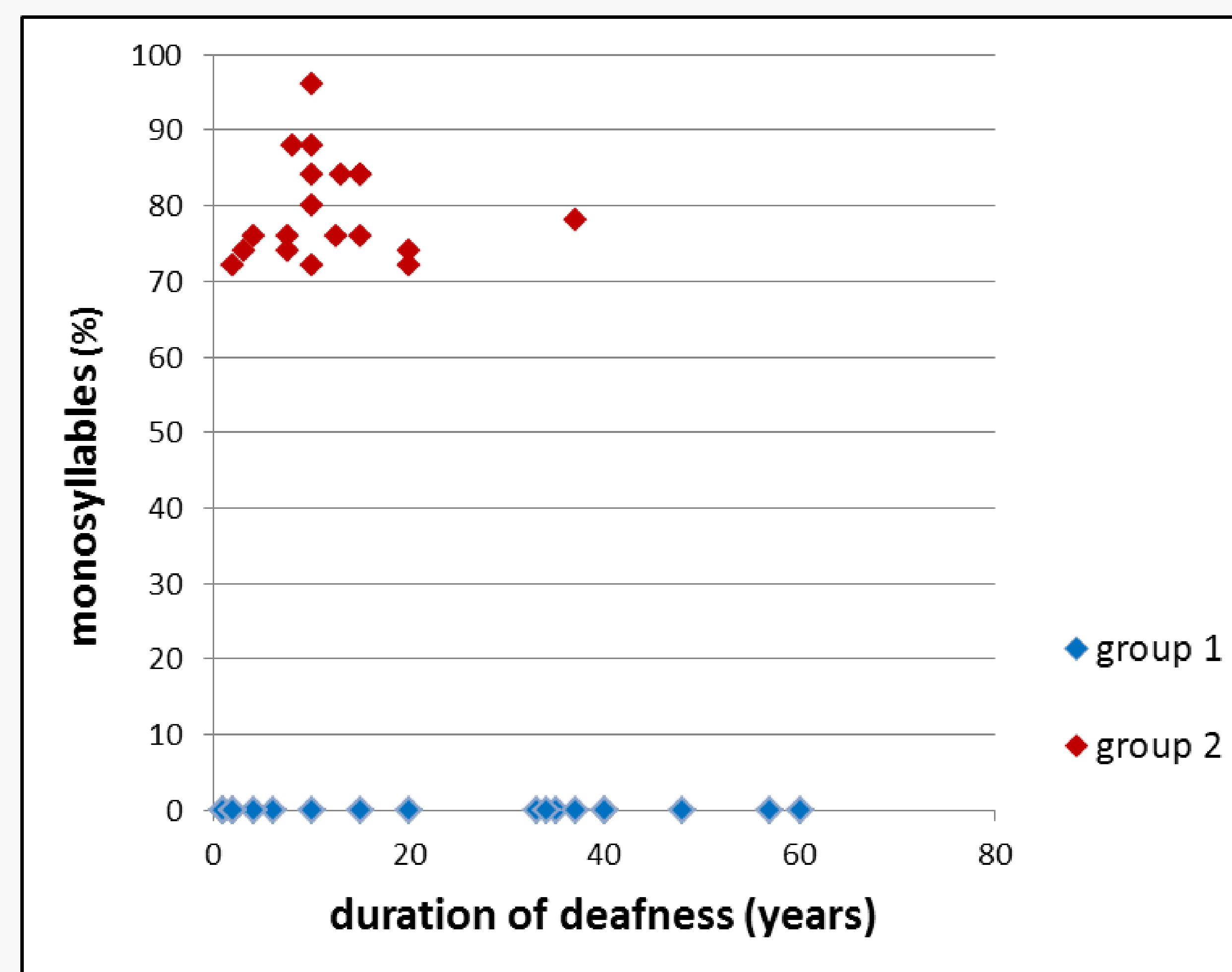


Fig 1: Duration of deafness before CI-implantation

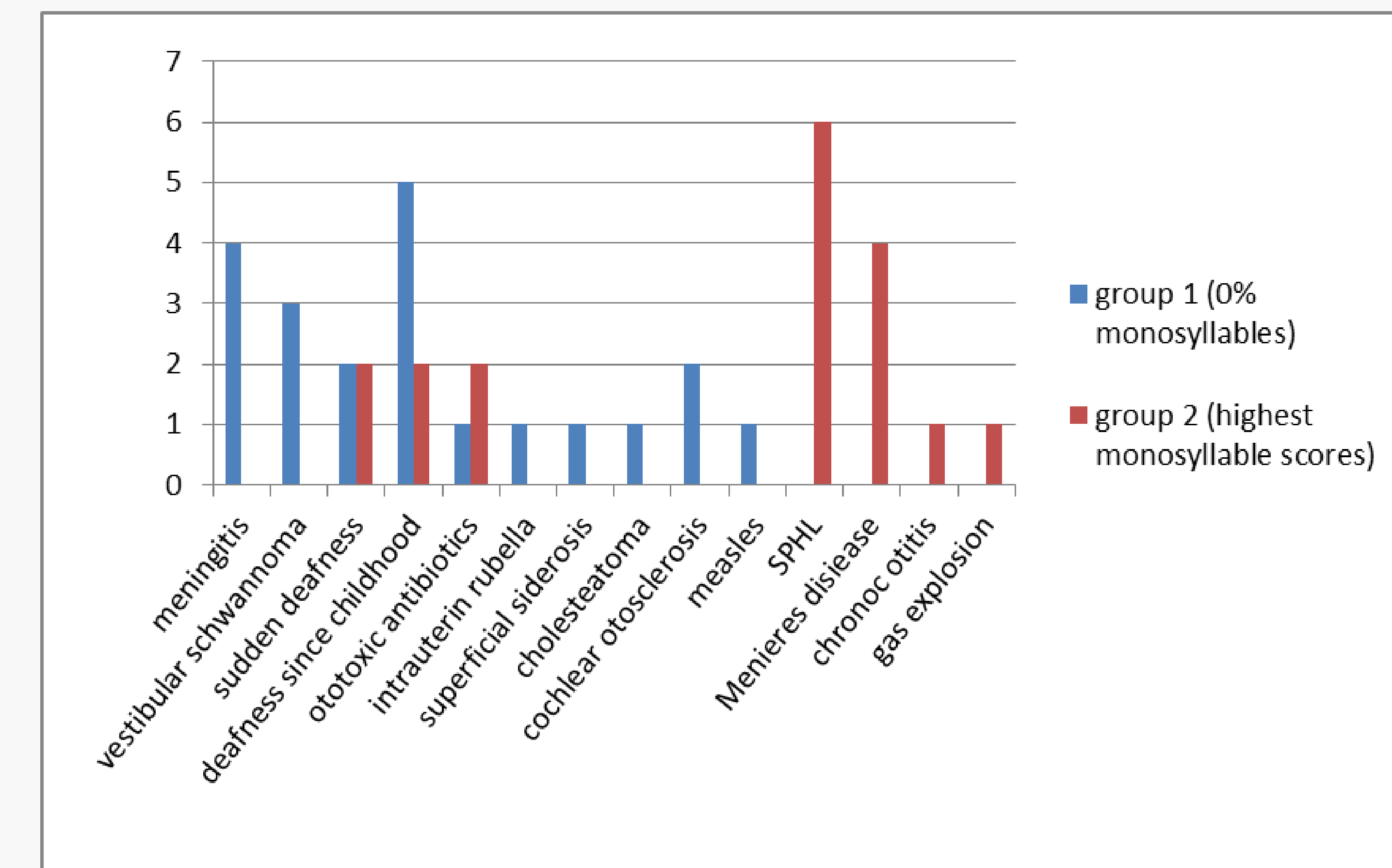


Fig 2: Etiology of deafness

Results

Patients scoring 0% at the monosyllabic word test had a mean deafness duration of 23.5 years (range 1-60), compared to 12.1 years (range 2-37) among the highest scoring patients (Fig 1). Corresponding results for the mean age at implantation was 63.4 and 61.6 years respectively. Diagnoses of vestibular schwannoma and meningitis were over-represented among patients with low speech-perception and Meniere's disease in the high scoring group (Fig. 2). All patients scoring 0% after implantation had scored 0% before surgery. Surprisingly, among the low scoring patients 3/19 were non-users, but 8/19 full-time users and 8/19 part-time users.

Conclusion:

This study corroborates earlier reports that long pre-operative deafness duration negatively influences the outcome of CI. However, results are highly variable within both groups. Most important seems to be the clinical diagnosis, that strongly correlated with CI outcome. Although a group of patients did not improve in post-operative speech perception, a majority expressed great benefit and satisfaction with the CI and only 16% were non-users. Hence, neither long deafness duration nor etiology can foretell CI outcome and be used as reliable exclusion criteria.



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